Research on Education
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Phenomenological Analysis of Student Views on Human Geography Lesson

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Abstract

It is important to evaluate the education given in the institutions where geography education is given at the higher education level and to get student opinions. In this age where information technology is developing and entering the education life day by day, it has been considered important to examine human geography education with new technologies and methods. The aim of this study is to analyze the views of geography students about the human geography course with the phenomenology design, which is one of the qualitative research methods. In this context, a semi-structured interview form consisting of three questions was prepared with expert opinion to be asked to the students. Due to Covid-19 outbreak restrictions, a university's geography department, which is at the west of Turkey, have asked questions to the students electronically and received their answers the same way. The answers to the questions in the interview form answered by the students were interpreted by coding and categorizing. According to the result of the research, it was concluded that the students' opinions about the human geography course were positive, that the students gave more priority to the population issue and it attracts their attention. According to this result, it is thought that the transformation of human geography lessons into an education strengthened with technological infrastructure is needed for students to be more beneficial in their future professional and academic lives, so changes should be made in this direction.

Key Words

Geography education • Human geography lesson • Student views • Phenomenology

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Geography science, which deals with the relationship and interaction between man and nature, has been subdivided in different ways by different scientists. Unlike the geography, which Özey (2002) describes as a science that examines the distribution of natural, human and economic events in the whole or part of the earth and their relationship with each other in the axis of cause and effect; Doğanay et al., (2012) divide geography into four parts: physical, human-economic, regional and geography education. On the other hand, Baydil (2003) divided the geography into two parts because he examine the subjects with general and local geography methods, while Gümüş and İlhan (2013) stated that the science of geography is divided into physical and human geography branches in universities, sub-branches such as regional geography, Turkey geography, geographical information systems were added to these departments at the same time.

Human geography, which is one of the important sub-branches of geography; deals with the interaction of natural environment and human (Doğanay, 2017). For this reason, together with population and settlement issues, issues related to human and place are also examined within the human geography (Kayan, 2000; Uzun, 2018). Kayan (2000) states that while the activities of societies on the earth constitute the basic subject of human geography, the place of cultural geography in human geography gains importance.

The teaching of human geography in higher education institutions, which is one of the important sub-branches of geography science, is differentiating day by day. In today's world, where new methods and approaches in the field of education have become widespread and used with the effect of rapidly developing information and communication technologies, human geography teaching is also developing. While developing information technologies are increasing the educational materials and information resources, it also makes it difficult for people to access reliable information sources. At this point, the importance of formal education in educational institutions under the guidance of educators becomes clear once again.

As in every field of education, one of the important issues in geography teaching is the thoughts of learners and educators about the lesson (Akınoğlu, 2005). Examining, supervising and developing the education and training activities provided in educational institutions can be evaluated in the best way by examining this education according to the opinions of the students. For this purpose, it is very important to evaluate the courses given in higher education institutions according to students' opinions. It is stated by researchers that the attitudes of teachers who raise younger generations towards a course are an effective factor in students' attitudes towards that course (Peker & Mirasyedioğlu, 2003). In this respect, researches have shown that undergraduate students' attitudes and behaviors about a course also affect their students when they also become teacher.

Human geography is one of the basic courses taught in both geography departments and teaching areas such as social studies and classroom teaching (Gökçe, 2009). With this context, the views of undergraduate students about human geography lesson gain importance.

When the research studies in the national literature that deal with student views on the human geography course are examined, it was seen that these studies were mostly aimed at examining the attitudes of the participants towards this course with quantitative data. For example; a scale study by Kılcanmet et al. (2019) which is measuring attitudes towards human geography lesson; the research of Ablak et al., (2020) which is examining the attitudes of social

studies teacher candidates towards human geography course with different variables; İnce (2021)'s study, which examines the attitudes of geography students towards the human geography lesson, is among these. Apart from these studies, there are quite a number of studies examining the attitudes of the participants towards the geography lesson in general. Sevilmiş-Karaşahin (2006), Alım (2008), Özgen et al., (2009), Ulusoy and Gülüm (2009), Aydın et al., (2010), Uzunöz (2011), Aydın (2012), Şahin et al., (2015), Dikmenli and Çifçi (2016), Uzun (2018), Sözen (2019) and Şanlı (2019) 's studies are also some of the examples. When human geography researches are reviewed in the international literature, it is seen that different studies have been conducted. Among of them, the studies conducted by Lu et al., (2003), Graham et al., (2017), Ye et al., (2020) stands out. In general, the common feature which is seen in all these studies is that, attitudes about quantitative data and human geography are being examined. However, there is no study that have examined the thoughts of geography major's students about the human geography lesson using qualitative research method. With this feature, our work is the first in this regard.

Purpose and Importance of the Research

In this study, which was conducted in order to see how geography department students' thoughts about human geography lesson were shaped, the question "what are the opinions of geography students about human geography lessons?" constitutes the main problem. In line with this basic problem, an interview form consisting of three questions was prepared and answers were sought for the following sub-problems.

1-What are the general views and opinions of the students about the human geography course?

2-According to the students' opinions, what should be the priority order of the subjects taught in the human geography course?

3-For students, what are the most attractive subjects and their reasons in the human geography lesson?

The research was carried out with students who studied geography and took human geography courses. The evaluation of the courses given in the education system, the examination of students' views about those courses is a need for improving education. This study is important in terms of evaluating the human geography course taught in the direction of students' opinions. The research has been limited with the geography department of a university in western Turkey in the spring semester of the 2020-2021 academic year. It was assumed that the research question and its sub-problems measure the subject in detail and students' views reflect the current situation as it is.

Method

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Research Design

In this study, where the opinions of geography students about the human geography course were examined, the phenomenological pattern from the qualitative research methods was used. The phenomenological pattern focuses on phenomena that we are aware of but do not have an in-depth and detailed content (Creswell, 2020; Yıldırım &

Şimşek, 2013). In addition, phenomenological research is defined as a method that reveals the differences between phenomena, examines the existence of events, creates conceptual categories and relates these categories with each other (Çepni, 2018). In this direction, the opinions of the geography department students about the human geography lesson were tried to be analyzed in depth.

Study Group

In accordance with the purpose of the research and the structure of the qualitative research, convenience sampling was preferred as one of the purposeful sampling methods in order to bring speed and practicality to the research (Yıldırım & Şimşek, 2013). In accordance with the phenomenology pattern, the opinions of those who have experience on the subject are important (Creswell, 2020) and for this reason, attention has been paid to the fact that the students taking human geography course are in the research group. The research was carried out with students taking the human geography course in the geography department of a university in the west of Turkey in the spring semester of the 2020-21 academic year. A total of 46 students, 24 of whom were female and 22 of whom were male, voluntarily participated in the research among 62 students who took this course. The vast majority of these students are 1st and 2nd grade students (1st grade = 14, 2nd grade = 14, 3rd grade = 10 and 4th grade = 8 students). Participants' names were kept confidential and their views were coded as P1, P2, P3, P4.

Data collection tool

The data used in the research were obtained by document analysis method. Document analysis is defined as the method performed by the analysis of written materials containing information about the phenomenon or facts to be investigated (Yıldırım & Şimşek, 2013). in line with their own knowledge and tendencies by writing it to the paper (Creswell, 2020; Patton, 2014). For this purpose, an interview form was prepared to examine the opinions of geography students about the human geography lesson. While demographic information is included in the first part of the form consisting of two parts, there are three open-ended questions in the second part. The questions in the form were selected from the item pool created by literature review. Necessary arrangements were made in terms of suitability and adequacy after the expert's opinion on the selected questions was obtained. The interviews that could not be made face to face due to the restrictions of the Covid-19 outbreak, questions were asked to the students as written form in electronic environment and the answers were obtained this way. Participants wrote their thoughts on the questions in the form on a voluntary basis and with their free will. After all questions were answered, the forms (46) recorded in the system by the participants were transferred to the computer environment by the researcher and analyzed.

Validity and Reliability in the Study

All validity and reliability measures were taken by the researcher in this study. Expert opinion was consulted in the preparation of the questionnaire for the internal validity of the research. Flexibility was provided in terms of time by giving a one-week period for the participants to fill in the questions correctly and consciously. For the external validity of the research; the research method, characteristics of the participant group, data collection tools, collection and detailed analysis of the data can be shown as an example. Form which was created in electronic environment to

increase internal reliability and prevent data loss in research, it was ensured that all data directly reached the researcher as the participant wrote. While analyzing the data, we got help from a field expert in the formation of codes, themes and categories. In order to increase external reliability, the obtained data can be compared with the studies of other researchers and discussed in the conclusion section.

Data Collection and Analysis

Data analysis in phenomenology research is aimed at revealing experiences and meanings. In this study, the data obtained in answering the sub-problems were analyzed by content analysis method. In this respect, the process made at content analysis is to gather, organize and interpret similar data within the framework of categories and themes (Yıldırım & Şimşek, 2013, p. 259). Tavşancıl and Aslan (2001) defined content analysis as classifying and inferring the message contained in written or verbal materials as meaningful, objective and systematic.

The answers given by the students of the Geography department to the form in the electronic environment were subjected to content analysis and presented in the form of codes, categories and themes in the findings section. With this research, it has been tried to examine how geography students' thoughts about the human geography lesson developed, what it was affected by and in what direction it needed to develop.

Results

In this section, in order to examine the opinions of geography students about the human geography lesson, the findings of the solutions of the questions asked to the students are included.

Findings regarding the general thoughts of the geography department students about the human geography course

In the first sub-problem of the study, what the geography department students generally thought about the human geography lesson were asked; the codes and categories created as a result of the analysis of the answers received are presented in Table 1.

Table 1

General Views of the Geography Department Students about the Human Geography (HG) Lesson

Row	Category	Codes about student thoughts	f	Participants
1	As content (HG)	Describes the struggle between human and	3	P8, P10,P25,
		Physical and human geography is like a mosaic that complements each other.	2	P1, P6,
		It is a lesson that teaches life and increases	2	P14, P28
		It is a course that increases curiosity to	2	P28, P31
		It examines human life comprehensively.	2	P11, P33,
		There are subjects such as economy, population distribution, human development index, per	1	P42,
2	As a branch of geography (HG)	It is an important field lesson in geography.	3	P21, P27, P30
		It is the course in which human factors are	3	P7, P18, P42,
		It is one of the branches of geography.	2	P2, P6,
		It is one of the department courses.	2	P3, P19,
3	In terms of	It is an enjoyable and entertaining lesson.	4	P15, P25, P36, P37,
		It is an important and interesting lesson.	3	P4, P34, P40

	student interest (HG)	The struggle for life described in lesson	2	P29, P43,
		Harmony with nature is important.	1	P21
4	In terms of	I don't like some topics.	1	P44
	negative thought	I do not care much for this lesson.	1	P46

When Table 1 is examined, it is seen that the opinions of the geography department students about the human geography (HG) course are grouped under four categories as "in terms of content (HG), as a branch of geography (HG), in terms of student interest (HG) and in terms of negative thinking (HG)".

When the data are examined, it is noteworthy that the most coded category is "human geography as content", while the least coded category is "human geography in terms of negative thinking". According to these data, it is found that the thoughts of the students of the geography department are generally positive.

Some of the students who gave positive opinions were as follows:

P6: "Geography is divided into two as physical and human. Human geography is one of the two branches of geography. Physical and human geography are like a mosaic that complements each other, because geography without humans is unthinkable."

P14:" Geography is a lesson that teaches life. We also learn, study and live life in the lesson."

P19: "I think we have a good department lesson that draws our attention to the subject while listening and learning about human geography."

P21: "Geography is a branch of science that examines the interaction of nature and human. For this reason, it is important to understand how people are in harmony with nature. I think the human geography lesson has an important place in geography in the context of explaining, interpreting and predicting past and future people and their activities."

P25: "In my opinion, human geography is a very important lesson in terms of examining the changes made by humans on the earth and nature."

P41: "It is a fun lesson that I love and care about."

P42: "It is an important and serious course that includes up-to-date and reliable data on human factors such as settlement, population distribution and economy, and their spatial distribution with maps."

The number of students who expressed negative opinions was determined as only two. The opinions of these students, albeit in a small number, are as follows:

P46: "I am still thinking about what it will do if we know the world population. For this reason, I do not care much about this lesson."

Considering both positive and negative opinions, it is seen that the majority of the students show positive thoughts on the human geography lesson.

Priority Order of the Subjects Learned in the Human Geography Lesson

In line with the second sub-problem of the study, "According to your thought, how should the priority order of the subjects taught in human geography lesson be?" question were asked to the geography department students. Thus, the opinions of the students about the priority of the subjects of the human geography lesson are presented in Table 2 with the codes and categories created according to the answers received.

Table 2

Priority Order of Subjects Taught in Human Geography Lesson

Row	Category	Codes about student thoughts	f	Participants
1	Population	Population and population census	14	P2, P4, P5, P8, P10, P11, P20, P25, P28, P30, P35, P36, P38
		The subject and importance of population	9	P1, P3, ,P5, P6, P8, P9,
		Population policies	4	P14, P28, P32, P41
		Population pyramids	3	P5, P16 ,P33
		Population theories	3	P1, P9, P19
		Problems brought about by world population	3	P3, P27, P37
		Factors affecting population growth rate	2	P10, P23,
		Migration, its implications and factors	2	P40
2	Settlement	Settlement geography	5	P6, P14,P23, P38, P45
		Crowded cities	4	P7, P15, P24, P46
		City functions	3	P12, P22, P23
		Cities and their features	3	P8, P30, P43
		Rural settlements	2	P10, P35,
		The impact of migration on settlements	1	P40
3	Economy	Economy	6	P4, P12,P25, P30, P44, P46
		Economic activities	4	P2, P18, P20, P22
		Sustainability and economy	3	P17, P29, P45
		Agricultural geography	2	P17, P13, P35
4	Environment	Human-environment interaction	3	P4, P16, P19
		Humankind's influence on nature	2	P10, P28
		The pressure of migration on the environment	1	P40
5	Other topics in human geography	Scientific fields of human geography	2	P27, P44
		Relationship of human geography with other	2	P6, P10,
		Cultural geography	2	P12, P27
		Historical geography	2	P8, P27
		Political geography	2	P1, P36
		Health geography	1	P43

When Table 2 is examined, it is seen that the opinions of the geography department students about the priority order of the subjects taught in the human geography course are grouped under five categories under the name of "population, settlement, economy, environment and other subjects in human geography". Among these categories, "population" category have got the highest frequency (f=40). Under this category, codes such as population and census, subject and importance of population geography, population policies, population pyramids, population theories, problems brought about by world population growth, factors affecting population growth rate, migration and its factors have been identified. Students also generated ideas in the categories of settlement outside the population (18), economy (15), environment (6) and other issues in human geography (11). In this case, it is seen that students give priority in human geography to population, settlement and economy issues. Students' opinions on this subject are short and clear answers. Some students' views are as follows:

P1: "Within the human geography, the subject and importance of population geography attracts my attention the most.."

P8: "The problems brought by the world population growth and the threats people will face in the future are the top priority.."

P40: "It is the effect of migration on settlements."

P17: "Agricultural geography is also a priority, as is sustainability and economy."

P19: "For me, human-environment interaction is the first subject that comes to mind."

P27: "Human Geography has different sub-areas such as cultural geography, historical geography, and political geography. Since I think these sub-areas are neglected, they should be the priority issues."

P6: "The relationship of human geography with other sciences can be explained in detail at the beginning."

The most Interesting Subject Contents and Reasons for Geography Students in Human Geography Lesson

In line with the third sub-purpose of the study, "What are the topics, contents and reasons that takes your attention the most in the human geography lesson?" question were asked to the geography department students. Thus, the opinions of the students about the most attractive subject, its contents and reasons, in the human geography lesson are given in Table 3 with the code and categories created according to the answers received.

Table 3

The Subject Contents and Reasons Which Takes Most Attraction of Students in Human Geography lesson

Row	Category	Codes about student thoughts	f	Causes	Participants
1	Population	Population and population geography	6	Interest, curiosity, dynamic structure	P4, P6, P15, P19, P35, P43
		Population characteristics	6		P2, P3, ,P10, P17, P28, P29,
		Population policies	4		P17, P26, P28, P31
		Population pyramids	4		P4, P12, P33, P46
		Population census	4		P3, P4, P20, P36,
		Migrations	3		P2, P26, P33
2	Economy and development	Developed and undeveloped countries	3	Development indicators, comparison, interest	P20, P26, P45
		Development index	2		P5, P13,
		Economic geography	2		P12, P34
		Energy resources and politics	2		P10, P38
3	Environment	Preserving the natural environment	2	Interest, care, take attention	P16, P24,
		Human-environment interaction	2		P9, P40,
		Lifestyles and policies	1		P19
		Natural disasters	1		P28
4	Culture	Cultural geography	2	Curiosity, interest, differences	P25, P44,
		Language and geography distribution	2		P20, P22
		Cultures and religions	2		P17, P45
5	Other topics in human geography	Historical geography	2	Interest in history, growing information age.	P16, P19
		Education and geography	1		P28
		Political geography	1		P11

The opinions of the geography department students about the subject contents and reasons that attracted their most attention in the human geography lesson were gathered under five categories as seen in Table 3. When these

categories are listed in terms of the code frequencies they contain, they are "population (27), economy and development (9), environment (6), culture (6), other subjects in human geography (4)". It is noteworthy that students' views focus especially on "population and population geography, population characteristics, population policies, population pyramids, population censuses and migrations" in the "population" category and generate ideas on these issues. Considering the reasons why the population issue is the most expressed subject, it is stated that the population has a dynamic structure, the population policies of the countries are effective together with the interest and curiosity in population. In the economy category, "developed and underdeveloped countries, development index, economic geography, energy resources and politics" issues stand out, while in the environment category, "environmental protection and natural disasters" issues stand out, in the culture category "cultures, languages and religions" stand outs and finally in the human geography, "historical geography, cultural geography and political geography" subjects came to the fore in the category of other subjects. When we look at the reasons why students express these issues a lot, it is expressed that the subjects are dynamic together with the interest and curiosity in these subjects, they give the opportunity to compare the indicators such as development of the countries and they are the subjects that attract attention in the developing information age. The opinions of the students on this subject are in the form of short and clear answers. According to the categories, some students' views are as follows:

P3: "Since I have a interest into distribution of the population and the natural and human factors affecting the distribution in continent, country, region, department and region, I would like to work on these issues."

P28: "I find it important to investigate on population of the country, the increase and decrease of the population due to its dynamic structure, its expression with graphics, comparing different countries, and the differences in population policies of the countries are interesting to me."

P38: "I would like to evaluate the living conditions in undeveloped and developed countries and learn and make research economic knowledge on subjects such as agriculture, animal husbandry, industry, transportation, trade, energy, tourism and mining, which are effective in the economies of these countries. It is interesting for me to read and compare publications on this field.."

P19: "Human relations with the environment in which they live, the effect of the environment on human and human on the environment, sustainable lifestyle and policies aiming to protect the natural environment; these are the most interesting issues as they are important for planning the future life."

P45: "I would like to work on cultural geography, because the lifestyles, languages, religions and social relations of people belonging to a culture always make me curious."

P16: "As a field of study, I am interested in examining, getting to know and promoting the most interesting places and settlements that people have built on earth with the historical geography.

Discussion, Conclusion and Suggestions

In this study, which examined the opinions of the students of the geography department about the human geography course, it was concluded that the majority of the students had positive opinions about this course. According to the research data, students' opinions are grouped under four categories. While it is seen that positive

opinions are grouped in three categories, negative opinions are detected in a category with only two opinions. In light of these data, it can be said that the opinions of the geography department students about the human geography course are generally positive and they make correct determinations about the purpose, content, scope and objectives of this course. These results coincide with the work of Ablak et al. (2020) and İnce (2021). In both studies, it was found that students' attitudes towards human geography lesson were positive. In studies conducted with secondary and undergraduate students in terms of general geography (Akınoğlu, 2005; Dikmenli & Çifçi, 2016; Sözen, 2019; Ulusoy & Gülüm, 2009), positive results were obtained for the geography lesson. According to all these results, it can be said that the human geography course is accepted positively by geography students and meets their professional, academic and social needs.

The second important sub-aim of the study is the opinions of the geography department students about the priority order of the subjects taught in the human geography course. It has been observed that student views on this issue are grouped under five categories and the highest priority is given to the population category. According to this result, it was determined that the geography department students give priority especially the subjects of population, population characteristics and migration, which are among the subjects taught in the human geography course. As seen in other categories other than population, it has been concluded that settlement, economy, environment and other issues of human geography are not being ignored either. These results coincide with the study of Uzun (2018). In the frequency analysis used by Uzun (2018) in the keywords used in the postgraduate theses in the field of human geography, he reached the concepts such as "tourism, population, economy, urban". On the other hand, newly developing topics of the human geography field such as "globalization and development, crime geography, sports geography, electoral geography, behavioral geography" reached in the same research differ with our research. Likewise, Karakuş and Karaman (2019), in their study, which they examined the opinions of social studies teachers about the subjects they had difficulty in teaching, reached the conclusion that there are also the subjects of population characteristics, distribution of population, settlement, migration and economic activities in addition to physical geography, which does not coincide with our research.

It is seen that in the researches on general geography, concepts related to human geography are reached. (Dikmenli & Çifçi, 2016), when they analyzed the first words that came to mind of students regarding the geography lesson, they reached a high rate of concepts such as "population, economic activities, countries and migration" together with physical geography. These findings are important in revealing student perceptions about geography lesson. In the study of Şanlı (2019), it was found that the human economic geography course is one of the courses in which spatial thinking skills should be taught. Based on the results in this part of the study and the results in the literature, it can be said that the geography department students' opinions about the priority order of the subjects taught in the human geography course are consistent and compatible with the literature.

The third sub-aim of the study is the opinions of the geography department students about the subject, contents and reasons that attract their most attention in the human geography lesson. It has been observed that student thoughts on this issue are grouped under five categories. It has been determined that the most interesting subject contents of the students are population, economy, environment, culture and other subjects in human geography.

When the reasons of why these issues were expressed more by the students were examined, it was concluded that the interest and curiosity into these subjects, the subjects having a dynamic structure, allowing country comparisons to be made, and meeting the requirements of the information age. These results coincide with the results of Dikenli and Çifçi (2016). Dikenli and Çifçi (2016) concluded in their research that students like subjects related to human and economic geography because of the fact that population, environment and society issues were the most favorite subjects of students in geography lesson. What caused occurance of this situation is that, these sources are easy to understand and interpret. In addition, the fact that the population issue has a very low frequency among the subjects that students dislike most in the same study confirms this situation. In the study of Aydın (2012), where he investigated the thoughts of social sciences high school students towards the geography lesson, it was concluded that students had no difficulty in understanding human geography but they had difficulties in understanding physical geography. Why? because there's abundance of abstract concepts. Similarly, Bozkurt (2003) found that geography teachers had difficulty in explaining physical geography to their students due to the education they received at the university, but they did not have difficulty in explaining human geography. According to these results, geography department students, in line with their interests and curiosities in the human geography course; it was concluded that population, economy and culture topics attracted their attention in line with its dynamic structure, comparative feature, easy understanding and benefitful for 21st century needs.

Based on all these results, it has been concluded that the human geography course is important for the education of the geography department students; they especially give priority to population topic and they focus on population, economy and environment issues. It is thought that this field course taken at the university will have positive results for geographers in both professional, academic and social life after university education. The following recommendations have been made in line with the findings and results of the study:

In line with the results of the research, variations can be made in the sub-branches of this course in order to give more detailed education especially in the geography departments, and misconceptions and prejudices such as teaching only certain sub-branches can be avoided.

Apart from population, settlement and economic issues, the developing subjects of human geography such as "electoral geography, behavioral geography, crime geography, health geography and sports geography can also be emphasized.

By using student-centered teaching methods and techniques, in which the student is actively involved in the learning process in the human geography course, his / her interest in the lesson can be increased even more.

Department teachers can also teach to undergraduate students teaching methods and techniques, so that undergraduate students can teach their students the knowledge they have learned in human geography in a more accurate and permanent way when they become teachers in the future.

Ethic

This research was conducted in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and ethical standards.

Author Contributions

This article was written with the joint contributions of two authors.

Conflict of Interest

No conflict of interest was reported by the authors.

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Analyzing the Relationship between Perceived Academic Involvement and School Climate by Gifted Students and Their Science Ability*

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Abstract

The aim of this study is analyzing, through a theoretical-model, variables that are related in relevant literature with gifted students' abilities in science course. Within that context various analyses have been conducted with respect to environmental, cognitive and affective variables which are linked to students' science ability. In this paper, one of the quantitative research methods, survey method, has been implemented. Data were collected from 997 middle-school level gifted students selected via stratified sampling method from Science and Art Centers across 25 different cities in Turkey. Path analysis was implemented to analyze data. It was determined that if parental and teacher involvement and positive school climate were met; scientific ability, creativity and motivation of gifted students could climb. It was also ascertained that results of implemented path analysis and tested model complied with the data. Thus could be used to explain variables that affected scientific ability, scientific creativity, problem solving and meta-cognitive awareness which are deemed to be related with science ability. It was concluded that approaches of parents, teachers and school administration left remarkable effects on ability development.

Key Words

Academic involvement • Gifted students • Science ability • School climate

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On condition that abilities of a human being are in coordination with the society this lives in, there is a greater likelihood of these abilities to surface (Sousa, 2003). Gifted children are extraordinary kids who have an inborn capacity in areas that fit in their intellectual capabilities (Watters & Diezmann, 2003). In the same vein these children who, unlike their peers, perform extraordinary behaviors are in need of different things than their peers. Although most of the countries are, as seen, capable of providing educational opportunities catered for these students there are certain problems encountered in their education. These problems mostly stem from certain misconceptions some of which are believing that gifted students would be more successful at school (Peterson, 2000) and gifted students were a student group that should receive special education (Colangelom et al., 1993). In Turkey gifted students' education is provided in institutes termed as Science and Art Center. Nonetheless there is an insufficient monitoring of the way services provided by these education institutes to gifted students are perceived by recipient students (Sak et al., 2015).

Science Ability

Taber (2007), suggests that in science domain, characteristic traits of gifted students are curiosity, high-level cognitive abilities and metacognitive maturity. Brandwein, in his comprehensive study among gifted students in science from 1955 to 1988, demonstrated that students entertained a superior level of verbal and mathematical ability, coordinated perception and neuron-muscle control ability, talent to plan their learnings, scientific questioning aptitude and they were more disposed to take responsibility in the domain of science (Brandwein, 1986; Brandwein & Passow, 1988). These analyses manifested that in relation to superior ability in science it was emphasized as a whole that the ability pointed at superior cognitive abilities in their self-learning, problem solving skill, creativity and upper-grade scientific thinking which are uncommon among regular students.

Motivation for Learning Science

Studies on giftedness underscore that in ability development motivation played a significantly crucial role. Renzulli (2002) defines motivation as a salient criterion for giftedness. If student motivation is below sufficient level, development of abilities could be almost unviable. In particular it is detected that if inappropriate educational opportunities are provided to learners there is a fall in academic motivation (Gottfried et al., 2001). It was observed that this slump was influenced by school environment as well as teacher and parental attitudes. Incongruity between students' educational needs and services offered by school (Sisk, 1988), teachers' adoption of a control-focused approach (Reeve, 2009), less-than-challenging nature of curriculum and in-class activities (Little, 2012; Reis & Renzulli, 1989) are some of the factors that lower gifted students' sustainable motivation which in turn adversely affects their ability development.

Teacher Academic Involvement

It was also revealed that teachers' attitudes and behaviors towards gifted students could leave determining effects on motivation. In the education of gifted learners teachers who welcome autonomy, nourish creativity and support their students' academic level, respect to students, embrace new experiences and remain flexible can be successful in vitalizing motivation (Abel & Karnes, 1994; Mills, 2003; Rosemarin, 2014; Vialle & Quigley, 2002). Support that

gifted students receive from science teachers could be helpful in mitigating many of the existing adversities and climb student motivation higher (Horsley & Moeed, 2018; Lang et al., 2005; Shaunessy-Dedrick et al., 2015).

School Climate

As a different dimension related with the link between student, teacher and administration in a school, school climate could also be influential in ability development of gifted students. Within the context of teacher-student relations supportive nature of classroom environment, a safe learning environment and positive peer relations could, by fortifying students' sense of belonging to school, leave a positive effect on their motivation for science (Beghetto, 2007; Nolen, 2003; Wang & Eccles, 2013). Although studying in different educational institutes than others does not necessarily equate with a safe environment for gifted students; it is detected that when it comes to bullying and social exclusion they are very much in the same position with ordinary students and a great quantity of gifted students were also reported to be both in bully and also in victim position (Ogurlu & Sarıçam, 2018; Pelchar & Bain, 2014). It is revealed that a positive school climate backed up sense of belonging; thus increased success level (Maxwell et al., 2017). It has also been observed that a positive school climate created favorable effects on brain and cognitive development (Piccolo et al., 2018).

Parental Involvement

In ability development it is suggested to pay heeds to family environment and parental approaches as well. Studies put forth that achievement in science, motivation for science and desire to have a career in the domain of science are inextricably connected with parental and academic involvement and support (Craig et al., 2018; Halim et al., 2018; Şad, 2012). In the likelihood of a gifted child's advancement to one step ahead, family dynamics could be a determining factor (Olszewski-Kubilius, 2018).

In a science course it is aimed to improve a good number of factors that are associated with giftedness qualities viz. problem solving, scientific reasoning, creativity and learning organization (Holbrook & Rannikmae, 2007; Sadler & Zeidler 2009; Zimmerman, 2000). As known these factors which are among the leading features of gifted students and also compatible with the objectives of science course can also be a vital determinant in ability development. Besides, environmental factors like family and school also take the front stage.

Rationale and Purpose of the Study

In relevant literature there is scarcity of field studies in which ability development is treated holistically. Thus, in order to fill this void, this paper aims to investigate the nature of relations in science ability development based on a model that analyses through variables of family, school and personal factors. Hence this study aims to test a model that is formed on the basis of motivation, school climate and parental-teacher academic involvement variables that are considered to be effective on gifted students' science abilities. As for environmental factors in the model, school climate and parental-teacher academic involvement known to be connected with school and home environment have been selected. It was concluded that these factors affected ability through motivation. Since science ability is not a quality measured only by one scale and there is an absence of formal diagnosis of this issue in Turkey; creativity,

problem solving, scientific ability and metacognitive awareness variables employed in literature to measure the said ability have been used. Model can be seen in Figure 1.
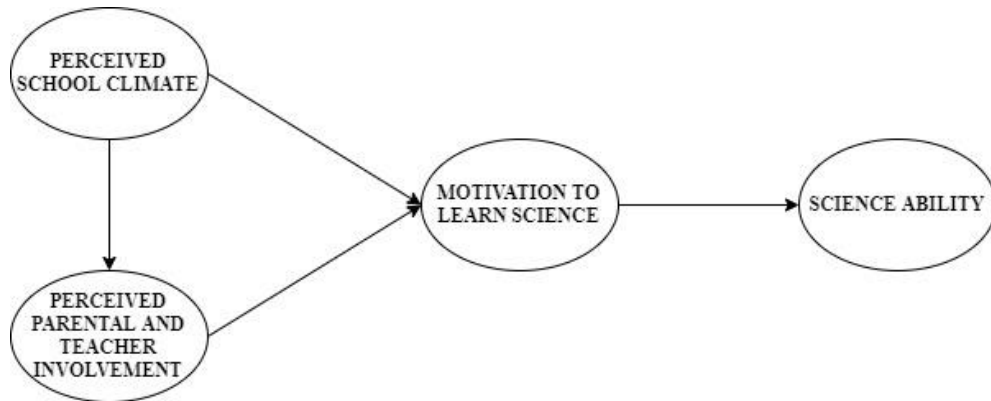
Figure 1. Default research model

Within the scope of this model, suggested hypotheses of the study are such:

H1: There is a direct significant relation in positive direction between perceived school climate and perceived academic support.

H2: There is a direct significant relation in positive direction between perceived school climate and motivation for science.

H3: There is a direct significant relation in positive direction between perceived academic support and motivation for science.

H4: Perceived school climate has, through motivation for science, an indirect significant effect in positive direction on science ability.

H5: Perceived academic support has, through motivation for science, an indirect significant effect in positive direction on science ability.

H6: There is a direct significant relation in positive direction between motivation for science and science ability.

Method

Research Design

Since in this research relations across parental and teacher involvement, school climate, motivation for learning science and science ability are to be examined, survey method has been employed.

Research Sample

Data were collected in 2015-2016 academic year from 997 middle-school level gifted students studying in Science and Art Centers distributed among 25 different cities in Turkey. Analyses were conducted on the data garnered from 698 students having met multivariate normality conditions.

Research Instruments and Processes

In the collection of research data, Scientific Ability Test, Scientific Creativity Test, The Junior Metacognitive Awareness Inventory Version B (JrMAI-B), Problem Solving Inventory have been employed to measure science ability level. For perceived school climate variable in the model; School Climate Scale and for perceived academic involvement Perceived Parental and Teacher Involvement Scale and motivation for Learning Science Scale have been employed. Because structural equation modeling is a sensitive method towards validity and reliability of scales, for all of the scales in this study, validity and reliability tests were reiterated.

Scientific Ability Test: The test was developed by Akkanat and Gökdere (2017) to unveil students' success in harnessing variables of scientific reasoning and scientific process abilities that are potential indicators of science ability. Based on DFA results presented in this research it is safe to argue that in general the model has been validated ($\chi2$/sd =3.83, RMSEA=0.06, CFI=0.89, NNFI=0.88, NFI=0.85, SRMR=0.06, GFI=0.91, AGFI=0.89). For this scale Cronbach's alpha internal consistency coefficient of the study was computed as 0.74.

Scientific Creativity Test: For scientific creativity of students, Scientific Creativity Scale was employed and the scale was originally developed by Hu and Adey (2002) and adapted into Turkish by Deniş-Çeliker and Balım (2012). Obtained index values of this research manifest that the model had an overall good fitness level ($\chi2$/sd =4.42, RMSEA=0.07, CFI=0.96, NNFI=0.94, NFI=0.95, SRMR=0.04, GFI=0.98, AGFI=0.95). A complete analysis of these results makes it safe to claim that the model has been confirmed. In this study computed Cronbach's alpha internal consistency coefficient of the scale is 0.76.

The Junior Metacognitive Awareness Inventory Version B (JrMAI-B): In the detection of metacognitive awareness level, one subdimension of students' science ability, Metacognitive Awareness Inventory was employed. The scale was developed by Sperling et al. (2002) and adapted into Turkish by Karakelle and Saraç (2007). Obtained index values of this single-factor scale in this research manifest that the model in general has good fitness ($\chi2$/ sd =4.83, RMSEA=0.07, CFI=0.96, NNFI=0.95, NFI=0.95, SRMR=0.05, GFI=0.91, AGFI=0.88). In this research Cronbach's alpha coefficient was measured as 0.88. In that sense an analysis of all the obtained findings put forth that collected data are valid and reliable.

Problem Solving Inventory: In order to find self-perception levels of students in relation to problem solving abilities, as one component of science ability, Problem Solving Inventory developed by Serin et al. (2010) was employed. An analysis of obtained index values in this study put forth that in general the model has good fitness ($\chi2$/ sd =2.47 , RMSEA=0.04, CFI=0.98 , NNFI=0.98 , NFI=0.97, SRMR=0.04, GFI=0.93 , AGFI=0.92). When these results are evaluated collectively it stands to reason that scale is validated for the sampling of gifted students. Scale's Cronbach's Alpha values were computed as 0.87 for the first dimension; 0.80 for the second dimension; 0.79 for the third dimension and 0.89 for the entire scale.

Perceived Parental and Teacher Academic Involvement Scale: For students' perception toward parental and teacher-academic involvement level in education, Perceived Parental and Teacher Academic involvement Scale developed by Régner et al. (2009) and adapted into Turkish by Dündar (2014) was employed. Students reported their

views through 5 point Likert type scale. By Dündar (2014) Cronbach's alpha coefficient for the full scale was, in regards to elementary and middle-school student group, computed as 0.93. DFA result for this scale indicates that for the obtained indexes the model was validated ($\chi 2/$ sd =5, RMSEA=0.07 , CFI=0.98, NNFI=0.98, NFI=0.98, SRMR=0.04, GFI=0.94, AGFI=0.90). In this study Cronbach's Alpha value of the scale was computed as 0.87 for the first dimension, 0.82 for the second dimension, 0.82 for the third dimension, 0.66 for the fourth dimension and 0.90 for the entire scale.

Motivation for Learning Science Scale: For students' motivation for learning science, "Motivation for Learning Science Scale" developed by Tuan et al. (2005) has been employed. In Turkey validity and reliability analyses of motivation for Learning Science Scale have been conducted by Yılmaz and Huyugüzel-Çavaş (2007). In reliability analyses of Motivation for Learning Science Scale Yılmaz and Huyugüzel-Çavaş measured scale's Cronbach's alpha reliability coefficient as 0.87. Motivation for learning science Scale (MFLSS) consists of 6 factors. Analysis of obtained index values in this study revealed that the model had a good fit index ($\chi 2/$ sd =3.14, RMSEA=0.05, CFI=0.97, NNFI=0.97, NFI=0.95, SRMR=0.06, GFI=0.89 , AGFI=0.87). In this study Cronbach's alpha values of the scale was computed as 0.88 for the first dimension, 0.75 for the second dimension, 0.79 for the third dimension, 0.76 for the fourth dimension, 0.58 for the fifth dimension, 0.60 for the sixth dimension and 0.89 for the entire scale. It is thus safe to argue that it is a reliable scale.

School Climate Scale: In order to expose students' perception toward climate in an educational institute or school -namely Science and Art Center- School Climate Scale developed by Çalık and Kurt (2010) has been harnessed. The scale comprised of 22 items. The scale entailed three factors namely; supportive teacher behaviors, success orientation, safe learning environment and positive peer interaction. DFA result of this study indicates that an analysis of obtained index values proves good fitness of model ($\chi 2/$ sd =3.36, RMSEA=0.05, CFI=0.97, NNFI=0.97, NFI=0.96, SRMR=0.04, GFI=0.92, AGFI=0.90). In this particular study scale's Cronbach's alpha internal consistency coefficient values were computed as 0.89 for the first dimension, 0.88 for the second dimension, 0.64 for the third dimension and 0.87 for the entire scale.

Data Analysis

In order to prepare scales for structural equation modeling their validity and reliability analyses were implemented. Final versions of scale scores were obtained and data set was thus prepared. Path analysis was employed in this study. Lisrel 9.2 was used and 95% confidence level was worked on. Since for this analysis data were expected to meet univariate and multivariate normality conditions, at first, these conditions were evaluated. Missing values and extreme values were extracted from data set. Analysis results were interpreted in accordance with fitness index criteria in relevant literature.

Results

In this study scientific ability, scientific creativity, metacognitive awareness and problem solving variables were grouped under a cumulative variable titled as "science ability". In literature too the way these variables, as associated

with giftedness in science, cumulatively be affected by environmental factors and motivation. This model can be seen in Figure 2.
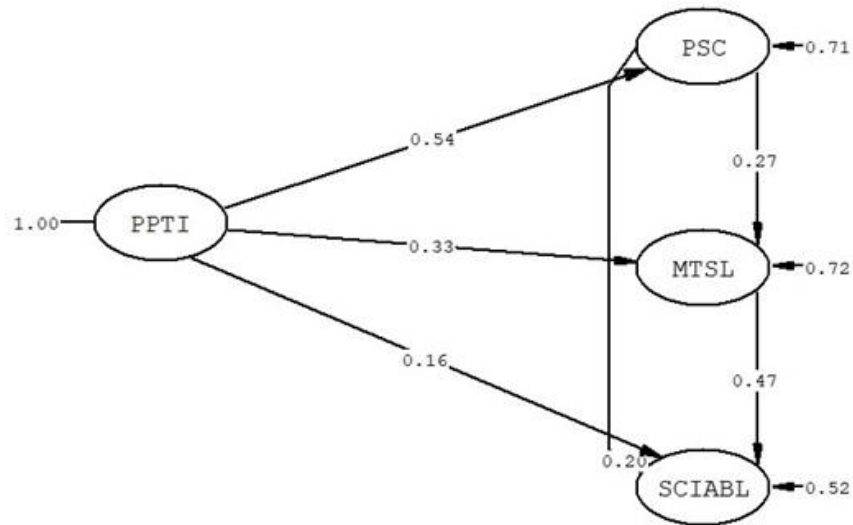
Figure 2. Equation result of the structural model that analyzed general science ability

SEM results revealed that this structural model was compatible with data set ($\chi2$=37447.57, df=8771, p<0.05, $\chi2$/df=4.26 , SRMR=0.06 , RMSEA=0.06 , CFI=0.92 , NFI=0.88 , NNFI=0.92 , critical value N=279.49). Standardized path coefficients and relevant t-test results are exhibited in Table 1.

Table 1

Results of the Structural Model

Hypothesis	Path	Standardized path coefficient	t-value	Result
H_1	Perceived parental and teacher involvement→ Perceived school climate	0.54	12.97**	Accepted
H_2	Perceived school climate→ Motivation to learn science	0.27	5.63**	Accepted
H_3	Perceived parental and teacher involvement→ Motivation to learn science	0.33	6.59**	Accepted
H_6	Motivation to learn science → Science ability	0.47	8.05**	Accepted

As seen in Table 1 perceived parental and teacher academic involvement has a significant effect on perceived school climate (β=0.54 , p<0.05) and motivation for learning science (β=0.33, p<0.05). Motivation for learning science on the other hand is related with science ability (β=0.47, p<0.05). Additional structural equations of the model, explained variance ratio and effect sizes can be seen in Table 2.

Table 2

Direct, Indirect Effects, Equations and Effect sizes

Hypothesis		Direct effect	Indirect effect	Total effect
	School climate	-	-	-
H_4	Motivation to learn science	0.33	0.15	0.47
	Science ability	0.16	0.34	0.50
	Parental and teacher involvement	-	-	-
H_5	Motivation to learn science	0.27	-	0.27
	Science ability	0.20	0.13	0.33

Structural equations	R^2
SCIABL= 0.16xPSC	0,03
SCIABL= 0.2xPPTI	0,04
SCIABL= 0.16xPSC+0.34xMTSL	0,25
SCIABL= 0.20xPPTI+0.13xMTSL	0,11

As seen in Table 2, indirect effects playing role on the model reveal that parental and teacher involvement has an indirect (β=0.34) effect on science ability through motivation for learning science   and in the same vein school climate can, through motivation for learning science, be influential on   science ability (β=0.13). Yet compared to perception toward parental and teacher involvement this is a relatively minor impact.

Discussion, Conclusion and Suggestions

By grouping all features namely superior-success in science (scientific ability test), creativity (scientific creativity test), meta cognitive abilities (meta cognitive awareness) and problem-solving deemed to be associated with giftedness in science below a cumulative title of "Science Ability" variable, it is feasible to form a model. Hence it was assumed that effects of academic involvement and school climate variables known to be commonly influential on science ability could be investigated. Formed model was found to be significant and compatible with data (χ2=37447.57, df=8771, p<0.05, χ2/df=4.26, SRMR=0.06, RMSEA=0.06, CFI=0.92, NFI=0.88, NNFI=0.92 and critical value N=279.49).

It was detected that parental and teacher academic involvement had a significant and positive effect on school climate (β=0.54, p<0.05), motivation for learning science (β=0.33, p<0.05) and measured to be directly interrelated (see Table 3 and 4). Potential cause for this interaction is that perception toward parental and teacher academic involvement contributes to students' interaction with school. In another saying the more supportive and attentive are parents and teachers in the education of a gifted student, the more positive a student can view his/her school environment. That is bound to the fact that once students perceive parents' and teachers' support they feel themselves safe at school and eventually develop positive feelings toward school. Furthermore parents' perception toward school climate could be formed according to the extent children participated in education processes and this interaction could most possibly be reflected on their kids.

Within the context of motivation for learning science, parents' and teachers' academic support could help gifted students feel themselves more competent in learning science and increase their motivation by assisting them to organize their learning objectives. A myriad of studies pointed at parents and teachers as motivation and interest source of students' motivation toward science (Gentry et al., 2011; Jungert & Koestner, 2015; Ratelle et al., 2005; Stoeger et al., 2014). It makes sense to claim that family and school have substantially significant effects in gifted students' education. Dedicated teachers and parents who sincerely take care of their kids' problems are capable of reversing many of the negative conditions.

It was detected that school climate perceptions toward Science and Art Center is directly linked with motivation for learning science ($\beta=0.27$, $p<0.05$). This is because in gifted education institutes, classroom climate is supportive, school climate is safe, peer relations are far from bullying, presence of love and respect-imbued relations could lead in fostering positive feelings toward science course among students. In relevant literature many studies pointed at similar findings (Pamuk et al., 2017; Reinhold et al., 2018; Taskinen et al., 2013; Wang & Liou, 2017). In motivation toward science course it is essential that a student can feel competent and learning environment can also feed this perception.

As explained in Table 3 and 4 too motivation for learning science directly predicted superior science ability in a significant ratio ($\beta=0.47$, $p<0.05$) and explained 22% of variance in science ability. This finding could be attributed to the factor that gifted students' motivation for learning science could ignite a desire to work on science and develop themselves in this field; thereby leading to ability development among students. If, in particular, intrinsic motivation is formed it is likely that gifted students could develop an autonomous disposition to study science. Although a vast majority of studies examined the relation between science-course achievement scores and motivation (Areepattamannil et al., 2011; Enman & Lupart, 2000; Lam & Ducreux, 2013; Li & Adamson, 1995), in this particular study, the focus has been on science ability and evidenced that ability was affected by motivation. Many studies also echoed the same finding and pinpointed the relationship between ability and motivation (Busato et al., 2000; Chan et al., 1997; DeMars,1999; Hill et al., 2016). The role of motivation for learning science in ability development can offer great tips about students' success in science.

As can be viewed in Table 3 and 4 parental and teacher academic involvement is, through motivation for learning science, effective on science ability ($\beta=0.34$). This finding could stem from the fact that parents' and teachers' guidance and support toward science course can contribute to developing students' orientation toward science. Through active involvement of parents and teachers in education process, cognitive abilities of students can flourish, care and self-efficacy growth could climb gifted students' scientific potential (Chen et al., 2012; Gonida & Cortina, 2014; Liu & Schunn, 2018; Mujtaba & Reiss, 2014; Otani, 2019; Rinn, & Bishop, 2015). Lastly school climate's effect ($\beta=0.13$) on science ability through motivation for learning science, positive and supportive environment in education process could help students be more motivated toward science-course; hence this motivation could contribute to ability development in science. In a positive environment gifted students can, through self-confidence, hone their self-efficacy and that could offer them a chance to skyrocket their scientific potential. When gifted students are provided, both at home and at school, engaging and suitable learning environments for their level, this

condition could lead students toward science by rising their motivation for science (Chi et al., 2018; Hugerat, 2016; Kiemer et al., 2015; Soltani, 2018; Tsai & Yang, 2015) These findings bring to mind that in analyzing the causes behind the failure of some gifted students in performing well in science it would be of help to investigate their family and school relations.

It was concluded that tested model was compatible with data so it could be used to explain variables that affect science ability. Confirmed model is seen in Figure 3.
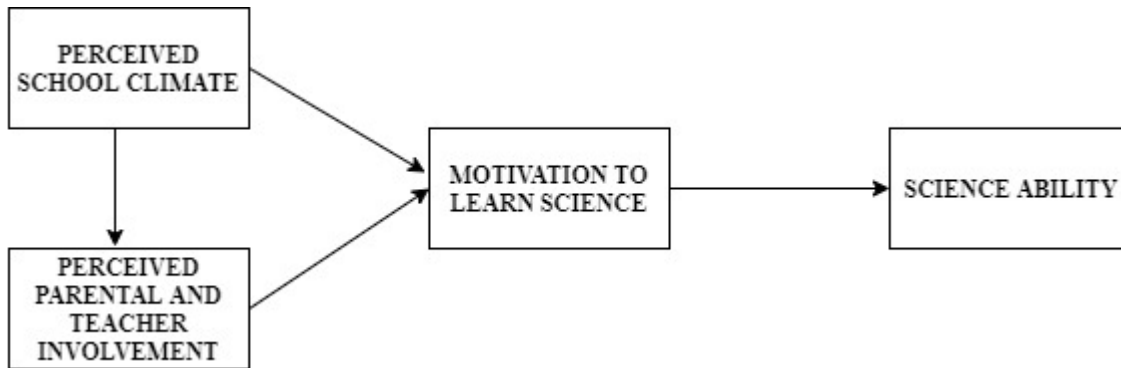
Figure 3. General science ability model

Finally it was concluded science ability could blossom if parental and teacher involvement and positive school climate were provided; gifted students' performance in science course was associated with environmental effect and reasons of poor performance could be sought after in these factors. Exhibited model in this study underlines a major point to expose relations between variables needed to understand the essence of science ability and direct science education activities toward education of gifted students. Obtained findings are potential torchbearers to light the path of teachers, parents and also institutional principles in their activities for gifted students.

As is the case in many of the literature studies this study also has certain limitations hence it would be useful to analyze this research accordingly. Of all the variables examined in this study, particularly variables of parental and teacher involvement and school climate have been rarely examined factors in national literature on gifted students and science education. Since the focus has been directed to the general picture, in this study, each of the variable has been singly examined. Parental and teacher involvement and school climate could be analyzed only through dimensions listed in surveys. In reality there are a great many different dimensions related to both school climate and parental and teacher involvement. In future studies it is suggested to focus on these dimensions.

Ethic

This study was conducted in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its ater amendments. Permission to conduct the study was obtained from Ministry of National Education. Informed consent was obtainted from all students.

Author Contributions

All of the authors have contributed this article.

Conflict of Interest

Funding

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Stress Sources and Behavioral Addiction Inclinations of Teachers in the Covid-19 Outbreak

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Abstract

In the period of COVID-19, which has become the biggest epidemic disease of modern times, measures taken to avoid the spread of the virus, such as house restrictions or prolonged quarantine, cause insurmountable economic burdens at the social level and lead the masses to experience various negative emotional reactions, psychological difficulties and behavioral changes. The aim of this research is to determine stress sources of teachers during the COVID-19 and their behavioral addiction tendencies. For this purpose, 24 teachers from Van province İpekyolu, Tusba and Edremit districts participated in the study. The research was designed with a mixed pattern, and sequential exploratory design was used. First, the qualitative data is collected and analyzed by a semi-structured interview form, and then "Brief Symptom Inventory" was applied to the participants to collect the supportive quantitative data. While content analysis and descriptive analysis were used in the analysis of qualitative data, descriptive statistics were used for analysis of the data collected from the inventory, and t test was used for relationship analysis. In this study, it was found that (1) the biggest stress sources of teachers were restriction of social life and fear of getting infected, (2) they developed smartphone and social media addiction tendencies to cope with this stress, and (3) female teachers developed more depression and anxiety in this process compared to men.

Key Words

Covid-19 • Stress • Coping • Behavioral addictions

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COVID-19 pandemic has created great changes and traumas in our lives. In this process where people use the internet and technology to the maximum level due to home restrictions, quarantine measures, space and excessive time caused by staying away from their jobs and schools, studies on compulsive purchasing, gambling addiction, sexual addiction and new forms of internet addiction such as online shopping, online gambling, pornography, smartphone, social media and digital game addictions (King et al., 2020; Király et al., 2020) These studies reveal a large increase and this increase is supported by statistics in the We are Social 2020 report. It is thought that the stress experienced by people in this process leads individuals to these behaviors as a coping strategy. Recent research has pointed out teachers are thought to be one of the professions who are affected by stress factors such as distancing from work, online education, future anxiety and uncertainty, and fear of being infected (Al Lily et al., 2020; Besser et al., 2020; Prado-Gascó et al., 2020). The problems experienced by teachers are not just themselves. It is known that it affects students, families and then a large part of the society (Adams, 1999).

Each factor that exceeds an individual's own resources is a source of stress (Lazarus and Folkman 1984). Accordingly, individuals face with many different stressors in COVID-19 pandemic. In the literature, studies reveal different stress factors, Individuals' stress level may increase depending on the fear of being infected, losing someone beloved, financial consequences, decreased ability to adopt setbacks, challenges, disappointments, and failures, being under quarantine (Khan et al., 2020; Khademian et al., 2021; Yıldırım & Solmaz, 2020). Teachers deal with a long list of stressors including sources of stress brought by the online education in addition to other sources being experienced by all the individuals (MacIntre et al., 2020). The stress experienced by teachers can be at a level that can affect not only themselves, but also the teaching process, their personal lives and even their students (Adams, 1999). Also, a teacher's use of coping responses to stressors is an important determinant of their psychological adjustment and wellbeing (Talbot & Mercer, 2019). Coping is the process of responding to a stressor using one or more available techniques or strategies (MacIntre, 2020). Lazarus and Folkman (1984) refer to two types of coping strategies: problem and emotion-focused coping strategies. Problem solving, decision making or direct-action methods are used to change the stressful situation in problem-focused coping, while the meaning of the stressful situation is changed cognitively without changing the real situation in the emotionally focused coping method (Kızılok & Özok, 2021). Drug and substance addiction can be a way of coping with stress (Arevalo et al., 2008). Moreover, studies show that behavioral addictions are coping strategies used to escape from stress (Ungless et al., 2010). Consequently, stress can lead to internet addiction, cyber addiction, sex addiction, job addiction and shopping addiction in individuals (Kızılok & Özok, 2021; MacLaren & Best, 2010; Okasaka et al., 2008, Semaille, 2009).

The term addiction is derived from a Latin word, 'addicere', which means 'to be attached' or 'to be a slave' (Potenza, 2006). Walker (1989: 185) defines addiction as: "a desire or need beyond voluntary control; the tendency to increase the frequency or amount of activity over time; psychological dependence on the pleasurable consequences of the activity and damaging effects on the individual and society". In other words, addictions are chronic disorders that have negative effects on both personal and social levels (Thege et al., 2015). Addiction causes some changes in the chemistry of the brain and it kind of seizes the neural circuits (Small & Vorgan, 2010) It has

been a problem that has existed almost since the early days of human beings (Brecher, 1972) and has always caused both psychological and financial problems (U.S. Department of Justice, 2011).

Since the 1980s, some researchers have started to consider such behaviors as addiction, with the idea that addiction may be not only the consumption of certain substances, but also the repetition of some problematic behaviors. This is a great advance in the world of psychology and psychiatry because behavioral addictions such as kleptomania, gambling, compulsive sexual behavior and compulsive buying are indicatives of major public health problems, and these behaviors have always been highly associated with psychiatric comorbidities and mortality rates (Grant et al., 2006). Behavioral addictions can be defined as "the impulse to carry out an action that harms the person or the people around him and the inability to resist the emerging motive" (Taş et al., 2014: 41). The phenomenological, genetic and neurobiological evidence between behavioral addictions and substance addictions is increasing day by day (Grant & Potenza, 2005). According to Grant et al. (2010), these similarities are natural history (high frequency and prevalence, chronic, repetitive course), phenomenology (subjective desire, drunkenness 'rise' and withdrawal), and tolerance, comorbidities, overlapping genetic contribution, neuro-biological mechanisms and treatment methods.

Rationale and Purpose of the Study

Considering the stress and distress experienced by individuals during the COVID-19 process, as well as the increased time spent on the internet during this period, more research should be conducted on problematic behavior addiction tendencies. There are some certain studies examining behavioral addiction trends during the COVID-19 outbreak that focused on a single type of addiction. Kadeswaran et al. (2020) have studied smartphone addiction, Király et al. (2020) have studied internet addiction, Mestre-Bach et al. (2020) and Orte et al. (2020) have investigated pornography behavior, Price (2020) have studied gambling behavior, Jaspal et al. (2020) have studied online shopping habits in COVID-19. Several studies have provided information about the increase in online game behavior during the pandemic process (Amin et al., 2020; Avena et al., 2021, King et al., 2020). Marsden et al. (2020) adhered to DSM classification, addressing only opioid, alcohol, tobacco and gambling in the COVID-19 outbreak. However, we could not find a study that explains the situation in a more holistic perspective, which examines different behavioral addiction tendencies in COVID-19 pandemic. This study will be the first among addiction studies conducted during the COVID-19 pandemic period, with its wide scope examining many types of addiction with regard to teaching profession. In this way, a starting point can be created about which behavioral addiction tendencies teachers are prone to develop in this process, and necessary prevention studies and interventions can be made. This study will contribute both theoretically and practically to the literature in terms of detecting some risky behaviors faced by teachers, who are one of the most important parts of the education world, in the pandemic.

The purpose of this research is to determine the stress sources and behavioral addiction tendencies experienced by teachers during the COVID-19 pandemic process. Accordingly the research questions to be answered in this study are as follows:

1. What types of stress sources have occurred in teachers during the epidemic process?
2. What have teachers done to cope with these sources of stress during the epidemic?

3. What behavioral addiction tendencies are seen in teachers during the epidemic process?
4. Which psychological symptoms were seen more in teachers during the epidemic process?

Method

Research Design

This research used mixed method model in order to analyze collect multiple data by using both qualitative and quantitative methods. In mixed methods research, both qualitative and quantitative data are collected and analyzed, and the obtained studies are presented by integrating (Creswell, 2009). In this study, sequential exploratory design, one of the mixed method designs, was used. In this design, firstly, qualitative data is collected and analyzed, followed by quantitative data. The purpose of quantitative data is to reproduce qualitative data, and the analysis of the data is combined in the interpretation and discussion sections (Çelik, 2019).

Research Sample/Study Group/Participants

The study group consists of primary and secondary school teachers working in three districts of Van (İpekyolu, Tusba and Edremit). While determining the study group of the study, some criteria were first set: (a) Being between 25-40 years old (b) not exceeding ten years in the profession, (c) equal numbers of men and women in the study. Volunteering was based on these criteria and they were randomly selected among the participants who wanted to take part in the study. In random sampling, also called simple random sampling, every possible combination of elements in the universe has an equal probability of being included in the sample (Kerlinger & Lee, 1999). In simple random sampling, a sampling frame containing all the elements of the universe should be made first (Mertens, 2015). In this study, this framework was made with the determined criteria.

Table 1

Socio-demographic aspects of the participants

Variables	Categories	n	%
1.Gender	Man	12	50
	Woman	12	50
2.Age	20-25	2	8
	26-31	12	50
	31+	10	42
3.Status	Single	18	75
	Married	6	25
	Total	24	100

According to the Table 1, 50% of the participants are man and 50% of the participants are woman. 8% of the participants are between the ages of 20-25; 50% of the participants are between the ages of 26-31; and 42% of the participants are over 31 years. 75% of the participants are single while 25% is married.

Research Instruments and Processes

2 data collection tools were used:

1. A semi-structured development form including demographic information, developed by the researchers to determine the stress sources and behavioral addiction tendencies of teachers during COVID-19.
2. Brief Symptom Inventory (BSI) to determine the psychological symptoms of teachers during the COVID-19 pandemic were used as the quantitative data collection tool.

Data were collected using a semi-structured interview form, which includes demographic information (gender, age, marital status, and whether or not there are children), which was developed by the researcher for the qualitative part of the study. While preparing the interview difference, it started with open-ended questions where teachers could best explain the sources of stress or anxiety during the COVID-19 pandemic and how they coped with this stress or anxiety. Subsequent questions focused on 6 types of addiction (online shopping, online gambling, pornography, smartphone, digital game and social media), and the phenomenological characteristics associated with each of them (attention withdrawal, mood change, tolerance, withdrawal, conflict and repetition) were asked to the individual participants.

Brief Symptom Inventory – or BSI which was created by Derogatis and Melisaratos (1983) is a shortened, 53-item version of the Symptom Checklist-90 (SCL-90; Derogatis et al., 1973) that measures emotional-behavioral functioning in nine dimensions: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. The items in the BSI are a Likert-type scale graded between 0-4 values accompanying the statements "Nothing" and "Too much". The sub-dimensions of the UHI consisting of 53 items and 5 subscales; Anxiety (13 items), Depression (12 items), Negative Self Dimension (12 items), Somatization Dimension (9 items) and Hostility Dimension (7 items). The highest score that can be obtained from the scale is 212. Validity and reliability studies of the scale in our Turkey were conducted by Şahin and Durak (1994). In the factor analysis performed on the total scores of the subscales, there was a single and strong factor that could explain 66.2% of the total variance, while the Cronbach Alpha reliability coefficient of the scale was found to be .96.

Data Analysis

Descriptive and content analysis techniques were applied in the analysis of qualitative data. The sound recordings were transcribed one by one and analysis was made over this transcript. The data obtained by the descriptive analysis technique were summarized and interpreted according to predetermined themes. The data obtained in the descriptive analysis technique are summarized and interpreted under pre-determined titles (Altunışık et al., 2010). A conceptual framework was created from the semi-structured interview form questions in this study, and then the data obtained were placed in this framework to form a meaningful whole. After the descriptive analysis, the data in the conceptual framework were subjected to content analysis. The data organized under the main themes were analyzed and thus, codes with sub-themes were obtained. Theme, sub-theme and codes were revised and arranged. Percentage and

frequency tables for each theme were created by calculating how often the codes (teacher expressions) were repeated under which sub-theme. These tables are supplemented by direct quotations from teachers.

The quantitative part of the research consists of the data collected from the Brief Symptom Inventory. SPSS 22 (Statistical Package for Social Sciences) program was used to analyze these data. Descriptive statistics (Percentage, Average, Standard Deviation) were used while evaluating the study data. The Independent Sample T Test was used to check whether there is a significant difference between the gender factor and the total dimensions taken from the scale.

Results

In this study, analyzes were made to determine the stress sources of teachers during the COVID-19 pandemic, their methods of coping with this stress and their behavioral addiction tendencies in this process.

Findings on the Stress Sources of Teachers in the COVID-19

According to the interviews made with the teachers participating in the research, the information regarding the sub-themes, codes and frequency of the codes obtained under this theme is presented in Table 2.

Table 2

Teachers' sources of stress in the COVID-19

Sub-theme	f	%	Code	f	%
1.Restriction of social life	20	83	-being at home all time	14	59
			-not going places like cafes	7	29
			-not going gym	3	12
			-distance to friends	6	25
2.Aimlessness due to not going to work	9	7	-aimlessness	5	21
			-fear of rusting	2	9
			-staying away from students	2	9
3. Family related factors	8	33	-fear of infecting family	6	25
			-staying away from the family	2	9
4. Fear of being infected	13	54	-getting infected	12	50
			-infecting others	5	21
5. Uncertainty	8	33	-uncertainity about the future	8	33
			-being afraid of making plans	2	9
6. Wearing mask out of necessity	13	12	-being nervous when wearing a mask	3	12

In Table 2, it is seen that six sub-themes consist of restriction of social life, sense of aimlessness due to inability to go to work, familial factors, fear of being infected, uncertainty and wearing a mask out of necessity. 83% (n: 20) of the participants stated that the restriction of their social life caused stress on them. The second major stress factor is the fear of being infected with a rate of 54% (n: 13).

Restriction of social life

P1: *"Social life has been restricted. Normally, I would go out every two or three days, hang out in crowded places, all of them disappeared. I can no longer meet people comfortably. I used to eat a lot from outside and now I cook at home and I am incredibly bored with it. "*

P6: *"Social life has changed. You can't go to a restaurant or a cafe. We were on vacation, we didn't even experience it like a vacation. Life turned into routine. I think it caused loss of color in life. "*

As emphasized in the teacher statements above, 83% of the teachers stated that they experienced stress due to the restriction of their social life. Repeated codes in this theme; the stress of being at home all the time (59%); the stress of not being able to go to places such as cafes, bars, restaurants (29%); and the stress of intervening distance with friends (25%); stress caused by not being able to go to the gym (12%).

Fear of being infected.

P19: *"I used to put my hand in my mouth with ease before. Now I panic whether my hand touched my mouth even though I haven't taken it. Are there any microbes in the things we buy from outside? Even when I order, I think the following; In case the delivery man talked with somebody while bringing this food, if he took the mask off, if he got sick... "*

P4: *"I avoid crowded places because people don't follow the rules. Even though I pay attention to the rules, I am constantly stressing when I see that the other person does not.*

As emphasized in the teacher statements above, 54% of the teachers stated that they experienced stress due to the restriction of their social life. Repeated codes in this theme; stress caused by the fear of getting the disease (50%) and the stress caused by the fear of infecting others (21%).

Findings on Teachers' Methods of Coping with Stress in the COVID-19

According to the interviews made with the teachers participating in the research, the information regarding the sub-themes, codes and frequency of the codes obtained under this theme is presented in Table 3.

In Table 3, it is seen that eight sub-themes are composed of watching something on the internet, being interested in hobbies, alcohol and cigarettes, books and television, physical activity, work, housework, and orientation to loved ones. 75% of the participants (n: 18) turn to behavioral addiction tendencies to cope with stress, and the most intense among them is smartphone addiction with 66% (n: 16). Reading books and watching television (n: 16) is seen as the second coping strategy with a rate of 66%. This is followed by social media addiction with a rate of 54% (n: 13). It is seen that the most commonly used coping strategy among other themes is watching something on the internet with 58%.

Table 3

Teachers' methods of coping with stress in COVID-19

Sub-theme	f	%	Code	f	%
1. Watching something online	14	58	-Series -Movies -Videos	6 7 1	25 29 4
2. To be interested in a hobby	8	33	-Playing an instrument -Garden-plants -Painting -Dance	5 2 1 1	20 8 4 4
3. Alcohol and smoking	9	37	-Alcohol -Smoking	5 9	21 37
4. Book and Television	16	66	-Book -Television	12 7	20 29
5. Physical Activity	8	33	-Walking -Sports and Yoga -Going outdoors	1 5 3	4 20 12
6. Working	5	20	-Academical -Vocational Development	4 1	17 4
7. Chores	4	16	-Cleaning -Cooking	3 3	12 12
8. Turning to loved ones	10	41	-Spending Time with Family -Online Communication	3 7	12 29
9. Getting special support	2	8	-Psychological support and medication	2	8
10. Behavioral addiction tendencies	18	75	-shopping -gambling -pornography -smart phone -digital game -social media	5 3 3 16 2 13	20 12 12 66 8 54

Behavioral addiction tendencies

P1: "Now we can do everything by phone, I can control all my life-related work there. My relationship with the phone increased a lot during Covid. It increased a hundred percent. If there is a notification and I cannot look, my hand will shake. There is a feeling of obligation, a feeling that I have to look. It even makes me sleepy. My mind is constantly going off even when I am not in my hand. When I put the phone aside, I wonder if something is happening out of my control right now, I feel anxiety, in other words, the fear of missing something. Actually, it doesn't make me

feel happy or stressed, but I feel like my brain is getting very tired. When I look up and look at the outside world, I feel a perception problem. Actually, they have serious damages to me, but I can't let them go."

P17: *"The time I spent on social media during Covid increased a lot. I started sharing the coffee I drank. I used to travel that much, I would go to Istanbul every two weeks, I see I don't have a single post. But now I want to share everything."*

As emphasized in the teacher statements above, 75% of the teachers (n:18) stated that they turned to behavioral addictions as a method of escaping from stress. The codes repeated under this theme are online shopping addiction tendency (29%), online gambling addiction tendency (12%), pornography addiction tendency (12%), smartphone addiction tendency (66%), digital game addiction tendency (8%) and social media addiction tendencies (54%).

Books and Television

P5: *"I read the book a lot, especially in March and April, I even only read books during that period, I enjoyed it very much, it also reduced my stress a lot. My reading time has increased 3-4 times. I've been reading since my childhood, but I can't read in busy times of my life. I read a lot at that time, and it was very good. "*

P15: *"My TV viewing time also increased. Survivor, Masterchef. We come together as a family in the evening. Since I spent more time with the family, I watched whatever they watched in the hall."*

As emphasized in the teacher statements above, 66% of the teachers stated that they turned to books and television as a method of escaping from stress. Repeated codes under this theme are reading books (50%), and watching television (29%).

Watching something online.

P11: *"I met what we call Netflix with Covid. I didn't need it before. "*

P22: *"I watched more videos, watched videos on the Internet to cope with it."*

As emphasized in the teacher statements above, the interviewees 58% of the teachers stated that they watch something on the internet as a way of escaping from stress. The codes repeated under this theme are watching TV series (25%), watching movies (29%) and watching videos (4%).

Findings on Teachers' Behavioral Addiction Tendencies in the COVID-19

The phenomenological components of Griffiths (2005) were used to classify the six behavioral addiction tendencies (online shopping, online gambling, pornography, smart phone, digital gaming and social media) examined in this study as low, medium or high. These characteristics are (i) salience (ii) mood modification (iii) tolerance (iv) withdrawal, (v) conflict, and (vi) relapse. Table 4 shows the questions asked to measure each feature.

Table 4

Questions asked to measure the phenomenological components of behavioral addictions

Component	Description	Interview Questions
1.Salience	Behavior occupies a very large place in one's life, suppresses thought and causes cognitive impairment, and is constantly desired.	- Are there times when you feel like you have to do the behavior? - Do you constantly think about the behavior when you are not doing it?
2.Mood modification	As a result of behavioral addiction, shifts occur in the moments of revival and stagnation in the mood of the person.	- Does doing the behavior make you feel happy or relieve your stress? - Does the behavior sometimes depress you as much as it pleases you?
3. Tolerence	Longer/higher or intense behavioral sessions are required for a mood-altering effect.	- Do you need to increase the duration or intensity of the behavior to increase the satisfaction you receive?
4. Withdrawal	When the behavior is stopped or suspended, the individual experiences negative emotions (such as agitation, emotional outbursts, emotional exhaustion, physical discomfort, vomiting, headache, insomnia, loss of taste).	- Do you experience negative emotions when you do or fail to do the behavior? - What negative emotions do you experience?
5. Conflict	Addictive behavior is in conflict with other activities such as school, social life, hobbies, work, family responsibilities, and this conflict leads to negative consequences for the individual and/or others.	- Have you ever felt that the time you spend with behavior is holding you back from other areas of life? - Why did you feel like that?

6. Relapse	The individual repeatedly tries to reduce the addictive behavior or not to continue this behavior, but constantly returns to previously established behavioral patterns. All efforts to reduce the behavior fail, and even after a period of absence, it always comes back.	-	What should you do to reduce it?

In this context, it was stated that participants who responded positively to 5 or 6 of the six phenomenological components had high addiction tendencies, participants who responded positively to 3 or 4 of them had moderate addiction tendencies, and participants who responded positively to 1 or 2 of the six phenomenological components had a low level of addiction tendencies. According to the interviews with the teachers participating in the research, the information about the sub-themes, codes and the frequency of the codes obtained under this theme are presented in Table 5.

Table 5

Frequency values according to the total scores of the participants

Sub-theme	f	%	Intensity	f	%
1.Online shopping	5	20	Low	4	16
			Medium	1	4
			High	-	-
2.Online gambling	3	12	Low	1	4
			Medium	1	4
			High	1	4
3. Online pornography	3	12	Low	1	4
			Medium	2	8
			High	-	-
4. Smartphone	16	66	Low	6	25
			Medium	6	25
			High	4	16
5. Digital game	8	8	Low	1	4
			Medium	1	4
			High	-	-
6. Social media	13	54	Low	4	16
			Medium	9	27
			High	-	-

Table 5 shows that there are six sub-themes: online shopping, online gambling, online pornography, smart phone, digital gaming and social media. It is seen that 66% of the participants have low (n:6), moderate (n:6) or high (n:4) smartphone addiction tendencies. It is seen that 54% of the participants have low (n:4) or moderate (n:9) social

media addiction tendencies. Online shopping addiction tendency (n:5) is in the third place with 20% (n:5), in the fourth and fifth place is online gambling (n:3) and online pornography (n:3) with 12%, and in the last place is digital game addiction with 8% (n:2) is located.

Smartphone addiction.

P13: "I use the phone for almost everything. During Covid, the relationship with the phone has increased a lot. Youtube, Twitch, Pornhub. There is Twitter. I don't use Facebook anyway, and there has been an increase in my use of Instagram. I also used Whatsapp a lot. Yes, I check notifications often. I also feel like I have to spend time with myself. My mind goes to the phone all the time when I can't help it. I also feel anxiety when I don't have the phone in my hand. I also think it makes me happy and reduces stress. I think it's definitely helpful in this process. If I go for a walk without a phone, I feel unsafe. I think I'm missing something. I don't want to spend more time on the phone, on the contrary, I want to reduce it. It depresses me as much as it delights me. Tolerance is developing. It's not something I do consciously though. I experience negative emotion when I don't spend time on the phone. I feel like something important will happen and I need to reflect it at that moment. I've also been unsuccessful when I wanted to reduce the time. I wanted to reduce the time because sometimes I feel nauseous from looking at the phone. It makes me suffocating, very depressing. To reduce this, I need to participate more in social activities.

From the statements of the above participant, it can be seen that it contains all six components. Therefore, this person is classified among those with a high tendency to smartphone addiction.

Findings on the Psychological Symptoms Experienced by Teachers in the COVID-19

The data collected with the BSI (Short Symptom Inventory) applied to determine the psychological symptoms of teachers in the COVID-19 period constitute the quantitative part of the research.

Table 6

Frequency values according to the total scores of the participants

Sub-dimensions	n	Lowest Score	Highest Score	Total Score	Skewness	Kurtosis
Anxiety	24	,00	40,00	379,00	,952	,330
Depression	24	2,00	38,00	366,00	,909	,279
Negative Self	24	,00	33,00	242,00	1,284	1,017
Somatization	24	,00	34,00	202,00	1,737	2,916
Hostility	24	,00	19,00	189,00	,716	-,144

Table 6 shows the statistical values of the scores obtained by the participants from the five sub-dimensions. While the minimum values obtained from the total anxiety, total negative self, total hostility, and total somatization dimensions were 0, the lowest value obtained from the total depression dimension was 2,00. When the highest scores

from each sub-dimension are ranked, it is seen that Anxiety is 40,0; Depression is 38,0; Somatization is 34,0; Negative Self is 33,0 and Hostility is 19,0. The total values taken from the sub-dimensions were 379,00 in Anxiety; 366,00 in depression; 242,00 in Negative Self; 202,00 in Somatization and finally 189,00 in Hostility. Skewness and kurtosis values were ,925 in Anxiety; ,909 in depression; 1,284 in negative self; It is seen that it is 1,737 in Somatization and ,716 in Hostility.

Table 7

Significant difference between gender and total scores – Independent sample t-test

Sub-dimensions	Gender	$\bar{x}$	ss	t	sd	p
Anxiety	Male	12,00	7,68	-1,889	19,111	0,74
	Female	19,58	11,58			
Depression	Male	10,91	6,55	-2,207	17,089	0,41
	Female	19,58	11,91			
Negative Self	Male	7,58	6,14	-1,352	17,026	,194
	Female	12,58	11,24			
Somatization	Male	5,166	4,58	-1,863	14,605	0,83
	Female	11,66	11,17			
Hostility	Male	6,00	3,35	-1,789	16,658	0,92
	Female	9,75	6,44			

When Table 7 is examined, the distribution of points according to gender according to the BSI scores of the 24 people who participated in the study was found to be significantly different only in depression (p<0.05). The second sub-dimension, which is closest to the significant difference, is the anxiety dimension with ,074. It was seen that the difference between the other three dimensions was far from being significant.

Discussion, Conclusion & Suggestions

The data obtained in this study, which examines the stress sources and behavioral addiction tendencies of teachers during the COVID-19 process, is grouped into four themes. The conclusion and discussion are made for each theme.

The Stress Sources of Teachers in the COVID-19 pandemic

Learning something new, and a change is itself a source of stress because it requires the adaptation of new knowledge and behavior (Hoy & Woolfok, 1993). It is an indisputable fact that with the introduction of COVID-19 into our lives, we experience major changes and are exposed to new information and data every day through the media and the people around us. Therefore, it is an expected result that the masses experience stress due to many different factors during this period. In fact, any factor that exceeds an individual's own resources can be a source of stress (Lazarus and Folkman 1984). The stress experienced by teachers can affect not only themselves but also the teaching process, their personal lives and even their students. (Adams, 1999).

In this study, it was stated that the two biggest stress factors of teachers during the COVID-19 process are the restriction of their social lives and the fear of contracting COVID-19. Dubey et al. (2020) ranked the consequences of chronic social isolation, social distancing and home quarantine above the others, while listing the adverse health and well-being impacts of the COVID-19 disease. A large part of the world population is faced with psychosocial stress factors such as long-term home limitations, depression and panic due to the unknown nature of the disease, fear of being infected, vulnerability, working from home, concerns about income flow, and fear of losing a job (Lima et al., 2020; Rao & Andrade, 2020). Staying constantly at home can be experienced by individuals as intolerable. It is a type of withdrawal and excessive social withdrawal is also considered as a psychotic symptom in some studies (Tajan, 2015; Lamblin et al., 2007). Similarly, the majority of the working group of Husky et al. (2020)'s study indicated that they experienced moderate to severe stress during the process of closing home.

It is a well-known fact that the fear of getting sick is a great source of stress for the masses. COVID-19 can increase stress depend on the fear of infecting oneself or loved ones (Khan et al., 2020). Barzilay et al. (2020) study stress levels associated with COVID-19 (1) contact, (2) death from disease, (3) passing, (4) contact of family member, (5) unknowingly infecting others, and (6)) listed as experiencing financial problems. Accordingly, the restriction of social life and the fear of getting infected can be a significant stress source for teachers in COVID-19.

Teachers' Methods of Coping with Stress in the COVID-19

Combating the pandemic requires mental stamina as well as physical health (Barzilay et al., 2020). According to Moos and Schaefer (1993), individuals use two different ways to cope with stress. The first is the coping style that is characterized by logical analysis of the situation, positive re-evaluation and problem solving, while the second is the avoidant coping style, which is characterized by submission, emotional discharge, cognitive avoidance, and the search for new sources of satisfaction. Lazarus and Folkman (1984) likewise mentioned two different ways of coping as strategies, which are problem and emotion-focused coping strategies. While problem-solving, decision-making or direct action methods are used to replace the stressful situation in problem-focused coping, the meaning of the stressful situation is changed cognitively without changing the real situation in the emotionally focused coping method and sad emotions are tried to be regulated in this way. In this study, it is seen that the most common methods used by teachers to cope with the stress they experience during the COVID-19 process are behavioral addiction tendencies (smartphone and social media use), reading books and watching television, and watching things on the internet.

Examining the studies on teachers' strategies for coping with stress in daily life, MacDonald (1993) revealed that teachers have communication, adaptation, goal setting and relaxation techniques as strategies for coping with stress. It was stated by the participants of this study that the internet was also used for these social activities. Similarly, in this study, there are 13 teachers who stated that they turned to social media to avoid stress. Social media can become a good happiness tool with its rich content, unlimited information, visual satisfaction and ego-enhancing features. As a matter of fact, Demirtepe-Saygili (2020) revealed that the use of social media can also be a source of information, problem-focused coping, emotion-focused coping as a distraction, and social support.

In a quantitative study conducted by Fu et al. (2020) with 1242 individuals in Wuhan, almost 71% of the participants actively coped with stress by participating in different activities, sharing their concerns with others and looking from the busy side, while the other 29% reported that running away and smoking. it seems to use passive methods. In this study, it was found that the rate of teachers turning to alcohol and smoking to cope with stress is not at a high level (37%). In the light of these data and findings, it is possible to say that teachers want content that will draw more attention and focus from illness and isolation in order to get away from the tension and stress caused by COVID-19, therefore they turn to channels such as smartphones, social media, movies, TV series, television and books.

Behavioral Addiction Tendencies of Teachers in COVID-19

Scientific research and statistical data revealed in 2020 provide predictions that behavioral addictions may increase during the COVID-19 process (Király et al., 2020). In this period when the use of internet and technology reaches its maximum level, studies on the increase of compulsive purchasing, gambling addiction, sexual addiction and new forms of internet addiction, online shopping, online gambling, pornography, smartphone, social media and digital game addiction (King et al., 2020; Király et al., 2020) show that the situation is at extremely significant levels. In this study, it is seen that the behavioral tendencies of teachers during the COVID-19 pandemic are at a high level (75%), but most of this is smartphone and social media addiction tendencies. Participants in this study found that online shopping, online gambling, pornography and digital game addiction tendencies were not common.

The findings in this study are in line with We are Social 2020 report. This report reveals that the time people spend with smartphones increased by 76% during the COVID-19 period. As stated in the previous title, although the smartphone has a unique strategy in dealing with stress and anxiety by providing unlimited opportunities for people to enjoy life and make life easier (Kadeswaran et al., 2020), it will become pathological when it exceeds a certain dose and becomes addictive components. As a matter of fact, all the participants having smartphone addiction stated that they experience the negative situations (insomnia, isolation from reality, withdrawal from other areas of life, etc.) because of spending so much time on the phone. It is common for these participants to have both nomophobia (fear of staying away from cell phones) and FOMO disorders (fear of missing out on developments) at the same time. There are also studies showing that if the smartphone exceeds the addiction dimension, it can turn into different dimensions such as neuroticism and psychoticism (Park, 2005)

Elhai et al. (2020) used the Depression, Stress, Anxiety-21 and Smartphone Addiction scales in their quantitative study with 908 people from Eastern China cities. According to their findings, it was found that COVID-19 anxiety is associated with smartphone addiction, and smartphone addiction, which predisposes to general anxiety, is also associated with COVID-19 anxiety. When these are taken into consideration and combined with the data in this study, it is possible to say that teacher's turn to smart phones to get away from stress and anxiety, but they may also experience stress and anxiety with the contents there. As a matter of fact, teachers who participated in this study and who had a tendency to addiction to smartphones stated that spending time on the phone sometimes demoralized them or caused them to experience other negative emotions.

Social media companies have confirmed that there are huge increases in these platforms during the COVID-19 process. According to the We are Social 2020 report, during the COVID-19 period, people increased the time they spent on social media platforms by 23% and the time they spent by texting on these platforms by 24%. Similarly, according to a survey conducted by Web Index, approximately 25% of American and British social media users have increased their use of social media (Slisco, 2020). Almost all of the participants of this research (including those without social media addiction tendencies) stated that they increased their use of social media during the COVID-19 process. It is seen that the majority of the participants of this research use Instagram the most. Recently, it reveals that using Instagram too much can lead to psychological consequences (Mackson et al., 2019). In his study, Kırcaburun (2017) stated that Instagram could not control the time people spend, dislike their own life due to Instagram, and feel lonely and depressed when they stay away from Instagram. As a matter of fact, most of the teachers who participated in this study admitted that they experienced feelings such as jealousy and envy of the lives of others because of Instagram. Quantitative study conducted by Kashan (2020) with 1092 people revealed that staying away from external activities makes most of people addicted to social media and when people cannot use social media during epidemic days, they experience stress and anxiety. Findings obtained from this research also support these data. Considering all these, it is possible to say that the strategies used to cope with stress during the COVID-19 period may lead to bigger problems.

Psychological Symptoms of Teachers in COVID-19

When the five dimensions of the Brief Symptom Inventory used in this study are examined (anxiety, depression, negative self, hostility and somatization), it is seen that the most common psychological symptoms experienced by the teachers participating in this study during the COVID-19 process are anxiety and depression.

In a quantitative study conducted by Liu et al. (2020) with 1090 healthcare workers, it was found that almost all sample experienced symptoms of depression and anxiety. In a large-scale quantitative study conducted by Li et al. (2020) with 88,611 teachers in China, it was stated that it was 14%. This rate is lower than the anxiety level in this study. Barzilay et al. (2020) revealed in their studies on COVID-19 that there is a general anxiety and depression problem in societies.

Another result obtained from the quantitative data in this study is the total score difference between the male and female teachers who participated in the study. When the female (12) and male participants (12), whose numbers are equal, were examined from the sub-dimensions of the scale, it was seen that there was a significant difference only in the depression dimension and the anxiety dimension was close to being significant. In light of these findings, it is possible to state that women experience more depression and anxiety than men during the COVID-19 process. There are different expressions in the related literature. Rodriguez-Hildago (2020) and others found that women are more afraid of contracting COVID-19 than men, but there are no significant differences in anxiety, stress and depression levels of women and men. There are also studies that express more anxiety and sleep disorders in women compared to men in this process (Fu et al., 2020).

Özdin and Bayrak Özdin (2020) worked with 318 people in their study to reveal the depression, anxiety and health anxiety levels in Turkish population in COVID-19 times. They found the levels of depression and anxiety in

women are higher than in men. Again, Liu et al. (2020) state that women have more tendencies to experience post-traumatic stress disorder symptoms after epidemics compared to men. Considering these, stress and even some negative coping methods (behavioral addictive tendencies) in the COVID-19 process increase the level of anxiety and depressive thoughts in individuals, but this is the result of somatization (transformation into physical symptoms), hostility (hostility towards others) or negative self (one's It is possible to say that it is not common to pass the negative thoughts about themselves) dimension.

In line with the findings above, our recommendations are:

1. Although smartphones and social media can be coping strategies with their rich content and the conveniences they provide, too much use of them can turn into addiction tendencies over time and cause more severe consequences for individuals. As in every behavior, we need to establish a good balance and place them in the first plan of our lives. Online trainings can be given to teachers by the Ministry of National Education regarding this issue.

2. Restricting their social life and staying at home seem to be a major source of stress for teachers. It is of great importance for societies to take preventive measures, as the stress experienced by teachers will affect not only themselves but also the education process and their students. By national education directorates, outdoors, social distance and educational activities can be organized with the participation of a limited number of people (such as a Mathematics exhibition, an English festival). Teachers can be assigned tasks in these activities.

3. It is seen that teachers choose screen-oriented activities (smartphone, TV series, computer, television) in order to cope with the stress they experience during COVID-19. The number of teachers who engage in physical activities such as meditation, yoga and sports is extremely low. Individuals should be more informed about the benefits of such activities for both physical and mental health. Online events related to these can be organized by the Ministry of National Education. More scientific research can be done on the subject and these can be delivered to schools and teachers.

4. The research shows that teachers have little awareness and knowledge about addiction. Although teachers spend hours on the phone, they are unaware of their addiction tendencies because they do not know the characteristics of this phenomenon and the consequences it may cause. In today's world, where the use of technology and internet is increasing, especially children and young people can become potential addicts. Teachers should be educated about both substance addictions and behavioral addictions in order to identify their own health and their students' addiction tendencies and guide them. In this context, courses focusing on addiction awareness prevention can be added to the curriculum of education faculties or in-service trainings can be given to teachers by the Ministry of National Education.

5. This research is limited only to the teachers participating in the research and the province of Van. The stress experienced by the teacher will reflect on both education and students. In order to prevent this and to take precautions, family, educational, relational and technology-based stress factors and coping strategies of teachers working in different provinces and regions should be investigated. It should be determined whether

these teachers have addiction tendencies and psychological support should be offered to the people who are in need.

Ethic

According to the decision of the social and human sciences editorial ethics committee, dated 07/10/2020 and numbered 2020/11-01, this study received ethical approval.

Author Contributions

This article was written with the joint contributions of two authors.

Conflict of Interest

The authors declare that they have no conflict of interest.

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Primary School Teachers' Attitudes toward Distance Education and Motivation to Teach

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Abstract

This study examines the relationship between primary school teachers' attitudes toward distance education and motivation to teach. This correlational study used the survey for collecting data from 429 primary school teachers in various regions of Turkey. The scales were transmitted to teachers via online forms. The Motivation to Teach Scale and the Attitude Scale toward Distance Learning were used for the data collection. According to the findings, primary school teachers' motivation to teach was determined to be moderately high. Also a significant difference was found in motivation to teach levels of primary school teachers in terms of variables of age, professional experience, and education status. The attitudes of primary school teachers toward distance education were determined as moderate. Besides, there was a significant difference in the attitudes toward distance education of primary school teachers depending on the variables of professional experience. There was no significant correlation between the attitudes of primary school teachers toward distance education and their motivation to teach.

Key Words

Primary school teachers • Distance education attitude • Motivation • Motivation to teach

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The world is changing at a tremendous pace, and all people have to keep up with that pace. This rapid change affects all sectors and institutions, and educational institutions are among the most affected ones. Education aims to ensure the individual, social, economic, and cultural development of people by helping them acquire, change, and improve behavior. In addition, family, society, nation, and the world may contribute to their development (Güneş, 1996). Individuals with the qualities favored by society can be raised only through education (Genç, 2004). The qualifications sought in teachers as practitioners of education are also extremely important. Motivation is a concept related to the behaviors of individuals. It consists of all the efforts that lead people to achieve their goals (Erdem, 1998; Ertürk, 1995). There are two types of motivation: internal and external. Internal motivation is a person's reaction to internal needs. Emotions that come from within people are the source of internal motivation. Discovery, interest, knowledge, making sense, being adequate, and developing are the sources of internal motivation (Akbaba, 2006; Ergün, 2011). The sources of external motivation include external influences (Akbaba, 2006). External motivation is based on reward and punishment. The life of people appears when they are interested in future affairs. People are driven by goals such as acquiring authority and promotion. Gains are more important than the work itself (Deci et al., 1999; Hoy & Miskel, 2010). People, society, groups, or the institution in which they work should be motivated toward the goals. Motivated individuals do their jobs fondly and willingly. Thus, the efficiency of individuals and institutions increases (Güney, 2011). Teachers' motivation to teach is as important as their educational practices. Teachers are the most important factor in determining the qualifications that students acquire (Ministry of National Education [MoNE], 2017). Teachers are expected to enable students to learn at the highest level. This is only possible with motivated teachers. Teachers' motivation to teach is considered important as their practice of teaching. Teachers' motivation is a factor that impacts students' motivation (Jesus and Lens, 2005). The more teachers motivate themselves for the process of teaching, the more productive they will be (Büyükses, 2010). Sources of internal and external motivation are important in the teaching profession. Existing conditions and personal development can change the way motivation affects people. However, teachers are expected to continue their profession using sources of internal motivation (Yazıcı, 2009). Determination of the needs of teachers in the institutions in which they work and making arrangements for meeting these needs will ensure that teachers engage in their work more willingly and improve themselves. Increased teacher motivation is considered a factor that directly augments student motivation (Bishay, 1996).

Today, the development of technology has ushered in changes and innovation in all areas. This applies to education as well. These changes have underlined the need for different teaching methods. The concept of lifelong learning and the desire to have continuous education has emerged in terms of not only professional considerations but also personal development. Different methods have been employed to meet the need for education due to several reasons such as an excessive number of students, demand for education by different groups, and lifelong learning necessitated by the proliferation of business and work. In this context, different methods have been developed using technology (Akça, 2006). According to Uşun (2006), distance education is a planned and programmed educational activity wherein technology is used to mediate the communication and interaction between instructors and learners. It also provides students independence, flexibility, and individuality in terms of age, time, purpose, space, and management, allowing teachers and students not to share the same environment during the education process.

Distance education is a method that can appeal to more students compared with the existing education system, addresses the emerging needs and demands in a much shorter time, creates rapid and simple virtual environments and classrooms using technology, and compensates for the shortage of instructors. This method is open to innovation, and new information is actively and effectively used in the educational process.

Distance education has several advantages, including the elimination of spatial and temporal limitations, provision of education for all ages, elimination of costs such as those related to space and transportation, and provision of education by several field experts, not by a single instructor (Ağır, 2007; Uşun, 2006). Despite numerous possibilities introduced by distance education, there are some limitations in terms of applied methods, programs, and time.

The study examines primary school teachers' motivation to teach and attitudes toward distance education. In addition, answers to the following questions were sought:

1. a) What is the level of the primary school teachers' motivation to teach?

    b) Is there a significant difference in primary school teachers' motivation to teach levels in terms of their gender, education status, and professional experience?

2. a) What is the level of the primary school teachers' attitudes toward distance education?

    b) Is there a significant difference in primary school teachers' attitudes toward distance education in terms of their gender, education status, and professional experience?

3. Is there a significant correlation between teachers' motivation to teach and attitudes toward distance education?

Method

Research Method

In this study, the correlational survey model, which is one of the general survey models, was implemented to examine primary school teachers' motivation to teach and attitudes toward distance education. Studies wherein data are collected to determine certain characteristics of a group are defined as survey research (Büyüköztürk et al., 2013). "Survey models depict a situation as it is" (Karasar, 2016, p. 77). The correlation technique, a quantitative research model, was utilized in the study. In the correlation technique, the correlation between two or more variables is examined without intervention with these variables (Büyüköztürk et al., 2013).

Study Group

The study group consisted of 429 teachers working in public or private primary schools affiliated with the District Directorate of National Education in various provinces of Turkey in the 2019–2020 academic year.

The study group consisted of teachers conducting distance education during the pandemic in accordance with the purpose of the study. A survey form was developed and transmitted to teachers electronically (Google Forms) in April 2020. Of 429 participants, 279 (65%) were female and 150 (35%) were male. Their professional experience

ranged between 0 and 5 years for 152 (35.4%) participants, between 6 and 10 years for 79 (18.4%) participants, between 11 and 15 years for 64 (14.9%) participants, between 16 and 20 years for 64 (14.9%) participants, and 21 years and above for 70 (16.3%) participants. The education status of the participants was as follows: 47 (11%) had a college degree, 312 (72.7%) a bachelor's degree, and 70 (16.3%) a postgraduate (master's degree - doctorate).

Research Instruments and Processes

The Motivation to Teach Scale, developed by Kauffman, Yılmaz Soylu and Duke and adapted to Turkish by Güzel Candan and Evin Gencel (2015), and the Attitude Scale toward Distance Learning, developed by Ağır (2007), were used for data collection after obtaining the necessary permissions from the thesis advisor and scale owners. The first part of the survey contains items related to the personal information of teachers, while the second part has items designed to determine their motivations and attitudes toward distance education.

The Personal Information Form contains questions designed to elicit demographic information belonging to the study group such as gender, professional experience, and education status.

The Motivation to Teach Scale was originally developed by Kauffman et al. (2011). It was translated and adapted into Turkish by Güzel Candan and Evin Gencel (2015). Cronbach's alpha reliability coefficient of the scale was determined to be .92 (Güzel Candan & Evin Gencel, 2015). The scale consists of two dimensions as Intrinsic Motivation to Teach and Extrinsic Motivation to Teach, and it has 12 items. In this study, Cronbach's alpha reliability coefficients of Intrinsic Motivation to Teach, Extrinsic Motivation to Teach dimensions and for the total scale, Motivation to Teach Scale, are .75 .77, and .85, respectively. For the scoring of the scale, mean scores are calculated by taking the strongly disagree option as 1, disagree option as 2, the slightly disagree option as 3, the slightly agree option as 4, agree with option as 5, and strongly agree with option as 6 points. Values close to 1 refer to the low motivation to teach, while values close to 6 refer to the high motivation to teach. The statements on the scale were evaluated as score ranges (6-1/5 = 0.80).

To measure the attitudes of teachers toward distance education, the Attitude Scale toward Distance Learning, developed by Ağır (2007), was used. The Cronbach's alpha value of the scale was 0.83. The scale consists of two dimensions as Advantages of Distance Education and Limitations of Distance Education, and it has 21 items. It is a five-item Likert-type scale, ranging from strongly disagree (1) to strongly agree (5). The scale has seven reverse-scored items (4, 6, 9, 12, 15, 18, and 20). In the scoring of the scale, average points are calculated by taking the strongly disagree option as 1, disagree option as 2, undecided option as 3, disagree option as 4, and strongly disagree option as 5 points. The statements on the scale were arranged in score ranges (5-1/5 = 0.80). Furthermore, Cronbach's alpha reliability coefficients of two dimensions as Advantages of Distance Education and Limitations of Distance Education and the Attitude Scale toward Distance Learning are .67, .69, and .78, respectively for the this research.

Data Analysis

The data analyzed using the SPSS 26.0 for Windows statistical program. The skewness and kurtosis values were used to determine whether the data had a normal distribution.

Table 1

Descriptive Analysis of Primary School Teachers' Motivation to Teach

Dimensions	Skewness		Kurtosis	
	Statistic	SE	Statistic	SE
Intrinsic Motivation	-.935	.118	.920	.235
Extrinsic Motivation	-.058	.118	-,421	.235
Motivation to Teach	-.560	.118	.407	.235
Advantages of Distance Education	.454	.118	.142	.235
Limitations of Distance Education	.512	.118	1.882	.235
Attitude towards Distance Education	-.452	.118	.142	.235

The values were determined as -.935 and .920 for the intrinsic motivation; -.058 and -.421 for the extrinsic motivation sub-dimensions, and -.560 and .407 for the motivation to teach. For the advantages of distance education, the limitations of distance education and attitude towards distance education scales, the skewness and kurtosis values were .454 - .142; .512 - 1.882, and -.452 - .142, respectively. When the skewness and kurtosis values are in the range of ± 1.5, the distribution can be evaluated as normal (Tabachnick & Fidell, 2013). Furthermore, the skewness and kurtosis values being within ± 2 intervals is acceptable for normality according to George and Mallery (2010). Based on these expressions, the distribution is accepted as normal

Results

Mean (x) and standard deviation (SD) values of the scale were calculated to determine teachers' motivations to teach and their attitudes toward distance education. Descriptive analysis showing the primary school teachers' levels of motivation to teach is given in Table2.

Table 2

Descriptive Analysis of Primary School Teachers' Motivation to Teach

Dimensions	n	x̄	SD
Intrinsic Motivation	429	4.40	1.01
Extrinsic Motivation	429	3.60	1.12
Motivation to Teach	429	4.07	0.96

Regarding the study's first problem, it was determined that the primary school teachers' levels of motivation to teach (x̄=4.07) and the intrinsic motivation (x̄=4.40) levels were high, whereas the extrinsic motivation level (x̄=3.60) was moderate.

An independent samples t-test was conducted to determine whether teachers' motivation to teach differs in terms of gender.

Table 3

Independent Samples t-test Results on the Comparison of the Teaching Motivation of Primary School Teachers by Gender Variable

	Groups	n	x̄	SD	t-test		
					t	df	p
Intrinsic Motivation	Female	279	4.45	1.03	1.27	427	.20
	Male	150	4.32	.96			
Extrinsic Motivation	Female	279	3.67	1.16	1.70	427	.89
	Male	150	3.48	1.03			
Motivation to Teach	Female	279	4.12	.99	1.61	427	.10
	Male	150	3.97	.88			

According to the results of the test, no significant difference was found as seen in Table 3. In summary, the teaching motivation levels of primary school teachers do not differ in terms of their gender.

One-Way Analysis of Variance (ANOVA test) was conducted to determine whether teachers' teaching motivation levels change according to their professional experience.

Table 4

Questions asked to measure the phenomenological components of behavioral addictions

	Source of variance	Sum of squares	df	Mean square	*F*	*p*
Intrinsic Motivation	Between groups	4.08	4	1.02	.99	.41
	Within groups	435.00	424	1.02		
	Total	439.08	428			
Extrinsic Motivation	Between groups	21.14	4	5.28	4.32	.00
	Within groups	518.39	424	1.22		
	Total	539.53	428			
Motivation to Teach	Between groups	9.40	4	2.35	2.58	.03
	Within groups	386.13	424	.91		
	Total	395.54	428			

Considering the results, a significant difference was found for extrinsic motivation (F=4.32; p<.01) and total motivation to teach (F=2.58; p<.05) levels, as shown in Table 4. Tukey test, one of the post hoc (multiple comparisons) tests, was used to determine the difference among groups. The results of this test are given in Table 5 for extrinsic motivation levels and in Table 6 for total motivation levels.

Table 5

Post Hoc Test Results on Comparison of Primary School Teachers' Extrinsic Motivation to Teach According to Professional Experience

Groups	n	x̄	SD	F	p	Post Hoc Tukey
1) 0-5 Years	152	3.85	1.16			
2) 6-10 Years	79	3.68	1.01			
3) 11-15 Years	64	3.43	1.14	4.324	.00	1 > 5
4) 16-20 Years	64	3.45	1.08			
5) 21 Years and above	70	3.27	1.05			

As seen in Table 5, the Post Hoc test was conducted to determine in which groups the external teaching motivations of the teachers differ in terms of professional experiences levels. Looking at the results, professional experience of teachers at primary education level, whose professional experience is within the range of 0-5 years (x̄0-5 years interval=3.85); the external teaching motivation is higher than the teachers who are within the range of 21 years and above (x̄21 years and above =3.27).

As seen in Table 6, the Post Hoc test was used to determine between which professional experience the teachers' total teaching motivation differed.

Table 6

Post Hoc Test Results on the Comparison of Total Teaching Motivation of Primary School Teachers According to their Professional Experience

Groups	n	x̄	SD	F	p	Post Hoc Tukey
1)0-5 Years	152	4.23	.93			
2)6-10 Years	79	4.14	.91			
3)11-15 Years	64	3.92	1.06	2.581	.03	1 > 5
4) 16-20 Years	64	3.98	.88			
5)21Years and above	70	3.85	1.00			

According to the findings, the professional experience of the teachers at the primary education level within the 0-5 year interval ($\bar{x}$0-5 year interval=4.23); their total motivation to teach is higher than the teachers who are within the range of 21 years and above ($\bar{x}$21 years and above =3.85).

One-Way Analysis of Variance (ANOVA test) was applied to determine whether the teaching motivation levels of the teachers differ in terms of their educational status.

Table 7

One-Way Analysis of Variance Results on the Comparison of Teaching Motivation of Primary School Teachers by Their Education Status

	Source of Variance	Sum of squares	df	Mean square	F	p
Intrinsic Motivation	Between Groups	4.58	2	2.29	2.24	.10
	Within Groups	434.50	426	1.02		
	Total	439.08	428			
Extrinsic Motivation	Between Groups	9.62	2	4.81	3.86	.02
	Within Groups	529.91	426	1.24		
	Total	539.53	428			
Motivation to Teach	Between Groups	5.09	2	2.54	2.77	.06
	Within Groups	390.45	426	.91		
	Total	395.54	428			

Considering the test results, a significant difference was found for the level of extrinsic motivation (F=3.86; p<.05) as shown in Table 7.

Tukey's test was used. The results of the test are shown in Table8.

Table 8

Results of Post Hoc Analysis concerning Comparison of Extrinsic Motivation to Teach of Primary School Teachers by Education Status

Education Status	Descriptive Statistics			ANOVA		Post hoc Tukey's
	n	$\bar{x}$	SD	*F*	*p*	
1) College Degree	47	4,03	1,16			1 > 2
2) Bachelor's Degree	312	3,55	1,12	3.86	.02	
3) Postgraduate Degree	70	3,55	1,02			1 >3

As shown in Table 8, post hoc analysis was performed to determine the education status by which the teachers' extrinsic motivation to teach differed. Based on the results, it was determined that the teachers with a college degree had the higher extrinsic motivation ($\bar{x}$=4.03) to teach than the teachers with bachelor's and postgraduate degrees ($\bar{x}$=3.55).

Regarding the study's second problem, descriptive analysis showing the attitudes of the primary school teachers toward distance education is given in Table 8.

Table 9

Descriptive Analysis of Attitudes of Primary School Teachers toward Distance Education

Statements	n	$\bar{x}$	SD
Advantages of Distance Education	429	3.10	0.45
Limitations of Distance Education	429	2.70	0.71
Attitude towards Distance Education	429	2.97	0.46

It was determined that the levels attitude of the primary school teachers toward distance education ($\bar{x}$=2.97), and sub-dimension, the advantages of distance education ($\bar{x}$=3.10) were moderate, whereas the level of limitations of distance education subscale score ($\bar{x}$=2.70), was low.

An independent sample t-test was conducted to determine whether teachers' attitudes towards distance education differ in terms of gender.

Table 10

Independent Samples t-test Results on the Comparison of the Attitudes toward Distance Education of Primary School Teachers by Gender Variable

	Groups	n	$\bar{x}$	SD	t-test		
					t	*df*	*p*
Advantages of Distance Education	Female	279	3.09	.45	-.528	427	.59
	Male	150	3.11	.46			
Limitations of Distance Education	Female	279	2.69	.71	-.578	427	.56
	Male	150	2.73	.71			
Attitude towards Distance Education	Female	279	2.96	.46	-.641	427	.52
	Male	150	2.99	.46			

As seen in Table 10, no significant difference was determined at the end of the test. In summary, teachers' attitudes towards distance education do not differ in terms of their gender.

One-Way Analysis of Variance (ANOVA test) was conducted to determine whether teachers' attitudes towards distance education differ in terms of their professional experience.

Table 11

One-Way Analysis of Variance Results on the Comparison of Primary Education Teachers' Attitudes towards Distance Education According to the Variable of Professional Experience

	Source of Variance	Sum of squares	df	Mean square	*F*	*p*
Advantages	Between Groups	.52	4	.13	.63	.27
	Within Groups	87.78	424	.20		
	Total	88.30	428			
Limitations	Between Groups	7.06	4	1.76	3.53	.00
	Within Groups	211.98	424	.50		
	Total	219.04	428			
Attitude towards Distance Education	Between Groups	1.83	4	.45		
	Within Groups	90.36	424	.21	2.15	.07
	Total	92.20	428			

According to the results of the test, as seen in Table 11, a significant difference was found for the level of attitude limitations (F=3.53; p<0.01). Tukey's test results are shown in Table 12.

Table 12

Results of Post hoc Analysis concerning Comparison of Attitudes Limitation Levels of Primary School Teachers toward Distance Education by Variable of Professional Experience

Professional Experience	Descriptive Statistics			ANOVA		Tukey's Post hoc
	n	x̄	SD	*F*	*p*	
(1) 0–5 years	152	2.62	.72			
(2) 6–10 years	79	2.77	.67	3.53	.00	3 > 4
(3) 11–15 years	64	2.88	.73			
(4) 16–20 years	64	2.51	.71			
(5) 21 years and above	70	2.84	.66			

As seen in Table 12, post hoc analysis was performed to determine the professional experience level by which the attitude limitation levels of teachers toward distance education differed. Based on the results, it was found that the attitude limitation levels of primary school teachers with professional experience of 11–15 years were higher compared to teachers with professional experience of 16–20 years.

One-Way Analysis of Variance (ANOVA test) was conducted to determine whether teachers' attitudes towards distance education differ in terms of educational status.

Table 13

One-Way Analysis of Variance Results on the Comparison of Primary School Teachers' Attitudes Towards Distance Education According to Education Status Variable

	Source of Variance	Sum of squares	df	Mean square	*F*	*p*
Advantages	Between Groups	.02	2	.01	.06	.93
	Within Groups	88.28	426	.20		
	Total	88.30	428			
Limitations	Between Groups	1.64	2	.82	10.61	.20
	Within Groups	217.40	426	.51		
	Total	219.04	428			
Attitude towards Distance Education	Between Groups	.23	2	.11	.54	.58
	Within Groups	91.96	426	.21		
	Total	92.20	428			

According to the results of the test, there was no significant difference as seen in Table 13. In summary, teachers' attitudes towards distance education do not differ in terms of the school level they graduated from.

Pearson product-moment correlation coefficient was calculated to determine the correlation between teachers' motivation to teach and their attitudes toward distance education. To assess the correlation between variables, the following criteria were taken into account (Jawlik, 2016, p. 132): r= 0.00 - 0.10, there is no correlation; r= 0.10 - 0.30, correlation is weak; r= 0.30 - 0.50, correlation is moderate; r= 0.50 – 0.70, correlation is strong and r= 0.70 - 1.00, correlation is very strong.

Table 14

Correlation Test Results on the Relationship between Primary Schools' Motivation to Teach and their Attitudes toward Distance Education

		Advantages	Limitations	Attitude toward Distance Education
Intrinsic Motivation to Teach	r	-.01	.06	.02
	p	.76	.17	.60
Extrinsic Motivation to Teach	r	-.02	.03	.00
	p	.61	.52	.99
Total Motivation to Teach	r	-.02	.05	.01
	p	.67	.25	.75

According to the results of the correlation analysis given in Table 14, no significant correlation was found between the attitudes of teachers toward distance education and their motivation to teach.

Discussion, Conclusion and Suggestions

Primary school teachers' levels of motivation to teach were found to be moderately high, whereas their intrinsic and extrinsic motivations, as two subscales, were determined to be high and moderately high, respectively. Gün and Turabik (2019) explored the impact of possible selves of pre-service teachers on their motivation to teach and found that pre-service teachers' level of motivation to teach was moderately high, and, in the same vein with the present study, their intrinsic motivations had a higher average than their extrinsic motivation perceptions. While no significant difference was found between the participants' levels of motivation to teach in terms of gender, the differences between their motivation to teach in terms of the variables professional experience, and education status were significant. Due to changing and improving teacher education in Turkey, faculty of education curriculum has improved and has been implemented effectively. Therefore, new curriculum used in teacher education make teacher candidates have intrinsic motivation to teach instead of developing extrinsic motivation

In this study, the intrinsic motivation subscale scores of the teachers did not differ significantly in terms of professional experience, whereas the extrinsic motivation and total motivation scores were found to differ based on professional experience. Thus, the extrinsic motivation and total motivation scores of the teachers with professional experience of 0–5 years were found to be higher compared with the teachers with professional experience of 21 years and above. In the first years of teaching, salary and other external factors may provoke extrinsic motivation instead of intrinsic motivation. By having more experience in teaching profession may make teachers to grow intrinsic motivation. In the literature, Avcı (2019) found no significant difference in motivation to teach physical education and sports teachers in terms of professional experience. However, there was a statistically significant difference in teachers' motivation to teach other branches in terms of professional experience. Thus, it was found that the perceptions of motivation of teachers with professional experience of 1–5 years to teach were higher than those with

professional experience of 6–10 years and 11–15 years. In the same vein, Recepoğlu (2013), Ayaydın, and Tok (2015) determined that the motivation of teachers with professional experience of 1–5 years was at the highest level. The beginning teachers had rather high levels of motivation.

In this study, the intrinsic motivation and total motivation scores of teachers did not differ significantly in terms of education status, but their extrinsic motivation scores did. Thus, teachers with a college degree had higher levels of extrinsic motivation to teach than the teachers with a bachelor's degree. Because having a bachelor's or a graduate degree in teaching, make teachers more motivated. Moreover, having only college degree is enough to make money through teaching profession. Whereas continuing higher degree education needs especially intrinsic motivation instead of extrinsic one. In the literature, Argon and Cicioğlu (2017) determined that the variable of education status differed significantly in favor of the teachers with a bachelor's degree in terms of total and intrinsic motivation to teach. Memişoğlu and Kalay (2017) found that the motivations of teachers did not vary in terms of their education status. Recepoğlu (2013) stated that the motivations of teachers did not vary in terms of their education status.

The attitudes of primary school teachers toward distance education were determined to be moderate, and their scores related to the subscales, namely, the advantages of distance education and the limitations of distance education, were moderate as well. In literature, Ağır (2007) found the attitudes of teachers toward distance education as moderate. Ülkü (2018) determined teachers' attitudes toward distance education as moderate, noting, however, that they were bordering on the low-level mark. In addition, in Ülkü's study (2018), the attitude scores for the advantages of distance education subscale were found to be close to the moderate level but above it, whereas the attitude scores for the limitations of distance education subscale were found to be close to the moderate level but below it.

In this study, no significant difference was found in the attitudes of the teachers toward distance education in terms of the variables gender, and education status, while a significant difference was found in the attitudes of the teachers toward distance education depending on their professional experiences.

It was determined that the scores from the advantages of distance education subscale did not differ significantly in terms of professional experience, but the scores from the limitations of distance education did. Thus, the teachers with professional experience of 11–15 years had higher levels of attitude limitations than teachers with professional experience of 16–20 years. In literature, Horzum et al. (2012) determined that the beliefs of teachers in distance education differed based on their professional experience. Likewise, Ağır (2007) found that teachers with professional experience of 0–5 years had positive attitudes toward distance education. Ülkü (2018) concluded that there was no significant difference between teachers' professional experience and their attitudes toward distance education.

According to the results of this study, no significant difference was found between the attitudes of the teachers participating in the study toward distance education and the variables of gender and education status. It is believed that this is due to the technology currently holding a significant place in every field, and its importance is understood by everyone and new generations are highly familiar with the technology. A significant difference was determined in

the attitudes of the teachers toward distance education in terms of professional experience. It can be suggested that people who actively use technology nurture positive perspectives on distance education.

There was no significant correlation between the attitudes of primary school teachers toward distance education and their motivation to teach. In literature, a study that examined the correlation between the attitudes toward distance education and motivation to teach could not be found. Taşlıbeyaz et al. (2014) explored the experiences of teachers regarding in-service training on distance education and found that distance education increased motivation by providing temporal and spatial flexibilities and it was preferred for these reasons.

Based on the analysis of the results obtained from the scale administered to teachers for this study, the following recommendations can be made. The extrinsic motivation levels of primary school teachers were lower compared with their intrinsic motivation levels. To increase the extrinsic motivation levels of teachers, it is important that their successful work be appreciated by managers and a fair rewarding system be developed. This study's results demonstrated that there was a decrease in the level of motivation as the age increased. To eliminate this situation, teamwork can be arranged for beginning teachers and experienced teachers so that they can transfer their knowledge and experience to each other.

Research can be conducted to determine why motivation levels of teachers decrease over time. Psychological counseling services can be provided for teachers who experience low motivation in the professional sense. As teachers are implementers of education, their motivation for distance education is highly important. Therefore, it can be ensured that teachers can master the subject by receiving in-service training for the use of technology and distance education.

The naive young teachers are more equipped than other teachers because their technological and academic knowledge is fresher. To increase their motivation and keep their knowledge fresh, schools should be well-equipped in terms of technology and materials. Teachers should closely follow new software and techniques as technology changes rapidly, and they should effectively use technology to facilitate their daily lives and make educational activities more effective.

There are some limitations to this research. The first and the most crucial one was that the sampling procedure was not random sampling. By broadening the diversity of participants, representing the broader population, would provide more significant results. The second limitation, due to an extraordinary era, Covid-19 pandemic, the participants answered the surveys with a reluctant mode. Therefore, participants' answers shared may not represent their thoughts in an ordinary environment. The last and maybe the more strict limitation was that the researchers could not explain the aim of the study in more detail because all data had been collected via electronic forms.

Ethic

The ethical standards of the institutional and/or national research committee were considered when this research was conducted.

Conflict of Interest

No conflict of interest was provided by the authors.

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Student Perception of Classroom Climate Scale: Adaptation and Validation to Turkish

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Abstract

Classroom climate is a major contributor to student behavior and learning, and serves as an indicator of overall school performance. Currently, researchers examining classroom climate have a choice between two models of the Student Personal Perception of Classroom Climate (SPPCC) scale. International adoptationsof the SPPCC scale alternate between the four factor and the six factor dimensional. This research assesses the psychometric properties found in the SPPCC scale in a Turkish classroom context using the four factor model. Data analysis has been conducted on 3 different samples (425, 405, 502) from 12 different schools, whose students' aged 10 to 15.

Key Words

Classroom climate • Model comparisons • Reliability • Scale • Validity

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A continuing focus for educational researchers, and educational policy makers, is the identification of social, psychological and behavioral characteristics of classrooms that promote students' school success (Doll et al., 2010; Kaplan Toren and Seginer 2015). Classroom climate is a major contributor to student behavior and learning, and a significant indicator of overall school performance. Recognized as an essential factor for academic and social learning, it has the potential to be both beneficial and enriching or, conversely, it can be a barrier to learning (Dorman, 2001; Lee, 2005; Rowe et al., 2010). Positive classroom climate has been associated with enhanced academic achievement (Baker, 2006; Goh, Young, & Fraser, 1995; López et al., 2018; Reyes et al., 2012; Meece et al., 2006; Penick & Bonnstetter, 1993), classroom engagement and motivation (Patrick et al., 2007; Ryan & Patrick, 2001), goal orientation and academic efficacy (Dorman, 2001). Other effects include decreases in dropout rates (Christle et al., 2007), and truancy (Henry & Huizinga, 2007), along with increases in prosocial behavior (Welsh, 2000) and well-being (Wilczenski & Coomey, 2007). Mainhard et al. (2011) explain the classroom climate as a social-psychological environment for improving students' learning. However, some others interpret classroom climate as the social-psychological context of classroom (Fraser, 1986; B. Johnson & McClure, 2004; Rowe et al., 2010). Classroom climate can be described as the shared conceptual image of classroom by classroom members (Penick & Bonnstetter, 1993). Based on the review of the literature (Çengel & Türkoğlu, 2016; Hughes & Coplan, 2018; Ingemarson et al., 2019; Kaplan Torren & Seginer, 2015; Lopez et al, 2018; Person & Svensson, 2017; Rowe et al., 2010; Rubie-Davies et al., 2016), three sets of variables that influenced the climate within a classroom can be identified: relationships (including teacher support, the interactions between students and their peers and teachers); systems' maintenance and change (such as organization and order, rule clarity and teacher control); goal-orientation (including task-orientation and competition).

Though classroom climate is a crucial concept for school learnings, it has a complex and multidimensional structure (Fraser, 2001, 2005, 2007; Hamre & Pianta, 2001; Pianta et al., 2002). While there are different dimensions in different classroom climate scales around the world, (Learning Environment Inventory-LEI (Fraser et al., 1982), the Classroom Environment Scale-CES (Moos & Trickett, 1995), the Individualized Classroom Environment Questionnaire (Fraser, 1990), the My Class Inventory-MCI (Fisher & Fraser, 1981; Fraser et al., 1982; Fraser & O'Brien, 1985), the College and University Classroom Environment Inventory-CUCEI (Fraser et al., 1986a, 1986b). the Constructivist Learning Environment Survey-CLES (Taylor, Fraser, & Fisher, 1997), What is Happening in This Classroom- WIHIC (Dorman, 2003; Zandvliet & Fraser, 2004, 2005), the Classroom Life Instrument (Johnson, 1974; D. W. Johnson, Johnson, & Anderson, 1983), and the Class Maps Survey (Doll et al., 2010) there are also some common dimensions in many scales.

There are differently constructed scales to explain classroom climate in educational settings. Rowe et al. (2010) tested and compared a four factor model scale to a six factor model scale of the Student Personal Perception of Classroom Climate (SPPCC). Their conclusion was that the four factor model scale worked better than the six factor model scale. The first tested model contained six sub-dimensions (Teacher Academic Support, Teacher Personal Support, Peer Academic Support, Peer Personal Support, Academic Competence, and Satisfaction) with 26 items. Because of the high correlation between sub-dimensions, teacher academic support and teacher personal support were expressed as "teacher-support" and peer-academic support and peer-personal support dimensions were combined as a single dimension termed "peer support." Thus the six factor model became the new factor model, with investigators in New Zealand also finding similar evidence supporting the

four factor model of the SPPCC (Rubie-Davies et al., 2016). In the original study (Rowe, et al., 2010), factor correlations ranged from .27 (AC - PS) to .60 (PS - TS) and in the study by Rubie-Davies et al. (2016) factor correlations ranged from .45 (AC - PS) to .61 (PS - TS) where the factors showed that they were measuring distinct constructs. In Rowe et al. (2010) and Rubie-Davies et al. (2016) AC-PS had the lowest factor correlations.

Our examination provides both explanatory and confirmatory analyses of the four factor SPPCC, as applied to a Turkish school setting. The main aim of this research is to assess the psychometric properties the SPPCC in a Turkish classroom context. We gave the psychometric properties of the scale and provide some cross-cultural evidence pertaining to the validity and reliability of the SPPCC. Our interest is in comparing our Turkish based results to similar data profiles produced in the USA and New Zealand classroom contexts.

Analytical Framework

Classroom climate can be described as a shared conceptual image among classroom members (Penick & Bonnstetter, 1993). Because it is a complex and multidimensional structure (Fraser, 2001, 2005, 2007; Hamre & Pianta, 2001; Pianta et al., 2002), classroom climate continues to be an important international area for investigating the multivariate processes involved in school learning. Multiple scales have been developed to assess the strengths of different dimensions in a given classroom context. Below we outline some of the similarities that exist between different cross-cultural uses of the scales.

Student-Teacher Relationships

Scales which evaluate classroom climate share a dimension in classroom climate scales associated with teacher behaviors. Teachers' various qualities may affect students in different ways such as their communication style, expectation, or relationships (Rowe et al., 2010), and they can create supportive climates in the classroom. Considerable research has been carried out about the importance of relationship between students and teachers in shaping the quality of students' classroom learning experiences (Ahnert et al., 2012; Burchinal et al., 2002; Jerome et al., 2009; Murray & Malmgren, 2005; Pianta & Stuhman, 2004; Pianta et al., 2002; Pianta et al., 1997). Teachers' perception about themselves, their jobs and the material that they teach are important components for fostering positive classroom environments (Ingemarson et al., 2019; Shindler, 2010). Student-teacher relationships may contain feelings like respect, confidence and honesty (Doll et al., 2010). In some scales, this dimension includes a variety of teacher behaviors including rule clarity, task orientation, approachability, and classroom control (D. I. Johnson, 2009). An expanding literature base highlights the role that student-teacher relationships play in preventing school failure, affecting peer relationships, and contributing to social-emotional competency (Hamre & Pianta, 2001; Guess & Bowling, 2014). Positive student–teacher relationships can facilitate student engagement and adaptability, learning facility, persistence in completing difficult tasks, and overall motivation.

Student-Student(s) Relationships

The students' relationship with their classmates is an important dimension in analyzing classroom climate. Research focused on different aspects of peer-peer relationships have revealed the importance of students' games in their schooling processes (Boor-Klip et al., 2014; Guess & Bowling, 2014; Hinshaw, 2001). Student–student

interaction is part of a supportive classroom climate, although research is largely teacher-focused (Johnson, 2009).

Academic Competency

Lorsbach and Jinks (1999) underline that students' academic competence is an important element of the "classroom as a learning environment". Students' academic competencies can be considered as students' perceptions of what they can achieve in the classroom environment. According to Roeser et al. (2000) students' academic competency is a positive and significant predictor of their academic achievement.

Satisfaction

Satisfaction is an important part of classroom climate scales. Researchers link satisfaction to students' emotional well-being in the classroom, to school success (Cohen, 2006), and to avoiding school failure (Guess & Bowling, 2014). Learning environment inventories describe satisfaction as the extent of enjoyment of being in a given classroom (Fraser et al., 1982). Students' satisfaction may be related to how well the classroom environment matches students' preferences (Elliott & Shin, 2002).

Method

Participants

Data analysis were conducted on 3 different samples (each sample contain students from 12 different schools) from 12 different schools form a province in western Turkey, with students' aged 10 to 15. The first sample group was 425 students for explanatory factor analysis, second was 405 students for confirmatory factor analysis, and third was 502 for concurrent validity. Students were aged between 11-15. Data were collected from 12 schools from different socio-economic levels. The first sample included 49.2% female (n= 207), 50.8% male (n= 214); the second sample contained 50.4% female (n= 204), 48.4% male (n= 196) and the third sample consisted of 51.6% female (n= 259), 47.2% male (n= 237). The students represented fourth, fifth, sixth, seventh and eighth grades. In the first sample the distribution of class levels were as follows: 12%, 21.5%, 19.3%, 24.8% and 21.9%; in the second sample 9.6%, 23.0%, 230.%, 24.0%, 20.2%; and in the third sample 11.8%, 21.3%, 22.1%, 24.1%, and 20.5% respectively.

Measures

Permission from Ellen W. Rowe, the corresponding author of the original SPPCC study, was requested and obtained for adapting the scale into Turkish. The SPPCC items were translated into Turkish, and then a Turkish language form was created in conjunction with a translational equivalence assessment. Translational equivalence of the Turkish and original forms of the scale was tested on a sample of 36 university students (English teacher candidates) whose native language was Turkish and were fluent in English. The Pearson correlation coefficient between the total scores of the Turkish and English forms was .99 (p≤ .001).

School Engagement Scale

The Turkish adaptation of the School engagement Scale, originally developed by Fredricks et al. (2005), was completed by Çengel et al. (2017) and included three dimensions for cognitive, affective, and behavioral participation. A five-point Likert scale was utilized, containing a total of 19 items. It showed that the Turkish form has an adequate compatibility between the hypothezed model and the data set for the three-dimensional

scale. In the original form, the internal consistency of the scale varies between .77 and .86. In the Turkish version, the internal consistency value for the cognitive dimension was .80, for the affective .80, .68 for the behavioral, with a total score of .89 (Çengel et al., 2017). In this study, the internal consistency of the scale was calculated as Cronbach alfa .82 and McDonald omega .86.

Sense of Belonging to School Scale

The scale for measuring a sense of belongingness to school was first developed by Akar Vural et al. (2013) and consists of 10 items and two sub-dimensions (the contentment of school and the obedience of school rules). The internal consistency value of the scale for contentment in school sub-scale was .86, while the obedience of school rules for sub-scale was .79, with the total reliability being around .85. In this study, the internal consistency values of the scale were .86 for both Cronbach alpha and McDonald omega.

Personal Information Form

The Personal Information Form prepared by the researchers was used to obtain information about the variables of gender, class level, age and school of the participants.

Procedure

Permissions were obtained for all scales used in the study. The researchers applied the scales to students at nine middle schools in a province of western Turkey. Student volunteers completed the application in approximately 15-20 minutes. Descriptive statistics, exploratory factor analysis, confirmatory factor analysis, Pearson product-moments correlation analysis, test-retest analysis, Cronbach alpha and McDonald omega coefficients were calculated in the research analyse. All were performed using the IBM SPSS (Version 23, 2015), MPLUS and psych package (Revelle, 2017) with the software R (version 3.5.0, R Core Team, 2018).

Findings

When standardized coefficient β and t values are examined, it can be said that the need for social approval is a significant predictor of resilience.

Descriptive Statistics

Descriptive statistical results in the exploratory factor analysis data showed skewness values between -1.28 - .32, and kurtosis values between -1.34 and -.77. Item means indicated that item 9 had the highest mean (= 3.48, d.f.= .75), while item 19 had the lowest mean (= 2.24, d.f.= .97). In the confirmatory factor analysis, skewness values were between -1.33 and -1.05 and kurtosis values were between -1.29 - 1.11. According to item means on this data, item 9 had the highest mean (= 3.50, d.f.= .74), while item 6 had the lowest mean (= 1.81, d.f.= .98).

Exploratory Factor Analysis (EFA)

Kaiser-Meyer-Olkin (KMO) and Barlett Sphericity Test values were examined in EFA. KMO value was found to be .933 for 26 items. Bartlett sphericity test was found to be statistically significant [χ^2=4823.764; d.f.= 325; p≤ .001]. Principal Axis Factoring and Direct Oblimin conversion resulted in 4 factors with an Eigen value greater than 1, explaining 47.91% of the total variance. The Scree plot graph supported a four-factor solution. The resulting factors, factor loads and item total correlations are given in Table 1.

Table 1

EFA's Factor Loads of CCPS

Items' number	Item total correlations *	Teacher support		Peer support		Satisfaction		Academic competence	
		Pattern	Structure	Pattern	Structure	Pattern	Structure	Pattern	Structure
Item 13	.68	**.78**	.79						
Item 19	.70	**.75**	.79						
Item 25	.69	**.68**	.75						
Item 11	.56	**.66**	.67						
Item 23	.59	**.61**	.67						
Item 21	.61	**.56**	.66						
Item 15	.67	**.48**	.66						
Item 26	.63			**.82**	.80				
Item 22	.56			**.78**	.74				
Item 24	.57			**.63**	.66				
Item 20	.59			**.62**	.67				
Item 16	.60			**.54**	.62				
Item 14	.52			**.51**	.56				
Item 18	.57			**.49**	.58				
Item 12	.61			**.40**	.55				
Item 17	.61			**.29**	.50				
Item 4	.61					**.83**	.82		
Item 2	.61					**.71**	.74		
Item 8	.65					**.70**	.76		
Item 6	.48					**.66**	.64		
Item 10	.64					**.50**	.64		
Item 5	.38					**.32**	.36		
Item 3	.61							**.75**	.73
Item 1	.57							**.69**	.74
Item 7	.61							**.68**	.75

Item 9	.48						**.43**	.53
Eigen values	-	9.10	-	2.08	-	1.85	-	1.36	-
Varyance	-	33.09%	-	6.10%	-	5.29%	-	3.43%	-

*All item total correlation is significant at the .01 level.

The Eigen values of the four factors of the scale are between 1.36 and 9.10. The percentages of variance explained were between 33.09% and 3.43%. The highest variance was in teacher support and the lowest variance was in academic competence. Scale items do not contain cross-loaded items and an items' pattern matrix loading is ≥ .40. Except for item 17 (.29), the factor loads of all other items is greater than .30. The factorization found in this exploratory factor analysis was approximately the same as the EFA expressed by Fredricks et al. (2005). One difference was that item 17 loaded onto the Teacher support dimension, which, in the original scale, had been in the dimension of Peer support. Ferketich (1991), found item total correlations in the scale items should have values greater than .30. Our EFA indicated a correlation range between .38 and .70.

Confirmatory factor analysis (CFA)

CFA was used to test three different types of CFA models. Chi-Square Goodness, Comparative Fit Index (CFI), Tucker-Lewis Index (TLI),Root Mean Square Error of Approximation (RMSEA) indeces were taken into consideration in order to examine the levels of model fit. Measurement invariances were assessed by ΔCFI and ΔRMSEA. These weresimple individual construct CFA model (Model 1), individual construct with 4 dimension first-order CFA model (Model 2), and construct with 4 dimension based on second-order CFA model (Model 3). A comparison of models tested with CFA are given below.

Table 2

Presents Results of All CFA models.

Models $n= 405$	χ^2	d.f.	χ^2/df	RMSEA (90% CI)	CFI	TLI
Model 1: Simple individual construct CFA	1608.06	299	5.38	.10	.71	.68
Model 2: Individual construct with 4 dimensions first-order CFA	603.50	293	2.06	.05	.93	.92
Model 3: Construct with 4 dimensions based on second-orders CFA	604.24	295	2.05	.05	.93	.92

The first model tested in CFA was the one factor model. The one-factor model yielded a statistically significant χ^2 value (1608.06, df= 299), and also the other fit indexes indicated poor goodness of fit indexes (CFI = .71, RMSEA= .10, TLI= .68)). The factor loadings of the items on this model ranged from .33 to .74.. All factor loadings were significant on the expected direction. The second tested model the four-factor CFA model yielded a statistically significant χ^2 value (603.50, df= 293), but the other fit indexes indicated a good fit (CFI= .93, RMSEA= .05, TLI= .92). The factor loadings of the items ranged .61 to .81 for teacher support, .53 to .72 for peer support, .46 to .77 for academic competence, and .37 to .78 for satisfaction.

Finally, goodness of fit of the second-order four-factor CFA (model 3) at the second order CFA is sufficient in the results (χ^2= 604.24, df= 295, CFI= .93, RMSEA= .05, TLI= 0.92). Model 2 and model 3 yielded very close results. However, model 3 was chosen because it is more suitable for theoretical framework and original scale's model. Also, there was no statistical difference between the two models. ($\Delta\chi^2$= .74, Δdf= 2, ΔRMSEA= 0.00, ΔCFI= 0.00). Figure 1 show that results of the second-order CFA model.

In cross-validation, CFA data were randomly divided into 40% (n= 162) and 60% (n= 243) segments. Hypothetical model of the scale was determined for 40% data (χ^2= 481.46, df= 295, χ^2/df= 1.63, CFI= .91, RMSEA= .05, TLI = .91) and for 60% data (χ^2= 468.62, df= 295, χ^2/d.f.= 1.59, CFI= .91, RMSEA= .05, TLI= .91) (ΔCFI= 0.00 , ΔRMSEA= 0.00). Baseline single-group CFA models showed acceptable model fit for each gender (Female χ^2= 502.28, df= 295, χ^2/df= 1.70, CFI= .91, RMSEA= .06, TLI = .91; Male χ^2= 492.46, df= 295, χ^2/df= 1.67, CFI= .91, RMSEA= .05, TLI = .90). According to these results there isn't differences between two model (ΔCFI= 0.00 , ΔRMSEA= 0.00).

Concurrent validity

SPPCC's relationships with the School Engagement Scale and the Sense of Belonging to School Scale were used for concurrent validity. The results of Pearson product correlation analysis showed that the total score of Class Climate was related to School Attachment (r= .56) and School Belonging (r= .50). The effect levels of the correlations were calculated as .32 and .25.

Reliability

Internal consistency of the scale was tested by calculating the Cronbach's alpha coefficients for the sub-scales and the overall scale. Cronbach's alpha values for the sub-scales were as follqws .87 for teacher support, .85 for peer support, .74 for academic competence, and .81 for satisfaction. The alpha reliability value calculated for the overall scale was .87. McDonald's Omega values for the sub-scales were as follows .88 for teacher support, .85 for peer support, .75 for academic competence, and .83 for satisfaction. The alpha value calculated for the overall scale was .90.

Figure 1

Second order CFA Output for Student Personal Perception of School Climate Scale
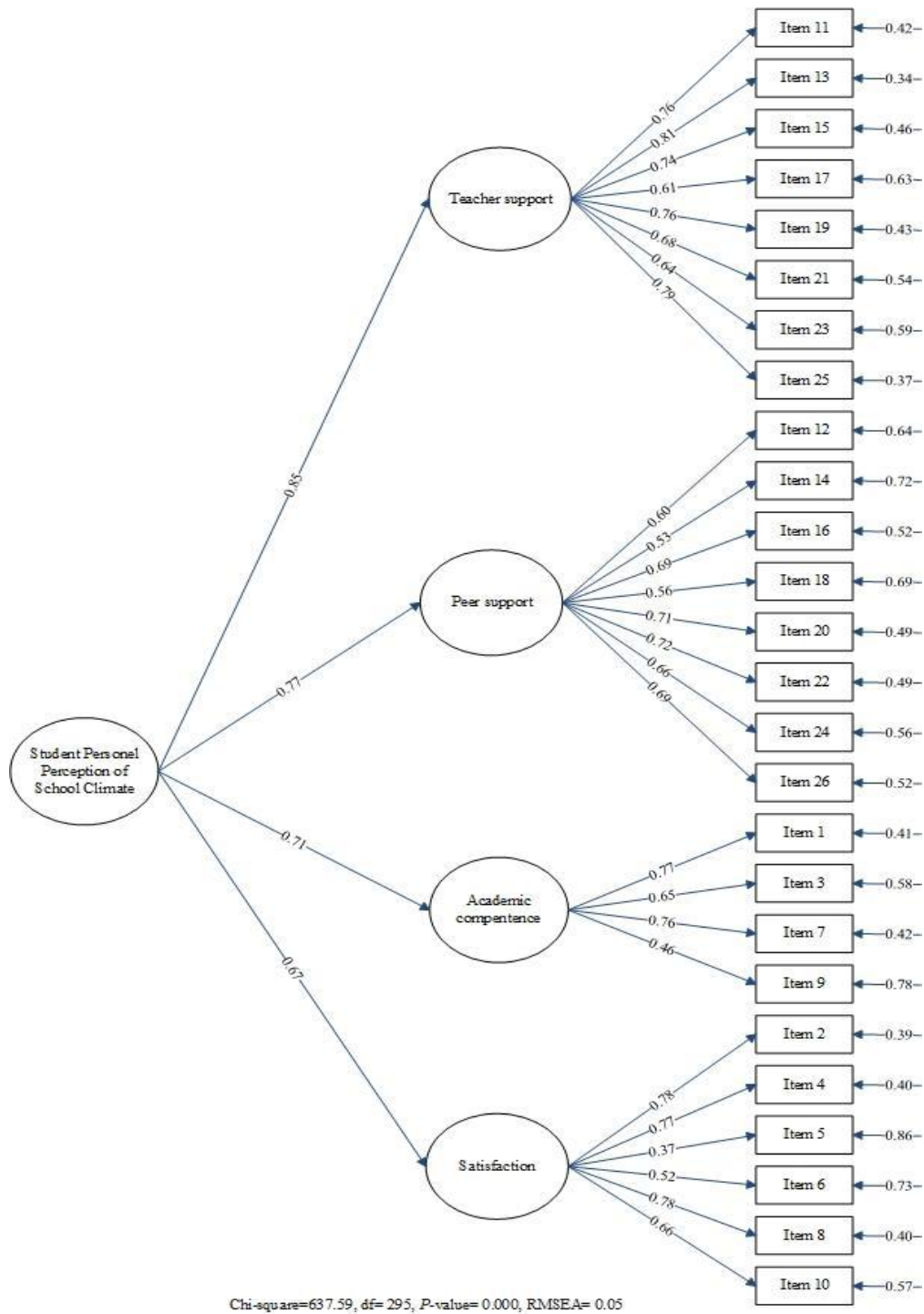
Figure 1

Second Order CFA output for Student Personal Perception of School Climate Scale
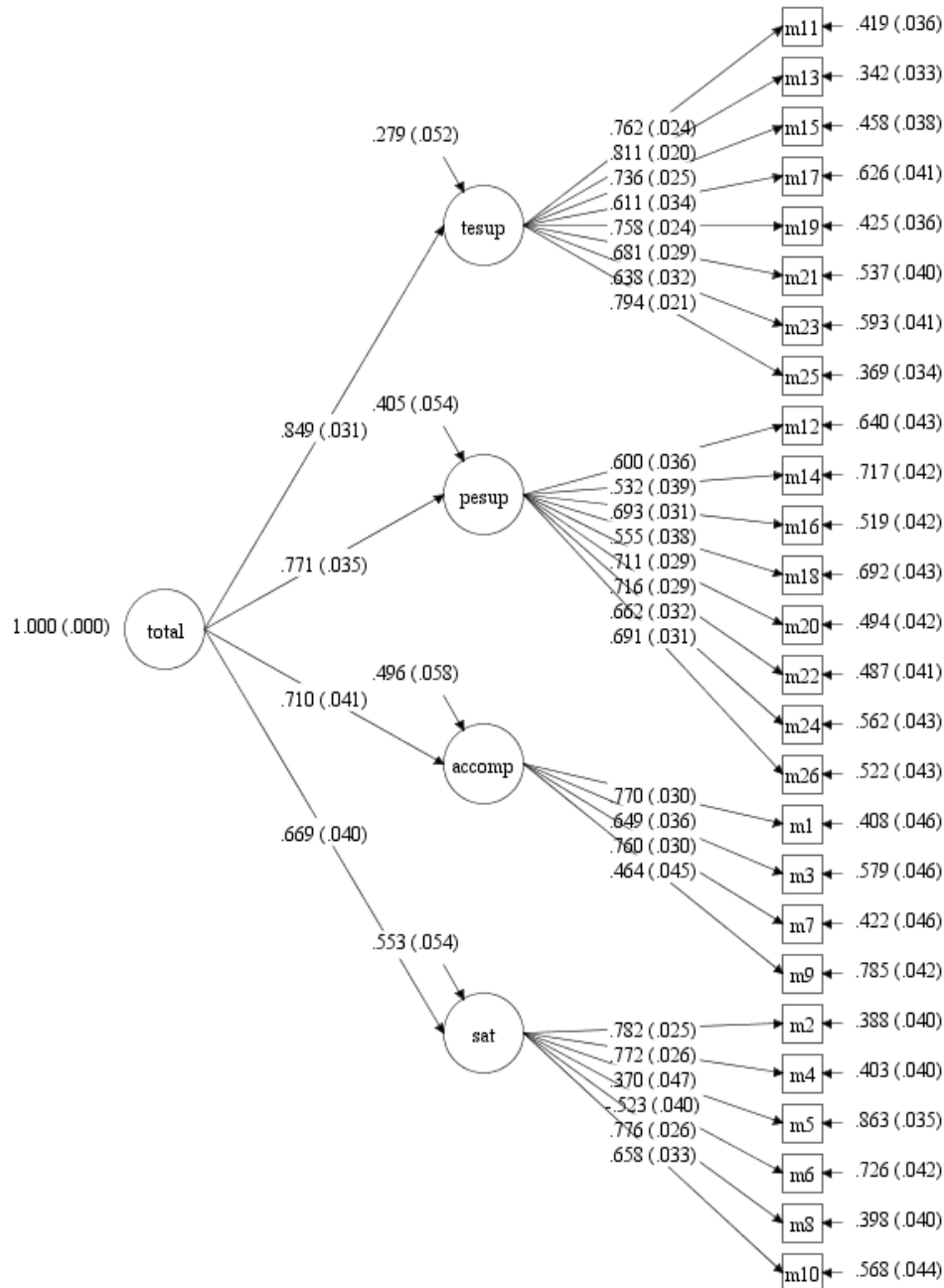
Discussion, Conclusion and Suggestions

The original SCCPP scale of six different measuring instruments was altered to produce a short form containing four measuring instruments, with each scale now considered as a sub-dimension. After the analyses,

the teacher's academic support and personal support dimensions of the teacher, (located under the teacher support dimensions of the academic and personal support of the peer dimension), were combined under the dimension of peer support, resulting in a four-dimensional structure. In the next stage, a comparison was conducted between the four and six-dimensional forms, and found the four-dimensional structure is equivalent to the six-dimensional structure (Rowe et al., 2010). The current study investigated the factorial structure, reliability, and validity of the SPPCC in the Turkish language. It adds to the cross-cultural classroom climate research literature by providing empirical evidence from the context of classrooms in Turkey and the SPPCC consists of four sub-dimensions: teacher support, peer support, academic competence, and satisfaction. High scores from the scale indicate a positive perception of the class climate.

The validity and reliability studies of the Turkish version of SPPCC were carried out and the suitability of the research data collected from different student groups was analyzed. Field (2005) states that skewness and kurtosis coefficients should be within the range of ± 1.96 in large samples.

In the first-order analysis, item 17 in the Relationships between students sub-dimension with a factor load of 29 (other students in this class accept me as I am) was included in the teacher-student relations sub-dimension with a factor load of .63 in the second-order analysis. We believe that student perceptions can be influenced by different cultural elements embedded in the scale. This may be due to changes in the meaning of the expression during translation, cultural influences, and different interpretations of certain ideas and expressions by students from different nationalities and language backgrounds. In the study of Rubie-Davies et al. (2016) with SPPCC, 5 items were included in different factors. It is thought that the situations that cause such statistical effects should be explained in more detail in studies. Still, according to the KMO value and Barlette values, the data obtained was determined to be suitable for making an EFA (Field, 2005), as the common variance was acceptable (Beavers et al., 2013), and the rate of variance was found to be sufficient for research in the social sciences (Scherer et al., 1988).

Second-order confirmatory factor analysis can be described as a nested factor analysis. Where second order analysis was applied, the construct was permitted to explain co-variations among the four lower order dimensions of classroom climate (first-order construct) (Lac & Donaldson, 2017). Crede and Harms (2015) explain first-order factors' hypothesis was tested. Hypotesis 1: not equal to zero because that would imply that no covariation exists and that a higher-order factor is needed to explain. Hypotesis 2: not equal to one because that would imply that the first-order factors are identical and can be combined. Hypotesis 3: exhibit a configuration that can be accurately reproduced by a higher-order factor. Alternatives to this hypothesis are either that the higher-order factor is not necessary to reproduce the correlations or that the higher-order factor is not sufficient to reproduce the correlations. In this research, better fit with second order model may suggest that the dimension covariation is related. Here, teacher support may be strongly related to peer support, academic competency, and satisfaction over a period of time.

In our Classroom Climate Scale, eight items are in the teacher support sub-dimension, eight items are in peer support sub-dimension, four items are in academic competence sub-dimension, and six items are in satisfaction sub-dimension. A total of 26 items and four sub-factors were analyzed and subsequent confirmatory factor analysis. Goodness of fit indexes was examined in second order confirmatory factor analysis, and the results

were taken into consideration. The value of goodness of fit index is obtained by dividing χ2 to the degree of freedom must be two or less. It is an acceptable value if it is 5 or less (Hooper et al., 2008; Munro, 2005).

This requirement was met in the confirmatory factor analysis of the class climate scale. Working within the RMSEA goodness of fit indicia, the CFA reached 0.08 for an acceptable fit value and 0.05 for an excellent fit value (Browne & Cudeck, 1993; Byrne & Campbell, 1999; McDonald & Ho, 2002; Schermelleh-Engel & Müller, 2003; Thompson, 2000). For GFI, CFI, NFI, RFI, IFI and AGFI indices, the acceptable fit value reached 0.90 and the perfect fit value was 0.95 (Bentler, 1990; Bentler & Bonett, 1980; Marsh et al., 2006). The results of our confirmatory factor analysis met the requirements, and, in the case of the Turkish sample, the four-factor structure gave close results in the first and second-level analysis, while the second-level analyzes showed even higher levels of compliance. Indeed, the confirmatory factor analyses showed that the multidimensional structure found by Rowe et al. (2010) corresponse with the data set collected from Turkish students.

Among the studies examining the validity of the instrument, the total score of the classroom climate was found to be moderately related with school engagement and a sense of belonging to the school. In the most general sense, the classroom climate refers to the social climate in the class the engagements that encourages and supports further learning (Fraser, 1986; B. Johnson & McClure, 2004; Rowe et al., 2010). This climate can make the student feel comfortable and secure in the classroom, but it may also cause the opposite situation to emerge. Goodenow and Grady (1993) describe the sense of belonging to school as the perception of the students as individuals, respecting their existence, and supporting them in the social environment of the school. Similarly, a basic condition for individual adherence to school performance and behavioral codes is a sense of belonging (Bergin and Bergin, 2009). Engagement in school for a student includes getting on well with both their peers and the teachers. This level in integrated socialization within the classroom is valuable and conducive to both the feeling of belonging to the school, but also to the concept of class climate, which, when measured by SCCPP, supports the conceptual appropriateness of the scale.

Again, the internal consistency coefficient and McDonald's Omega value were calculated in order to determine the reliability of the classroom climate scale perceived by the student. Peterson (1994) states that the internal consistency coefficients should be at least .70. The Cronbach alpha values of the SCCPP are between .74 and .87, the McDonald omega coefficients range between 75 and 88. Both the Cronbach's alpha and McDonald's omega values demonstrated adequate internal consistency values. All these results fully support The Student Personal Perception of Classroom Climate scale as a valid and reliable measurement instrument for the Turkish sample.

Educational implications

Even though there is some literature recommending that classroom climate be understood as a structure, limited research has been conducted to check if classroom climate is a second order structure, or just a combination of other sub-structures, such as teacher-student support, student-student support, academic competency, and/or satisfaction. Koufteros et al. (2009) suggest that to understand which model explains data better, different measurement models like those addressing second order structures should be tested. As is generally the case, the best practice is to test alternative measurement models before making specific recommendations about any singular model.

The results have provided evidence that the four-factor model proposed by Rowe et al. (2010) could be operationalized in the SPPCC, and can be applied to the context of Turkish primary and secondary school students. The results have provided deeper understanding of the relationships between the factor and the model. It gives some additional information to a set of sample results from a study of classroom climate within the schooling context of New Zealand. Additionally, it provides a basic roadmap for future study, specifically in the areas of verifying the generalizability of the scale among different class levels, and in comparing gender invariance. According to Bahar et al. (2018) student perceptions of their classroom climate were more positive for females than males in Turkish sample. They found small effect sizes when comparing responses by gender.

Classroom climate can have positive or negative effects on academic life. In Turkey, there is a great deal of variation amongst high school students' perceptions of classroom climate. Studies can contribute to more nuanced examinations of how perceptions of class climate may have direct effects on later life. These effects may impact career decisions, such as making choices between an academic career, a vocational career, or other professional life choices. The SPPCC is a useful tool for experimental classroom studies, specifically in determining effective factors for producing positive classroom climate.

Ethic

In this study, which included human participants, all procedures were carried out in accordance with ethical principles. Legal permissions were obtained from the Directorate of National Education. Before the application, the participants were given detailed information about the research.

Conflict of Interest

The authors declare that they have no conflict of interest.

Author Contributions

Author order reflects the weight of these contributions.

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Reflections from Robotic Coding Trainer Training: Teacher Opinions

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Abstract

In this study, it is aimed to examine how the teachers evaluated the robotic coding trainer training they received, the problems in the training, how they transferred the training to their lessons and their opinions on the practices. Seventeen teachers working at the Ministry of National Education in Ankara and receiving "Robotic Coding Trainer Training" participated in this research, which was designed as a qualitative case study. The data were collected by preparing a semi-structured interview form consisting of 15 questions in line with the purpose of the study. The data were analyzed by descriptive analysis method. According to the results of the research, it is seen that teachers participate in this training because it supports the education process and contributes to their personal development. It has been observed that teachers receive training to teach students, apart from peer training, which is the main purpose of trainer training. When the positive opinions of the teachers about the robotic coding education were examined, the themes of contribution to personal development, information about robotic education, acquiring programming skills, cooperation and reward emerged. Inadequate time, inadequacy of materials and application were reflected as negative opinions. With the results of this research, it is aimed to contribute to the training of trainers, one of the most important aims of which is dissemination.

Key Words

Robotic coding • Trainer training • Teachers

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In this day that we face a global system based on high technology, technological innovations such as artificial intelligence, machine learning, and the internet of things, in which robots are involved in the production with digitalization, gets ahead of societies. It can be said that this situation forces the education systems of the countries to change, transform and innovate with a new paradigm. The most apparent aspect of this challenge is the inability of traditional education systems to respond to production systems based on high technology. It is assumed that individuals and societies can acquire the skills of the 21st-century world and realize the digital transformation, with this change to be made in the context of education.

Artificial intelligence and the internet of things show that the enabling of digital transformation with industry 4.0 will bring about the unification of things and people in a sense. While this transformation and innovation necessarily make a series of intellectual processes discuss how people should be raised with philosophy in the field of education, in practice, the spread of coding practices in schools makes it necessary to prepare for the digital world of the future. Robotic coding practice, which we can say a prestudy for competencies such as "design, formation, creation, and invention", stands before us, not just individuals and societies who use what is done about the digital world. In this context, it can be said that the coding skill not only paves the way for learning to solve the problems encountered in daily life but provides the students with competencies such as strategy formation, design and creation as well. The inclusion of robotic equipment in coding education contributed to 21st-century skills. Coding skills is seen that among "21st century skills" according to the European Commission. It is presented a learning environment that can be understood the logic of both smart devices and the internet of things with tangible practices. According to the reports which have been prepared, "information - operational thinking" is taking part among the most basic skills of the future labor force and this requirement will direct to employment of Specialist of Information Technologies (Richards & Terkanian, 2013; Bidwell, 2013). This situation has qualification that makes easier the employment of the instructors who will education in the field of robotic coding.

Robotic coding applications offer the opportunity to directly observe how a piece of hardware or a large number of hardware works with software, which is an abstract process. In this respect, educators prefer the way of diversifying coding teaching with such hardware supports. With the inclusion of robotic equipment in coding education, which contributes to the computational thinking skill, which is considered among the 21st-century skills, a teaching environment is provided in which the logic of both smart devices and smart devices communicating with each other (internet of things) can be understood with concrete applications (Kasalak, 2017). Robotic coding applications develop creativity along with imagination. Chambers and Carbonaro (2003) pointed out that integrating robotic technologies into schools is a difficult process and even today educators find this task challenging. Software processes are difficult to understand because they require abstract operations. With robotic coding, it is possible to embody and directly observe how the codes can work with hardware after compilation. Learners, who encounter this opportunity to observe at a young age, can present products with their creativity. While this situation provides them with self-confidence, it also brings the individuals of the digital world of the future to grow. As stated in the 2023 Education Vision (MEB, 2018) targets, it has gained importance to produce content for the development of digital skills and to conduct teacher training (training for trainers).

Coding training was included in the Information Technologies and Software Course (5th and 6th Grades of Secondary School) curriculum (TTKB, 2012) in 2012, and in the Computer Science Course program (TTKB, 2016) at the high school level in 2016 in the studies carried out in our country in the adaptation of technology to education. The information technologies and software course (Secondary School 5th and 6th Grades) included programming logic in the curriculum with the expression "to acquire and develop problem-solving and computational thinking skills" (TTKB, 2018).

When the literature is examined, it is seen that the studies are generally on coding education, and there are few studies on the training of teachers who will give robotic coding training. Çömek and Avcı (2016) examined the aspects of teachers about robotics applications in science education in their studies made together. They stated that the use of robotic applications in science education has a positive effect on students' participation in the course and their attitudes towards the course. Göncü et al. (2018) examined the aspects of prospective teachers on coding training in their research. They stated that prospective teachers' aspects on coding education were limited. Türker and Pala (2018) in their study to get the opinions of secondary school students, teachers, and parents of students about coding, some of the teachers who participated in the research stated that they did not see themselves as sufficient in coding or did not consider them sufficient at a basic level. In their study, Bütüner and Dündar (2018) discussed the use of robots in coding education and taking the experiences and opinions of teachers in robotic coding trainer education. They stated that teachers were given positive feedback about the training they received and that they were successful by preparing a project at the end of the training. Göksoy and Yılmaz (2018) examined the opinions of information technology teachers and students about the robotics and coding course in their study. Most of the teachers stated that robotics and coding courses improved the analytical thinking skills of the students, made them comprehend the logic of algorithms, and increased their multidimensional thinking skills. Schina et al. (2021) found that there was no uniformity in their study regarding the duration and requirements of training programs, and that information on trainer profiles was not always documented. According to the researchers, robotic coding teacher training programs are generally not based on theory.

In this respect, in this study, it was aimed to examine how the teachers who received robotic coding trainer training evaluated the coding training they received, the problems they saw in the training; how they transferred the training they received to their lessons and their views on the practices. The research problem was determined as follows:

What are the teachers' opinions on the robotic coding trainer training and applications they receive?

1. What are the teachers' opinions on robotic coding trainer training?

2. What are the teachers' opinions on the process of transferring the robotic coding trainer training to their colleagues?

3. What are the teachers' suggestions to the teachers who will receive this training?

Method

This study, which examines the opinions of teachers about the robotic coding trainer training they receive and their reflections in their lessons, is a qualitative case study. According to Yıldırım and Şimşek (2016), qualitative research is defined as a research method in which qualitative data collection methods such as interviews, observations, document analysis, and reports are used and a qualitative process is followed to reveal the events realistically and holistically.

Participants

In this study, the criterion sampling method, which is one of the purposive sampling types, was used. The criterion accepted in this study is that the participants had previously received coding training and robotic coding trainer training. The study group of the research consists of 17 teachers working in the Ministry of National Education in Ankara and receiving "Robotic Coding Trainer Training".

The demographic characteristics of the teachers are given in Figure 1.

Figure 1

Demographic Characteristics
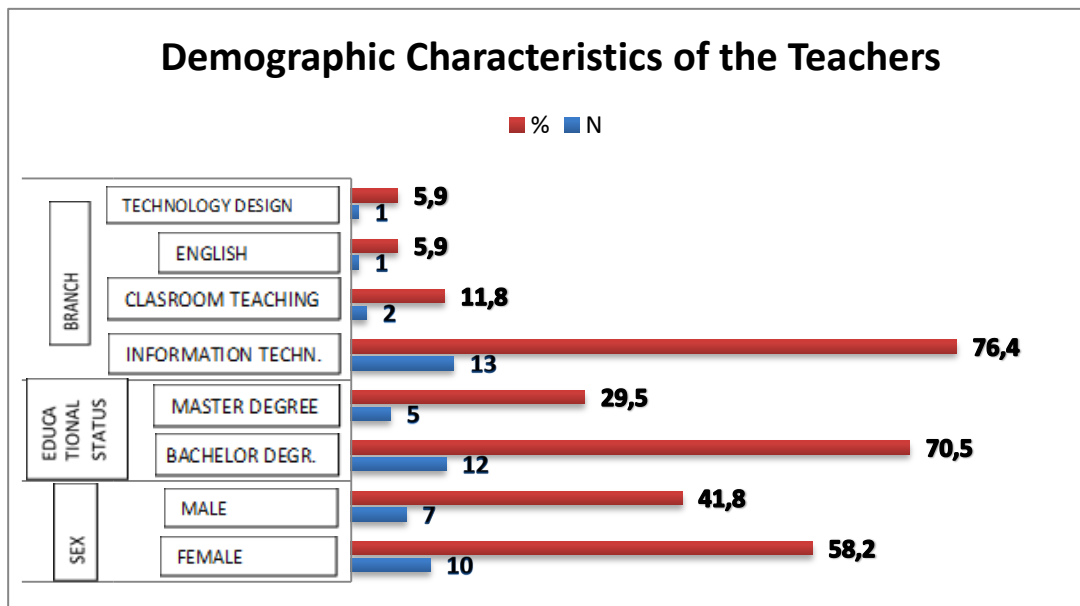
When the information in Figure 1 is examined, 58.2% of the teachers are female (N=10) and 41.8% are male (N=7). Considering the educational status of the teachers, it is seen that 70.5% of them are undergraduate (N=12) and 29.5% are graduates (N=5). When examined in terms of the branch variable, it consists of 76.4% information technologies and software teachers (N=13), 11.8% classroom teachers (N=2), technology design teachers (N=1), and English teachers (N=1). A limited number of teachers were reached due to reasons such as the very small number of teachers who received training, which is our research subject, and data collection voluntarily in the province of Ankara.

Data Collection Tools and Data Collection

In the process of preparing the interview questions created by the researchers, a literature review was conducted and a semi-structured interview form consisting of 15 questions was prepared in line with the purpose of the study. The prepared questions were asked to a specialist teacher who received this training and arrangements were made in accordance with his opinions. Firstly, interrelated questions were combined and long questions were rearranged. The interview form was sent to 2 academicians to get an expert opinion. Taking into account the suggestions of the academicians, the questions were corrected and the form was given its final form. Interview form questions were transferred to Google Forms and 3 more teachers who received robotic coding trainer training were sent to determine the intelligibility of the form and they were asked to fill in the form, and the answers given were evaluated. After it was understood that there was no need for any change at this stage, the interview form was sent to the participants and they were asked to respond. The questions in the semi-structured interview form are as follows:

1. Write down your reasons for participating in the robotic coding trainer training.
2. Could you explain the positive aspects of the robotic coding training program?
3. Could you explain the negative aspects of the robotic coding training program?
4. Was the robotic coding training program you received sufficiently in terms of content? Explain with reasons.
5. What are your suggestions for the development of the robotic coding training program in terms of content?
6. Did you have the opportunity to explain the robotic coding training you received to your colleagues within the scope of the training?
   a. If your answer is yes:
      i. Write down your positive experiences.
      ii. Write down your negative experiences.
   b. If your answer is no:
      i. What do you think are the possible reasons why you cannot find this opportunity?
      ii. What are your suggestions for solving this problem?
7. What are your suggestions to teachers who plan to receive robotic coding trainer training in the future?

Data Analysis

The data obtained through the interview form were analyzed with the descriptive analysis method. Descriptive analysis is a type of qualitative data analysis that includes summarizing and interpreting the data obtained by various data collection techniques according to predetermined themes. In the descriptive analysis, direct quotations are frequently used to reflect the views of the individuals interviewed or observed strikingly. The purpose of this type of analysis is to present the findings to the reader in an organized and interpreted form. For this purpose, it is necessary to conceptualize the collected data first, then organize it logically according to the emerging concepts and determine the themes that explain the data accordingly (Yıldırım & Şimşek, 2016). Percentage and frequency were used to digitize the data.

Findings

In this part, after the analysis of the data, the themes and sub-themes were determined, tables were created, and the opinions of the teachers who received robotic coding trainer training were presented and interpreted.

Teachers' Opinions on Robotic Coding Trainer Training

Learning how well the teachers met their expectations of the training that you got has been considered important in terms of an overview of the research questions. The majority of the participants who participated in the research said that this training met their expectations (N=10), and about 1 of 3 (one-third) said that it did not meet their expectations (N=5). Two teachers abstained. The majority (about 2/3) of the teachers who attended the training were satisfied with the training.

Reasons for teachers to participate in robotic coding trainer training

Teachers' opinions on the reasons for participating in robotic coding trainer training; were gathered under the themes of professional development, personal development, support for the education-teaching process, and perception of benefit.

Table 1

Reasons for Teachers to Participate in Robotic Coding Trainer Training

Themes	Sub-themes(codes)	f
	Obtaining a certificate	2
	Making projects	2
Professional Development	Professional development	1
	Total	**5**
	Getting information	3
	Self-development	3
Self-Improvement	Request/Interest	2
	Total	**8**
	Preventing wrong education	1
	Training students for competitions	1
Support for the Education-	Recitation to students	6
Training Process	Training the student	1
	Guiding the student	1
	Making projects with students	2
	Total	**12**
	Benefiting students	1
Benefit perception	Benefiting the school	1
	Total	**2**

When looking at the details, they stated that they mostly supported the education process (f=12), followed by personal development (f=8), and participated in professional development (f=5). It was seen that the idea of teaching students a lesson came to the fore in the title of support for education. This situation is inconsistent with the priorities of training of trainers. Priorities in supporting or encouraging robotic coding, training of trainers by institutions, and dissemination activities are very important for the realization of these priorities. Within the scope of the dissemination activities of this training, the very priority was determined as the teacher's training to his colleagues

and the second priority as telling his students. However, the second priority became prominent in this study. The teachers did not mention about teaching to their colleagues. From this point of view, it can be stated that teachers do not know the priority objectives of the "training of trainers" program. Some of the quotations containing the opinions of the teachers that they aim to inform their students by using the education they receive in their lessons are as follows:

T6: I give a lesson of Information Technologies and software course; I wanted to teach my students with new information.

T11: To learn and to explain to my students/to be knowledge itself.

T7: To train students for competitions in the field of robotics.

The second prominent theme is the professional development theme. Regarding this matter; it is seen that teachers participate in trainer training because they are interested in gaining knowledge, improving themselves, and robotic coding training.

The answers of the relevant teacher 15, teacher 16, and teacher 17 on this subject are as follows;

T15: To improve myself.

T16: To improve myself in my field.

T17: To improve myself.

Positive opinions of teachers about the robotic coding program

When the sub-themes related to the positive opinions of the teachers about robotic coding education were examined, the themes of contribution to personal development, information about robotic education, acquiring programming skills, cooperation and reward emerged (Table 2).

Table 2

Positive opinions about the robotic coding training program

Themes	Sub-themes(codes)	f
Contribution to Personal Development	Pleasure of learning	1
	Sense of achievement	1
	Eye-opening	1
	Contributing to personal development	1
	Learning how to learn	2
	Contributing to development	1
	Developing self-confidence	1
	Self-sufficiency	1
	Total	**9**
Information on robotic education	Getting information	2
	Sequential learning	2
	Ability to adapt to student level	1
	Project-oriented work	1
	Proper training in a short time	1
	Trying again and again	1
	Electronic circuit creation	1
	Getting to know the robotics training set	2
	Total	**11**
Gaining Programming Skills	Learning coding techniques	2
	Learning to code Adriano with C#	1
	Total	**3**
Cooperation	Friends to cooperate	1
	Exchange of ideas with friends	1
	Total	**2**
Reward	Robotics training set	1
	Awarding product	1
	Total	**2**

As can be seen in Table 2, teachers' positive opinions about the education they received are grouped under the headings of personal development, information about robotic education, acquiring programming skills, cooperation and rewards. The most prominent among these are information about robotics education (f=11) and contribution to personal development (f=9). When we browse at the opinions of teachers about robotic education, the most prominent ones are; recognizing the robotics training set, learning sequentially, and acquiring knowledge. In the light of this information, the teachers' recognition of the robotics training set with this training was reflected as a positive opinion. Some of the quotations containing the opinions of the teachers on the subject are as follows:

T4: Being systematic, proceeding sequentially. Having the test feature, being able to try again no matter how many mistakes are made. Providing an opportunity for project-oriented work.

T8: I developed my self-confidence for creating electronic circuits; I had the opportunity to cooperate by establishing useful friendships.

T15: I learned more about robotics.

After the information about robotic education, teachers reported the most positive opinion in the theme of "contribution to personal development (f=8)". Teachers stated that this training contributed to their personal development. Some of the quotations containing opinions about contribution to personal development are as follows;

T2: We learned about many subjects.

T9: I had a basic knowledge of this subject. The fact that the trainer giving the training included high-level information contributed to my development.

T17: It has contributed to my personal development.

While teacher 13 of the participants expressed a positive opinion about education, he/she expressed his opinions on the themes of knowledge about robotic education, gaining programming skills and cooperation as follows:

T13: We exchanged ideas with the participating friends; we got to know the robotics training set. We learned about programming techniques.

Two of the teachers who expressed a positive opinion about the education program stated that they were given a gift robotic set and product (robotic set) in education. It is seen that the fact that these teachers receive a gift set is an important reason for satisfaction in expressing positive opinions about the content of the program.

T11: They gifted us a reward kit.

T12: Learning outcome and product.

Negative opinions of teachers about the robotic coding training program

When teachers' negative opinions about robotic coding trainer education are examined, their themes emerge in terms of educator, teaching process, and content (Table 3). All three teachers stated that they did not have negative opinions about robotic coding trainer training.

Table 3

Negative Opinions about the Robotic Coding Training Program

Themes	Sub-themes(codes)	f
In terms of trainer	The inexperience of the trainer	2
	The fact that the instructor is outside of his or her area of expertise	1
	Insufficient knowledge of the trainer	1
	Total	**4**
In terms of the education process	Lack of time	4
	Lack of materials	3
	The fact that the trainees do not possess the same level of knowledge	2
	Lack of practice	3
	The fact that projects remained no more than a theory	1
	Lack of applicability	1
	Failure to embody education	1
	Total	**15**
In terms of contents	Lack of contents	1
	Lack of presentation	1
	Lack of project samples	2
	Content redundancy	1
	Total	**5**

When Table 3 is examined, the theme for the teaching process comes to the fore the most (f=15). Looking at the sub-themes of this theme; lack of time (f=4), lack of materials (f=3), lack of practice (f=3), the fact that the trainees do not possess the same level of knowledge (f=2), the fact that projects remained no more than a theory (f=1), lack of applicability (f=1) and failure to embody education (f=1). Among these opinions, the lack of time (hour) was expressed the most. The content of the training is 4 days and 32 hours. It can be stated that this time is not enough for teachers. The lack of practice and the lack of materials are among the negative aspects for teachers. The lack of practice may also be due to the lack of time.

Some of the quotations containing opinions on the subject are as follows;

T1: The fact that most of the trainees remain in the position of spectators since many projects remain no more than a theory, lack of practice, and material problems.

T2: There was not enough time.

T3: It can't reflect on the students in the superficial classroom, the instructor is far from teaching, the content is a fiasco, the content presentation is a fiasco, and the use of the material is a fiasco. There were many mistakes and deficiencies in the prepared material, and he did not even give us a tool to apply the examples he described.

T7: 30 hours is not enough time.

T12: There could have been more lecture hours and sensor work.

Teachers (f=5) who gave negative opinions in terms of content mentioned the inadequacy of the content and presentation and the scarcity of project examples. One teacher also stated that the content was too much. Quotations containing opinions on this theme are as follows:

T1: Many of the trainees were mere spectators since many projects remain no more than a theory, lack of practice, and material problems...

T17: The time is not enough, the examples should be increased, the practices should be a lot, and the content was too much.

Teachers (f=4) who had negative opinions about the educator stated that the educator was inexperienced and had insufficient knowledge. In addition, they stated that the fact that the educator is outside the area of his/her expertise is negative in terms of education. The opinions of teacher 8 and teacher 11 on this subject are as follows:

T8: The training given on coding and the attitude of the teacher showed that he was not fully experienced.

T11: The fact that narrator is an engineer; therefore he goes into the next topic regardless of whether everyone understands it or not during the application.

Teachers' opinions on the proficiency of the robotic coding education program in terms of content

It was seen that 6 teachers found the robotic coding training program they received sufficient and 11 teachers did not find it sufficient in terms of content. 4 of the 6 teachers, who found it sufficient, that is, gave a positive opinion, explained their opinions with their reasons, while 2 of them did not explain or give a reason (Table 4). Teachers who did not find the content of the training sufficient explained why they did not find it sufficient. When the opinions of the teachers were examined, it was determined that most of them did not find the educational content sufficient.

Table 4

Competence Status and Reasons for the Content of the Robotic Coding Training Program

Positive reasons	f	Negative reasons	f
Information is given to students	1	Lack of time	4
Serves the purpose	1	The fact that the instructor is not a teacher	3
Basic knowledge	1	Lack of equipment	2
Learned by process	1	Lack of awareness	2
		Lack of technical knowledge	2
		Lack of practice	1
		Lack of concrete examples	1
Total	**6**	**Total**	**11**

When Table 4 is examined, and when the reasons for expressing positive opinions of teachers who expressed positive opinions are examined; they stated that teaching the information explained to the students, being an education that serves its purpose, provides basic information and knowledge to be learned by process, that is, it will be learned over time. Quotations containing these views are as follows:

T4: It was highly sufficient.

T6: It was sufficient. I learned more than I could share with my students, so it was a satisfying education for me that served my purpose.

T9: I think it was enough since I have basic knowledge of this subject. However, when I think of those who do not know this subject, I can say that they may have difficulty understanding the content.

T10: The content was satisfying. Robotics is a discipline that grows as you do it in the process.

T11: It was sufficient.

When the positive opinions of the teachers about the content were examined, they stated that the content of the education was sufficient since they would explain to their students and receive a basic education.

When the opinions of the teachers who did not find the content of the education sufficient were examined, they mostly cited the duration and the fact that the educator was not a teacher as the reasons for not finding it sufficient. The opinions of the teachers on this subject are as follows:

T2: It was not enough. It was insufficient in terms of hours and space.

T7: Insufficient. It remains at the basic level due to the duration.

T8: The content was too much for the given time, I do not think the course instructor was sufficient, especially in terms of transferring the content to us, although he is an expert in his field as an engineer.

T15: The instructor was not an expert in his field.

The other reasons why the teachers did not find the training program sufficient in terms of content were the lack of equipment and technical knowledge. The opinions of the teachers on this subject are as follows:

T1: It was not enough; there should have been a more comfortable classroom environment with more practice and sufficient equipment.

T13: No, it could have contained more technical information.

Suggestions for developing the content of the robotic coding training program

When the suggestions of teachers about developing the content of the robotic coding training program are analyzed, themes that are related to education, content, and practice emerged (Table 5).

Table 5

Suggestions for Developing the Content of the Robotic Coding Training Program

Themes	Sub themes (codes)	f
Related to education	Time should be increased	4
	It should be an education that is taught to children	1
	There should be a preliminary	1
	There should be beginner and advanced levels	1
	It should provide the trainer education	1
	Trainee level must be the same	1
	Total	**9**
Related to content	The content should be prepared from simple to difficult	1
	The content should be simple and clear	1
	The content should be reduced	2
	Arduino basic should be explained	1
	Coding logic should be comprehended	1
	The content is adequate	1
	The content should be goal-oriented	1
	Total	**8**
Related to practice	Robotic projects should be done at the end of the course	2
	The practice should be more	2
	The practice hours should be increased	1
	Original project examples should be given	1
	Feasible projects should be increased	2
	There should be examples that different branches will use	1
	Total	**9**

When Table 5 is analyzed, suggestions for the developing the content of the robotic coding training program were gathered under the themes of education (f=9), content (f=8) and practice (f=9). Among these, it is seen that education and practice themes are the most common. Considering the opinions about education, they stated that mostly the education period should be increased (f=4). Direct quotations containing opinions on the subject of education are given below:

T7: Extending the time

T8: Our training required preliminary knowledge for the content, I think it is quite challenging for those who do not know. The course could be divided into two as beginner and advanced level.

T10: The time can be increased. Learning will be more permanent with more practice.

When the opinions of Teacher 8 are examined; it is seen that there are suggestions about content as well as suggestions about education.

When teachers' views on practice are examined, mostly the opinions that robotic projects should be done at the end of the course (f=2), practice should be more (f=2) and applicable projects should be increased (f=2) come to the fore.

When the content of the training is examined, there are sample practices related to the given topics. It is seen that these sample practices are given in the lesson, but they are not sufficient and the teachers want more practices. Quotations containing the opinions of teachers on this subject are given below:

T1: Increasing the applicable projects, understanding the coding logic instead of memorizing…/the practice should be more.

T14: Theoretical foundations should be given, but they should not dominate the majority of the education. I prefer to give hands-on training with original projects rather than having the standardized practices that are made in everywhere.

T15: Providing education such that projects with robots can be made at the end of the course.

T17: The implementation time should be increased. The content should be reduced.

When the opinions of the teachers on this subject were examined, they stated that the training period is not sufficient and the duration should be increased.

Teachers' opinions on the process of transferring robotic coding trainer training to colleagues

In the second sub-problem, it was tried to determine the opinions of the teachers about the process of transferring the robotic coding trainer training to their colleagues. The situation of transferring the robotic coding trainer training to their colleagues is given in Figure 2.

Figure 2

Transfer of Training to Colleagues
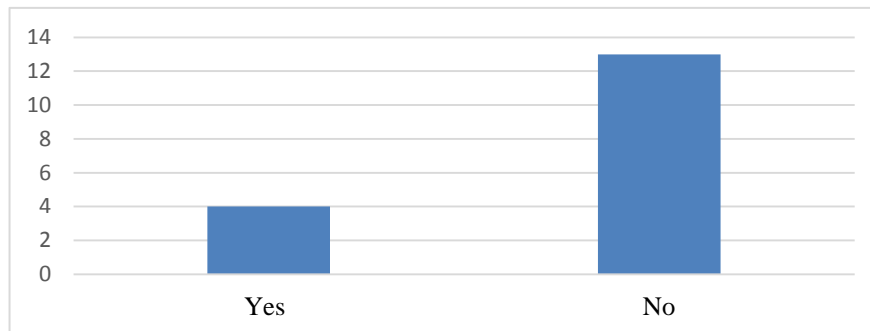
When Figure 2 is examined, it was seen that 4 teachers conveyed the education they received to their colleagues and 13 teachers did not. It was understood that most of the teachers could not transfer the education they received to their colleagues. This situation contradicts the aims of trainer education. The first priority of trainer training is to transfer the training received to colleagues. The teacher who receives this training should make a plan with the school administration after starting to work and ensure that the teachers in the school receive this training. From this point of view, it can be stated that teachers do not know the primary objectives of the "training for trainers" program.

Positive and negative experiences of teachers during the education process

When the positive and negative experiences of the teachers who teach their colleagues at their schools are examined, the positive and negative experiences of 4 teachers in this training process are given in Table 6.

Table 6

T*he positive and negative experiences that you had during the education that you gave*

Positive	f	Negative	f
Concretization of the coding	2	Crowded groups	1
Providing practicality	1	Difficulty in supplying material	1
Using in their lessons	1	To be tiring	1
Making projects	1	Unwillingness of trainees	2
Positive feedbacks	1	Lack of coding background	1
Total	**6**	**Total**	**6**

Teachers, who told their colleagues about the education they received, stated that they gained practicality in coding, the feedback was positive, coding became concrete with the sample practices and they used it in their friends' lessons. In line with these views, it can be interpreted that the teachers who provide education carry out the dissemination activities of the education they receive. 4 teachers who teach their colleagues in their schools stated their positive experiences as follows:

T3: When the teachers lit the first led lamp, they started the engines for the first time, and they started the car for the first time, they were very happy.

T4: Seeing the output of the coding in concrete form is the biggest advantage of this training"

T5: It helped me to be more practical while conveying the subjects.

T10: Their feedback was very positive. The information is being transferred actively because the audience I teach is generally made up of ICT teachers.

Four teachers who teach their colleagues in their schools stated their negative experiences as follows:

T4: It is difficult to work in large groups. It is difficult to obtain piece materials. Since it is a hands-on training, it can be tiring to check, help. Both practice and coding can be tiring for the trainee, extra effort is required. Therefore, trainees must be willing and able to spare time.

T5: What will this information do for us in real life?

T13: There is no pre-learning; there are people with low coding skills.

One of the teachers who gave training said that he did not have a negative experience.

T10: I did not have a negative experience.

When the negative experiences of the teachers about the education they provide are examined, the trainees' lack of prior knowledge and motivation, difficulties in obtaining materials and the difficulty of the learning process are stated as negative opinions.

Possible reasons and solution suggestions of teachers who cannot provide education

The reasons for the teachers who could not find the opportunity to provide education (N14)) and their views on the solution of this situation are given in Table 7.

Table 7

Possible Reasons of Teachers Who Could not Find the Opportunity to Provide Education and Their Opinions to Solve This Problem

Reasons	f	Solution suggestions	f
Lack of demand	5	It should be done at the appropriate time	6
Time problem	3	Necessary equipment should be provided	2
Intense work schedule	3	Basic education should be given	1
Insufficient training set	1	Informatics course should be given importance	1
Absence of IT class	1	Block coding should be supported	1
		It should be given to willing teachers	1
		Trainer training should be planned	1
Total	**13**	**Total**	**14**

When the possible reasons for the teachers who could not explain the education they received to their colleagues at their schools within the scope of a training were examined; the themes of lack of demand (f=5), time problem (f=3) and intense working schedule (f=3) emerged. Since the teachers are not given enough information about the activities they will do after the trainer's training, they expect a request from their colleagues in this direction. However, due to the education they received, they should start working with the school administration by making a plan without waiting for any demand for robotic coding education in their schools. From this point of view, it is understood that this plan was not made.

In this regard, teachers stated their opinions as follows:

T2: There was no such opportunity.

T6: Common time problem

T8: There was no demand since the teaching of ide codes would cause difficult times for teachers who do not have a programming foundation. Lack of physical means, workload.

T11: Not enough sets at school, old IT class and workload at school.

T12: Lack of relevant friends in my environment.

T14: Timelessness.

T17: The teachers' schedule is too busy/my busy work pace.

When the suggestions of the teachers who could not explain the education they received to their colleagues at their schools within the scope of a training, for the solution of this problem; the opinions which say that it should be done at the appropriate time (f = 6) and necessary equipment should be provided (f = 2) came to the fore more. The opinions of the teachers on the subject are given below;

T1: Necessary tools and equipment should be provided for robotic coding projects.

T14: Time is needed for us to give these trainings to other branches in our school. Maybe a certain time can be allocated to this subject in teacher seminars and it can be made compulsory for schools by the Ministry of National Education.

T15: It should be done within the appropriate time

S16: It is necessary to open it through public education, as the trainees have to go to school after the lesson, the sufficient number cannot be reached.

T17: A course plan can be made for willing teachers.

When the solution suggestions of the teachers on the subject are examined; it can be stated that they have time problems and have difficulties in obtaining materials. They also stated that they should have basic knowledge before starting the training and that the training should be supported by block coding.

Recommendations of teachers to their colleagues who will receive robotic coding trainer training

When the suggestions of the teachers to their colleagues who will receive robotic coding trainer training (Table 8) are examined, it is seen that various suggestions such as basic level knowledge, not falling behind technology, making projects, allocating time, useful and certificate.

Table 8

Teachers' Suggestions to Their Colleagues Who Will Receive Robotic Coding Trainer Training

Suggestions	f
Basic level knowledge	8
Not falling behind technology	5
Making a project	4
Time allocations	3
Beneficial	3
Certificate	2
Researching the instructor	1
Researching the institution	1
Asking questions to the instructor	1
Material requirement	1
Branches other than information technologies should also take	1
Professional development	1
Total	**29**

When the details were examined, most of them stated the suggestions such as basic level knowledge (8), not falling behind the technology (5), making projects (4), allocating time (3), beneficial and certificate (2).

In this regard, teachers stated their opinions as follows:

T2: First, they should receive basic education.

T4: They should act not because they are popular, but by considering their contributions to the students.

T6: They should definitely receive such an education.

T6: They should definitely learn, even if possible, they should do research and at least get training by recognizing the interfaces; this will be very useful for them.

T9: I suggest that they study the subject at the basic level, review the programming concepts in the coding part, try to do the subjects and projects themselves, and ask questions to the instructor.

T10: First of all, getting basic knowledge will make the education they will receive more efficient.

T11: I definitely recommend taking this training. It should be in other disciplines, not just IT. I recommend them to develop interdisciplinary projects after the training.

T16: They should approach the process with a project focus.

T17: They need to allocate time; continuity in education and practice is required.

Teachers explained to their colleagues that they should definitely take this training, they must receive a basic coding training before starting this training (knowing the interfaces in advance, having received beginner training, Mblock, Aurdino, etc.), making and maintaining interdisciplinary projects, and also allocating enough time for this training.

The opinions of two teachers on the subject of certificates drew attention in their suggestions to their colleagues about robotic coding trainer training. He/she stated that they should not participate in paid certificate programs, that they should receive training if they have an interest and background in the subject, and if they are not interested, they should not attend these trainings just to get a certificate. While he/she said, "*Not for the certificate, if there is really interest and some background, they should participate (T7)*", another teacher said, "*I recommend them not to participate in paid certificate programs (T15)*". However, getting a certificate in these trainings is very important. A certificate is needed to provide this training in his/her own institution and in other institutions.

Discussion, Conclusion and Recommendations

In this study, it is aimed to examine the opinions of the teachers who participated in the robotic coding trainer training about the training they received and how they applied this training. For this purpose, data were collected from the teachers who participated in the robotic coding trainer training by using a semi-structured interview form with a qualitative approach. Teachers stated that they participated in this training to support the education-teaching process and to improve their personal development. It has been observed that teachers participate in the education process to teach their students. However, after the training of trainers, teachers are expected to train their colleagues. However, in the study, it has been observed that teaching students was mentioned but not teaching colleagues.

When the positive opinions of the teachers about the robotic coding education were examined, the themes of contribution to personal development, information about robotic education, acquiring programming skills, cooperation and reward emerged. The most prominent among these is the information about robotics education: recognizing the robotic training set, learning sequentially and obtaining information. In this context, the teachers' recognition of the robotics training set was effective in expressing positive opinions.

When the opinions of the teachers about the robotic coding trainer education were examined, the lack of time, lack of materials and inadequacy of practice were reflected as negative opinions. This result is similar to Aksu (2019). In Aksu (2019), teachers expressed the negative points of the use of educational robots in education as cost, hardware inadequacy and lack of course hours.

In addition, while teachers stated their negative opinions about education, they stated that education could not be embodied. When the literature is examined, similar suggestions are offered. According to Ersoy et al. (2011) it is thought that being able to observe physically the working state of the code will help to embody the concepts related to programming. According to Bütüner and Dündar (2018), facilitating education can only be achieved by embodying the concepts and processes that are taught.

Teachers expressed the content of the education as adequate as they were given basic education and information to teach to the students. However, most of the teachers stated that the training content was insufficient due to reasons

such as lack of time, trainer not being a teacher and not raising awareness. When the teachers' suggestions for developing the content of the robotic coding training program were examined, it was seen that they wanted to increase the training period and to have more practices. As similar, Gültepe (2018) emphasizes the need to increase and diversify the training of trainers.

It was observed that 4 teachers conveyed the training they received to their colleagues, and 13 teachers did not. It was understood that most of the teachers could not transfer the education they received to their colleagues. Teachers, who explained their colleagues about the education they received, stated that they gained practicality in coding, the feedback was positive, coding became concrete with the sample practices and they used it in their friends' lessons. According to Ersoy et al. (2011), learning to program requires developing a different mindset, and facilitating this process is only possible by embodying the concepts and processes that are taught.

When the negative experiences of the teachers about the education they provide are examined, the trainees' lack of prior knowledge and motivation, difficulties in obtaining materials and the difficulty of the learning process are stated as negative opinions. When the studies in the literature are examined, it is seen that there are studies supporting this result. According to Ceylan and Gündoğdu (2018), the most important factor among the difficulties experienced in coding education is that the infrastructure and equipment of the schools are not suitable for teaching the current coding course.

When the possible reasons for the teachers who could not explain the education they received to their colleagues at their schools within the scope of training were examined; the themes of lack of demand, time problem and intense working tempo emerged. It was observed that the teachers did not have enough information about the activities they would do after the trainer training, they did not make a plan for the educational activities with the school administration and they were waiting for a request.

When the teachers' suggestions to the teachers who will receive robotic coding trainer training were examined, they suggested that they have basic level knowledge, that they should learn and make projects. When the literature is examined, similar suggestions are offered. Sayın and Seferoğlu (2016) stated that coding should be given more place in education programs in order for Turkey to keep up with technological developments and to meet the need for trained human power to meet the economic needs of the age. They also suggested that they attend the training if they have the background, not to get a certificate. In this context, it has seen that teachers recommend this training to their colleagues; also they suggested that they should have basic knowledge before coming to training, make projects about education and spare time.

As a result, it was observed that the teachers were satisfied with the education they received and left with positive thoughts, but it was observed that the teachers had problems in transferring the education they received to their colleagues. This does not coincide with the aims of educational training. One of the most important purposes in the trainers training given by development agencies within the scope of technical support and trainers training by the Ministry of National Education is dissemination. It is expected that the teachers who receive this training will train the teachers in their schools and the teachers in the schools around them, and these in turn will train their students. It has been observed that teachers organize very little training for their colleagues.

Robotic coding training is very important in order to raise generations with 21st century skills and to use the developments in technology in the education process. In order to provide such training, teachers should be supported on these issues and robotic coding trainer training should be disseminated. In addition, the preparation of a booklet that will explain the activities and practices to the teachers participating in the robotic coding training will contribute to the achievement of the trainers training.

Ethic

This research was conducted in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and ethical standards.

Author Contributions

All stages of the study were organized and conducted by the authors.

Conflict of Interest

The authors declare that they have no conflict of interest.

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The Place and Importance of the Maarif Colleges in Turkish Education System

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Abstract

In addition to the socio-economic change and industrialization experienced in Turkey in the 1950's, the course of the country's international relations increased the need for foreign language-speaking personnel. Some of the decisive reasons for the Ministry of National Education for opening the Maarif Colleges include the fact that foreign language education in secondary education institutions was not adequately efficient and the schools that teach foreign languages were inadequate in number and were located in certain centers. The Maarif Colleges, established in 1955, were public schools with paid boarding facilities that provided education in Turkish and English languages. In the first stage, the Maarif Colleges were opened in Istanbul, Izmir, Samsun, Konya, Eskişehir and Diyarbakır. Turkey's membership in NATO and its close ties with the United States after the Second World War also played an important role in the establishment and operation of the colleges. The Maarif Colleges became attractive educational institutions in a short period since they provided education in foreign language and generally high-quality education in other fields. The number of Anatolian High school built on the Maarif College experience has gradually increased over time and these schools have become the most common type of school in secondary education.

Key Words

Maarif Colleges • Anatolian High Schools • Education in Foreign Language • Secondary Education • Official Colleges

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Introduction

After the Second World War, Turkey's ties with the United States became closer as a result of the transition to multi-party life in Turkey in domestic politics and tense relations between Turkey and the Soviet Union in foreign policy. The treaty signed between Turkey and the USA in Cairo on 27 February 1946 was the most important step in the convergence of the two countries. With the treaty, the USA provided a loan amounting to 10 million dollars to Turkey for purchase of military equipment (Resmi Gazete, 1946). This treaty was followed by another treaty signed in Ankara on 6 December 1946 and the USA declared Turkey was in the protection zone under the Truman Doctrine, announced on 12 March 1947 (Gevgilili, 1987; Resmi Gazete, 1947). This convergence, which started in the political, military, and economic fields, also manifested itself in the field of education. The Fulbright Agreement, signed on 27 December 1949, was the most significant understanding between Turkey and the USA in education. With this agreement, cooperation in the field of education between the two countries was envisaged, and a commission named the United States Education Commission was established in Turkey (Resmi Gazete, 1950). Thus, the legal infrastructure was created enabling the USA to influence the National Education policies of Turkey.

The developments following the Second World War have seriously affected foreign language education in Turkey. The increasing influence and power of the USA in the international arena led to the replacement of French with English as the international language. Turkey's alliance with the United States after the Second World War has formed the basis for turning towards English in foreign language lessons in schools. Turkey's membership in the UN and NATO, sending troops to Korea, its relations with the West, and industrialization have been effective in this tendency. In a period when higher education was not widespread, the need for people who could speak English in Turkey raised the topic of foreign language medium institutions at the secondary education level. As a matter of fact, the growing interest in English paved the way for the establishment of the Maarif Colleges. During this period, the USA made a special effort to influence the Turkish education system. The USA's effect on the Turkish education system has gradually increased through institutions such as the Rockefeller and Ford Foundation. This influence manifested itself in the form of establishment of the Maarif Colleges the efforts to implement the multi-purpose school model, which was applied in the USA from 1953 to 1959 at the secondary school level, the attempts for designing the higher teacher education schools as American-style colleges, and the establishment of METU and Atatürk University (Güven, 2000).

Method

Research Model

The documentation analysis method was used in this qualitative study.

Population and Purpose of the Research

This study covers Adana, Bursa, Diyarbakır, Erzurum, Eskişehir, Istanbul Kadıköy, Izmir Bornova, Konya, Samsun Maarif Colleges established in Turkey from 1955 to 1975. The purpose of the study is to show the place and importance of Maarif Colleges in the Turkish education system by examining the establishment, development and functioning of this institutions and their transformation into Anatolion High Schools.

Collection and Analysis of Data

The research was conducted in Istanbul University Central Library, Istanbul University Faculty of Letters Library, Beyazıt State Library, ISAM, Atatürk Library, Muş Public Library, Adıyaman Public Library, National Library, Boğaziçi University Library, Samsun Public Library and Gelenbevi Anatolian High School Library for extensive analysis of the subject. Within the scope of the research, the national press of the period, and the local periodicals in the provinces where the Maarif Colleges were opened were scrutinized. In addition, the TBMM (Grand National Assembly of Turkey) Minutes, the Official Gazette, and the Journal of Notifications were used, and the government and programs of the political parties were reviewed. Despite this, the desired level of information about the Maarif Colleges could not be obtained. In response, with the written permission of the Ministry of National Education, research was conducted in the archives, libraries and other departments of Ankara Atatürk Anatolian High School, Diyarbakır Anatolian High School, Eskişehir Anatolian High School, Izmir Bornova Anatolian High School, Kadıköy Anatolian High School, Konya Meram Anatolian High School and Samsun Anatolian High School, which replaced the closed Maarif Colleges. The student registration records, school museums, school albums, educational - learning materials, student files, teacher files, and a large number of written correspondences in the archives of these schools were examined.

In order to identify the foreign national teachers who had worked in the Maarif Colleges, their personal files, and employment contracts, Cabinet Decrees, correspondence between Maarif Colleges and school teachers' boards were reviewed. In addition, the associations and websites established in the USA by the Peace Corps who worked in Turkey were also looked into and, written interviews were held with graduates of the Maarif Colleges.

Findings

1. Establishment of the Maarif Colleges

The establishment of these schools, which are named Official Colleges by the Ministry of National Education, but more commonly known as Maarif Colleges, coincided with a period when the Democratic Party was in power and affirmative Turkish-US relations reached high levels in many areas. The preparations for the Maarif Colleges started in the middle of 1954 (TBMMZC, 1955; Yardımcı Amerika'ya …, 1954). Even though it is not precisely known who brought up the idea for the first time for the establishment of these schools, it is highly likely that the idea of a school with a foreign language medium was given by American consultants. The fact that the Minister of National Education Celal Yardımcı stated Maarif Colleges were opened to meet the personnel needs of NATO and that Ataturk University was opened based on the USA model supports this approach (TBMMZC, 1954; Celal Yardımcı'nın Zafer Beyanatı, 1954). It is also known that after the Fulbright Agreement signed on 27 December 1949; the USA provided many recommendations, suggestions, and propositions to Turkey in the field of education.

2. The Opening of the Maarif Colleges, Debates in Turkish Grand National Assembly and Public

The Ministry of National Education submitted a draft bill to the Turkish Grand National Assembly on 15 November 1954 regarding the Maarif Colleges providing education in foreign language (TBMMZC, Issue No. 76). In the draft bill of the Ministry, attention was drawn to the growing international relations of Turkey in many areas, and it was highlighted that there was a strong need for people specializing in varying fields who spoke foreign languages. However, it was reminded that the only school providing education for this purpose

was Galatasaray High School and that it could not meet the needs and it was also showed that there was a desire to establish such colleges with this purpose in Istanbul, Izmir, Konya, and Eskişehir in the academic year of 1954-1955 (TBMMZC, 1955b). The Ministry said that the population densities of the provincial centers and the demand for foreign schools were considered while determining these provinces (TBMMZC, 1954). The draft bill was first discussed in the National Education Commission. The Commission expressed its concerns and reservations about the Maarif Colleges, stating that the number and nature of such schools should not be in such a way that undermines Turkish culture. (TBMMZC, 1955b). The Minister of National Education Celal Yardımcı insisted on the speeches he has delivered at the Turkish Grand National Assembly and in his statements to newspapers and commissions that they would not allow the Maarif Colleges to weaken Turkish culture (Gündüz, 2017). After the National Education Commission, the draft bill was also reviewed by the Parliament Budget Commission. The Budget Commission supported the draft bill but requested the opening of colleges in each of the Black Sea and Eastern Anatolia regions (Yabancı Dilde Tedrisat, 1954).

After the draft bill was reviewed by the relevant commissions, it was submitted to the Turkish Grand National Assembly on 10 January 1955. In his speech, the Minister of National Education Celal Yardımcı declared they decided to open these schools because of the general interests of Turkey and its increasing international relations in every field, and that they did not rush into opening the schools and were making preparations (TBMMZC, 1955a). Antalya Deputy Burhanettin Onat stated many families wanted to send their children to foreign schools and claimed that the government opened these schools to meet the needs of the citizens (TBMMZC, 1955a). Erzurum Deputy Bahadır Dülger stated his views, which were similar to that of Onat, and said the existing schools failed to teach foreign languages. Dülger alleged there were foreign schools in the cities where the colleges would be opened and that the colleges would compete with these schools and offer alternatives (TBMMZC, 1955a). Ankara Deputy Mümtaz Tarhan, one of the deputies who supported the opening of the colleges, claimed that there would not be any activities damaging the national identity and Turkish language in the said colleges (TBMMZC, 1955a).

Tunceli Deputy Fethi Ülkü said that there was a great interest in the English language worldwide and the Maarif Colleges have come to the fore as an alternative to the inefficient national education system in the country. Ülkü requested that instead of opening these colleges, the language education in regular high schools should be strengthened with the available funds for the establishment of these schools and that the teachers working in regular high schools should be sent abroad for foreign language training. Fethi Ülkü also claimed that the opening of these colleges was rushed, and instead of opening these colleges, he suggested that the problems of the existing schools should be solved (TBMMZC, 1955a). Considering the speeches made by the deputies, it is seen that they mostly emphasize the positive sides of the colleges. Apart from Fethi Ülkü, we understand that the deputies generally supported the establishment of the Maarif Colleges, but they had different views about the qualifications and locations of these schools.

There were many news releases in the press regarding the establishment of the Maarif Colleges, and the issue was partially discussed by the public. Especially in the provincial local media where the opening of the colleges was planned, this topic was discussed widely on the news. The daily named Bafra announced in its issue dated 12 May 1955 to its readers that the Maarif Colleges were to be opened in Samsun (Samsun'da Kolej Açılıyor, 1955). Konya, which is another city where the college would be opened, and the idea of college opening had a

tremendous impact in the local press. In the newscast, the importance of foreign language was emphasized, and it was said that the college would serve as a bridge between Turkey and the West, that children would spell the "works of Shakespeare and Adam Smith" and that there would be no need to "dream about Europe anymore" (Beymen, 1955; Halıcı, 1955; Özal, 1955). The positive language used in the content of the news shows that the public had great expectations from the Maarif Colleges. Not only the general public but also official authorities nurtured the same expectations. As a matter of fact, the Board of Education defined the Maarif Colleges in its decision dated 27 February 1958 and numbered 57 as "the schools that apportion more time to foreign language studies and teach Science lessons in the same language in order to be able to accomplish a wider curriculum" (Tebliğler Dergisi, 1958).

There were also those who approached with reservations and opposed the opening of the Maarif Colleges, which were supported by the public. In fact, even after the Maarif Colleges were opened, the discussions on this subject did not end. In the Sixth Education Council, which convened on 18th through 23rd of March 1957, it was declared that Maarif Colleges were experimental schools, and the desire for opening experimental high schools with foreign language mediums besides the colleges was expressed (Altıncı Maarif Şurası, 1991). In the Council, Süleyman Kazmaz argued that there was no point in increasing the number of the Maarif Colleges and that with the opening of these schools, it was tacitly accepted that other schools could not teach foreign languages. On the other hand, the Undersecretary of National Education Nuri Kodamanoğlu objected to education in a foreign language, claiming that education in a foreign language hinders the development of the mother tongue (Altıncı Maarif Şurası, 1991). There were also those who considered the opening of the Maarif Colleges as an admiration for the West (Okçabol, 2005). In the Turkish Education National Commission Report published in 1960, it was asked to avoid increasing the number of the Maarif Colleges and to open new types of high schools that provided Turkish education and gave weight to language education with additional language lessons (Türkiye Eğitim Milli Eğitim Komisyonu Raporu, 1960). A similar approach was displayed in the 1960 National Education Preparation Plan and the Report of the Commission in Charge (Türkiye Eğitim Milli Eğitim Komisyonu Raporu 1960). Although it had been five years since the opening of Maarif Colleges, the ongoing debates have shown that concerns and reservations about the colleges still continued in the public and that the question marks about these colleges have not been fully settled.

3. Debates on the Location and the Language of Teaching in the Colleges

Although the opening of the Maarif Colleges was generally accepted, the location of these schools and the language of education caused gave rise to heated debates. The Minister of National Education Celal Yardımcı gave a statement to daily *Zafer* months before the draft bill on the Maarif Colleges submitted to the Turkish Grand National Assembly for debate and said that these schools would be opened in Izmir, Istanbul, and Ankara (C. Yardımcı Amerika…, 1954; Celal Yardımcı'nın Zafer Beyanatı, 1954). In another piece of news in the same newspaper, we saw Eskişehir replaced Ankara (Türkçe-İngilizce Tedrisat…, 1954). The government proposed the opening of the Maarif Colleges in Eskişehir, Istanbul, Izmir, and Konya in the draft bill submitted to the Presidency of the Turkish Grand National Assembly on 15 November 1954. The National Education Commission, which discussed the draft bill on 13 December 1954, stated that it was not right for the colleges to be opened in Istanbul and Izmir in the initial stage since foreign language learning opportunities were plenty in the said cities. The commission proposed that one or two of these special high schools should be opened in the

Eastern region or on the Black Sea coast, "to serve the cultural development of the Eastern region, to provide a source close to the Atatürk University to be established, and consequently, to choose a region with priority in terms of need." A similar request was made by the Budget Commission (TBMMZC, 1955b).

After the discussions in the committees, the draft bill was submitted to the General Assembly of the Parliament on 10 January 1955. In the General Assembly, there were heated discussions between Diyarbakır Deputy İhsan Hamid Tigrel and the Minister of National Education Celal Yardımcı regarding the sites where colleges would be opened. Although Tigrel, who also accused Celal Yardımcı of acting emotionally, wanted the opening of a foreign language medium high school in the Eastern region, because of insufficient sources, he made a proposal for opening one of the colleges in Ankara. Manisa Deputy Hikmet Bayur, on the other hand, said that it was very natural for every deputy to want these schools to be opened in the regions they represent and that the main thing was not the sites where the colleges would be opened. Diyarbakır Deputy Halil Turgut proposed to the Turkish Grand National Assembly for opening one more college in the Eastern region and the Black Sea, while desiring that the colleges are opened in any part of Anatolia. Istanbul Deputy Füruzan Tekil claimed that despite the existence of schools providing education in foreign languages in cities such as Ankara and Istanbul, these schools were insufficient compared to the population ratio and suggested that colleges should be opened in metropolitan cities. Seyhan Deputy Mehmet Ünaldı requested that one of the colleges should be opened in Adana.

Upon the receipt of many proposals and requests regarding the location of the colleges, the Minister of National Education Celal Yardımcı argued the draft bill was related to the budget allocation and that the Ministry of Education had the authority to determine locations of the colleges. The discussions on the draft bill, which was submitted to find the financial resources needed for the establishment of the schools, turned into authority debates made because of the opening sites of the colleges. Upon the prolongation of the talks, the Minister of Education Celal Yardımcı reacted, saying "If the opening of colleges is the right thing to do, the General Assembly will provide the funds to open them, otherwise, it will not…If you think it is unnecessary, you will not allocate any funds and we do not open the colleges. If you think, it is necessary and provide the funds, we open them." Erzurum Deputy Bahadır Dülger, on the other hand, said that the colleges were not high schools that could be opened based on the authorities granted to the Minister of National Education by a specific law. Following heated discussions, the draft bill was rejected and sent back to the National Education and Budget Committee for reconsideration on 10 January 1955 (TBMMZC, 1955a). The commissions discussed the bill again, increasing the number of colleges from four to six, and in order to prevent the repetition of debates similar to those which were held on 10 January 1955, this time, the names of the cities where the colleges would be opened were not specified (TBMMZC, 1955b).

Although a decision was made as to where four of the colleges would be opened, since the location of the other two potential colleges was not determined, predictions were made about it. In its issue dated 22 January 1955, *Yeni Konya* newspaper said that the colleges would be opened in Istanbul, Izmir, Eskişehir, Konya, Adana, and Samsun (Konya Lisan Lisesine …, 1955). On 22 February 1955, while the budget of the Ministry of National Education was discussed in the Turkish Grand National Assembly, Kastamonu Deputy Muzaffer Ali Mühto asked for opening a college in Kastamonu (TBMMZC, 1955a). The newspaper named *Demokrat Eskişehir* announced to its readers that four new colleges would be opened in Adana, Ankara, Bursa and possibly

Kayseri, apart from Eskişehir, Izmir, Kadıköy, Konya, Diyarbakır and Samsun. In conclusion, the decision was given for opening colleges in Samsun and Diyarbakır in addition to Eskişehir, Izmir, Kadıköy and Konya colleges (Şehrimiz Lisan Lisesini…, 1955; Yabancı Dilde Tedrisat Yapan…, 1955).

Apart from the debates about the opening locations, another matter of discussions was the language of instruction. The Minister of Education Celal Yardımcı announced for the first time in September 1954 that the colleges would provide Turkish-English education (Türkçe-İngilizce Tedrisat …, 1954). The National Education Commission, on the other hand, argued contrary to the opinion of the Minister in the report prepared on 13 December 1954 that it was wrong to provide education in English in all colleges, and instruction language should be German and French in some or should be German at least in one of them (TBMMZC, 1955b). Trabzon Deputy Halit Ağanoğlu, in his speech at the Turkish Grand National Assembly on 10 January 1955, asked the Minister of National Education Celal Yardımcı to inform the Assembly because the language of instruction in the colleges was not specified in the justification. While Diyarbakır Deputy Halil Turgut requested that the language of instruction should be German in one of the colleges, Seyhan Deputy Mehmet Ünaldı said that whether the language of education should be German or English in the schools to be opened was entirely at the discretion of the Ministry of Education (TBMMZC, 1955a).

In his speech at the Turkish Grand National Assembly on 10 January 1955, the Minister of National Education Celal Yardımcı emphasized that although the education in the colleges would be offered in a foreign language, they would give great importance to Turkish and that the main educational medium was Turkish (TBMMZC, 1955a). Even though the matter of discussion was rather about which foreign language will be used as the medium of instruction in the colleges, it is observed that most of the parliamentarians were not against these schools where the education was provided in other languages. Although mainly beneficial aspects of education in a foreign language were emphasized, it is seen that there is almost no emphasis on the damaging consequences of education in a foreign language. We understand that the discussions about the colleges were mostly carried out on pragmatic aspects.

4. The Opening of the Maarif Colleges

During the opening process of the Maarif Colleges, first of all, the school buildings were determined. The Maarif Colleges were opened in Eskişehir, Istanbul, Izmir, Konya and Samsun in the 1955-1956 academic year, and in Diyarbakır in the 1956-1957 academic year. Therefore, in the first stage, attempts were concentrated on meeting the building needs of the colleges opened in the 1955-1956 academic year. The Eskişehir Maarif College first started education in Eskişehir Maturation Institute. However, since this place was not built as a boarding school facility and there were no spaces for teachers and students to work comfortably, some annexes were made to the building (Göç, 1967; Eskişehir Kolejinde Kayıtlara Başlandı, 1956).

The Konya Maarif College started teaching in Station Primary School building, whereas Samsun Maarif College started in the building of Old Samsun Museum (Kolejin Binası, 1955). The Samsun Maarif College subsequently continued teaching in the old Girls' Art Institute and the old Central Secondary School buildings (Kayak). The Kadıköy and Izmir Bornova Maarif Colleges started education in their own buildings. The Ministry of National Education purchased the buildings of the private Ege College for Izmir Bornova Maarif College and the buildings which belonged to Kapusen cult for Kadıköy Maarif College (Emiroğlu, 1995; 1959-60 Echo). Diyarbakır Maarif College started education in a school building constructed during the reign of

Abdülhamit II. The examination of the buildings where the colleges started education shows that these buildings could not fully meet the needs of the colleges despite great efforts exerted. Therefore, the founding staff had to struggle with great difficulties. New school buildings in a similar architectural style were built in later years for the colleges which provided education in temporary buildings.

After the school building issue had been resolved, albeit temporarily, the colleges were opened. The Ministry of Education planned to open the colleges in the 1954-1955 academic year but had to postpone the opening of the colleges to the next academic year due to the prolongation of the process as a result of the discussions in the Turkish Grand National Assembly. The press published the news in mid – July 1955 that the colleges would be opened in Eskişehir, Istanbul, Izmir, Konya, Samsun, and Diyarbakır and in early August that the teaching staff of the four colleges was determined (Kollej Tedrisata Başlıyor, 1955). The first Maarif College was opened in Eskişehir as late as 8 October 1955 (Eskişehirde Yabancı Dil…, 1955; Maarif Vekilimiz Celal Yardımcı…, 1955; Eskişehir Koleji Törenle Açıldı, 1955). In his speech, the Minister of National Education Celal Yardımcı said that Eskisehir College would be followed by Istanbul, Izmir, Diyarbakir, Konya, and Samsun Colleges. Minister Yardımcı defined the colleges as an expression of the Turkish nation turning its face to the civilized world and the determination of the national wisdom to take its share from the world culture (Kolejimiz ve Çocuk…, 1955). The public attended the opening ceremony, along with a large group of public officials. Celal Yardımcı, who had a great expectation from the Maarif Colleges, personally attended the opening of the colleges, showing the importance he gave to these schools. (Gündüz, 2019).

Following the Eskişehir Maarif College, Izmir Bornova Maarif College was opened on 22 October 1955 with a ceremony attended by the Minister of National Education Celal Yardımcı and a large group of public officials. In his speech, the Deputy Minister stated they opened the Maarif Colleges to imbue students the European culture and Turkish culture (İngilizce Tedrisa, 1955; İzmir Kolleji, 1955). The third college that was opened was Kadıköy Maarif College. The Kadıköy Maarif College has been opened again with a ceremony attended by the Minister of National Education Celal Yardımcı and Iraqi Minister of Education Halil Kenne on 4 November 1955 (Dördüncü Kollej Kadıköy'de Açıldı, 1955). After Kadıköy Maarif College, Konya Maarif College was opened on 11 November 1955, (Celal Yardımcı Şehrimiz Kolejini, 1955) and Samsun Maarif College was opened in the 1955-1956 academic year. Because of the lengthy preparation process, this college was opened on 8 December 1955. The Diyarbakır Maarif College was opened on 29 October 1956. The first five colleges were opened during the ministry of Celal Yardımcı and Diyarbakir Maarif College was opened during the ministry of Ahmet Özel. In addition to bureaucrats, teachers, and students, a large crowd of people also attended the opening ceremonies held at the ministerial level. The opening of colleges with senior-level participation shows the meaning and importance that the Government and the Ministry of National Education attributed to the Maarif Colleges. It is understood that these schools were expected to be culture bearers since the colleges were considered as bridges in transferring Western civilization. In addition to these colleges, new Maarif Colleges were opened in Adana, Ankara, Bursa and Erzurum in the 1970s, thus increasing the number of the Maarif Colleges to 10.

5. Education in the Maarif Colleges

5.1. Teacher Availability in Maarif Colleges

The way for meeting the need for teachers who would work in the colleges had been a matter of discussion before they were opened. It was not possible to find a sufficient number of Turkish teachers who could speak a foreign language for Mathematics and Science courses which would be taught in foreign language in the colleges. Therefore, the Ministry tried to resolve this problem with the teachers it brought from foreign countries, especially the USA and England. However, there were also reservations expressed in the Parliament against the appointment of foreign teachers from abroad. Ankara Deputy Muhlis Ete was one of those who said that foreign teachers did not know Turkish students and it was not right for them to teach without any preliminary works. (TBMMZC, 1955a). It was a problem for the Ministry of National Education to find teachers who can carry out the education envisaged for colleges not only when colleges were opened but also in the following years (Millî Eğitim Plânının, 1960). The Ministry made various attempts to find and train Turkish instructors with the sufficient qualifications (Okullarda Lisan Tedrisatı, 1955). Teachers were sent abroad for this purpose, but since this method did not produce the intended result, the Ministry continued to meet the need for the foreign language speaking teachers to a great extent with the instructors sourced from abroad.

The Ministry of National Education covered the foreign-teacher needs from three different sources, which were contracted teachers, Fulbright scholarship holders and Peace Corps Volunteers. We understand that the teachers of the Maarif College were mostly sourced as follows: the contracted teachers served in the first few years following the opening of the Maarif Colleges, additionally the teachers who came through the Fulbright scholarship program served starting in early 1960, and the teachers who came as the Peace Corps Volunteers served to start in mid–1960s. The contracted foreign teachers who were brought from abroad were selected, and contracts were signed by the embassies and/or consulates in London, Washington, and New York through the Ministry of Foreign Affairs upon the request of the Ministry of Education. These teachers were able to work in Turkey with the permission of the Council of Ministers. The foreign instructors who were granted work permits were welcomed by Kadıköy Maarif College officials in Istanbul and the officials provided assistance to the teachers to reach the colleges where they were employed. The foreign teachers who came through the Fulbright scholarship program were assigned jointly by the Fulbright Turkey Commission and the Ministry of National Education within the framework of the agreement between Turkey and the USA. One reason the Ministry used the Peace Corps Volunteers as the third source in the selection of foreign teachers was the tendency to reduce the financial burden of the contracted teachers. (Kadıköy Maarif College Archive (KMKA), 1965).

In order to speed up the adaptation process of the foreign teachers, the directorates of the colleges sent them introduction letters about the school where they will work. In addition, accelerated courses were given to these teachers to enable them to adapt to the Turkish education system faster. While the contracted teachers who came in the first few years after the colleges attended an orientation training at Galatasaray High School, the teachers who came through the Fulbright scholarship program took part in a two-week orientation training at the American Girls' College in Arnavutköy (KMKA, 1961). On the first day of the orientation training held from 31 August through 11 September 1965, the General Secretary of the Turkey-USA Cultural Exchange Commission gave an opening speech, the participants were first given Turkish language lessons, and then they toured the campuses of Robert College and American Girls' College. On the second day, following the Turkish language

course, the participants visited Hagia Sophia, Sultanahmet, Süleymaniye, and Chora Mosques. On the third day, after the Turkish language course, Kadıköy College Director Vehbi Güney and Mrs. Vida Dugan each gave presentations on the Turkish Education System and on travel in Turkey, respectively. In the subsequent days, in addition to the Turkish language courses, information was given about the purpose and mission of Fulbright. In addition, the participants were informed about the standing of Turkey in the economic, sports, cultural and health fields (Gündüz, 2017). The Peace Corps Volunteers, on the other hand, received three weeks of training at the Gazi Education Institute in Turkey, after about three months of training in the USA. The Peace Corps Volunteers were given a 120-hour Turkish language course in the USA and also provided with detailed information about the geographical structure, history, the population structure, the form of government, education, culture, economy, and religious characteristics of Turkey (Gündüz, 2018).

The Ministry of Education tried to ensure that foreign teachers on contracts and the Fulbright scholarship-holder foreign teachers who will work in Maarif Colleges have the desired qualifications. Despite this, the emergence of some issues related to teachers' performances and teaching qualifications suggests that the necessary attention was not shown in the selection of the teachers. This was emphasized in the Report of the Turkish National Education Commission published in 1960, saying that most of the foreign teachers were "not selected or could not be selected with precision, not all of them put their heart and soul in their work" (Türkiye Eğitim Milli…, 1960). The Ministry of Education did not have the authority in the selection of the Peace Corps Volunteers who were appointed at the colleges in the 1960s. The fact that most of the Peace Corps volunteers were young and inexperienced, and did not have any teaching formation, decreased the quality of foreign teachers in the colleges. Diyarbakır Maarif College Director İbrahim Emiroğlu said that most of the Peace Corps Volunteers were generally inadequate and irresponsible than the contracted foreign teachers (Emiroğlu, Anadolu…, 1995). The college administrations kept detailed reports about the foreign teachers. Based on these reports, we understand they were satisfied with the foreign teachers despite the problems experienced, contrary to the Turkish Education National Commission Report.

Table 1

The Number of Teachers Working in Maarif Colleges from 1955 to 1974.

	Classes of the Teachers																					
	Junior high school												Senior High School									
	Principal		Trainee		Assistant		Paid		Substitute		Total		Principal		Trainee		Assistant		Paid		Total	
College Name	E	K	E	K	E	K	E	K	E	K	E	K	E	K	E	K	E	K	E	K	E	K
Ankara	7	20	-	1	-	-	3		-	-	10	21	-	-	-		-		-	-	-	-
Bursa	7	11	-	-	-	-	-	3	-	-	7	14	-	-	-	-	-	-	-	-	-	-
Diyarbakır	96	46	2	1	1	-	18	18	-	8	131	65	27	16	3	1	4	-	6	10	79	47
Eskişehir	92	65	-	3	1	-	29	18	4	1	138	97	31	22	-	2	-	-	5	4	84	57
Izmir	159	47	13	10	5	2	20	16	10	2	217	85	38	24	6	1	3	1	11	4	149	86
Kadıköy	83	123	-	1	3	-	18	14	4	4	135	177	34	45	-	-	-	-	14	7	102	139
Konya	71	58	-	3	-	-	26	18	-	-	108	88	24	12	-	2	-	-	14	1	94	54
Samsun	112	32	1	5	8	-	17	12	8	-	158	57	33	16	-	-	-	-	5	3	98	46
TOTAL	627	402	16	24	18	2	131	99	26	15	904	604	187	135	9	6	7	1	55	29	606	429

Source: Gündüz, 2017.

Turkish teachers also worked in the Maarif Colleges in addition to foreign teachers.

5.2. Student Affairs and Procedures in the Maarif Colleges

The Ministry of National Education, which established the Maarif Colleges in line with certain objectives, was attentive and careful about the selection of students to be admitted to these schools. Selection examinations were held to determine the limited number of students who would attend these schools. In order to be admitted to Maarif Colleges, students had to be primary school graduates, pass the exam, agree to pay the annual boarding fee, and submit the necessary documents to the school administration. The first years, the exams were made within each college (Şehrimiz Kolejinin Kayıt, 1955); then the central system was implemented. In the examinations, the students took tests on Math, Turkish and Natural Sciences. The Ministry of National Education sent the exam booklets by inspectors to the provinces where the exam would be held, and after the exams were held, the booklets were brought back to Ankara to be graded (Şehrimiz Koleji İçin İmtihanlar, 1955). After the list of the students who passed the exam was announced, the students completed the registration documents and procedures and enrolled in the colleges.

Initially, single-stage college entrance exams were held, but it was organized as two-stage exams in 1970s (KMKA, 1972). Since the Maarif Colleges were boarding schools, the Ministry of National Education admitted only boarding male students to these schools in the first few years. The Ministry continued this practice until 1964. Admission of non-boarding daytime students and female students to colleges began in 1964-1965 academic year (Emiroğlu, Anadolu, 1995). In addition, the students who met the necessary criteria could transfer to and admitted by the Maarif Colleges. While the students from secondary education institutions where the language of instruction is Turkish could not transfer, students of the same type of schools and students returning to Turkey after studying in a foreign country were accepted to the colleges by way of transfer. The Maarif College students, on the other hand, were able to transfer to Turkish-medium schools without the right to return to the college (Tebliğler Dergisi, 1970).

5.3. Textbooks and Course Curriculum in the Maarif Colleges

The Maarif Colleges provided education for seven years, including one year of preparation, three years of junior high school, and three years of senior high school. Students attended English and Turkish lessons in the preparatory class, and after they passed the preparation year, attended the regular classes as per the curriculum. During the opening process of the colleges, some of the problems were about the curriculum to be applied and the textbooks to be used in these schools, and how these textbooks would be procured. When the Maarif Colleges were opened, English textbooks had not used in public schools. This led to the problem of choosing and procuring the English textbooks to be used in the Maarif Colleges. The foreign schools in Turkey were contacted to solve this problem. In particular, the practices of Arnavutköy American College for Girls were used for the curriculum to be applied and the textbooks to be used. The curriculum and textbooks recommended by the commissions became official after the approval of the Board of Education.

The Ministry asked the teachers, who were the practitioners in the field, whether the textbooks used were of the desired quality (KMKA, 1960). The teachers who taught in the classes reported their opinions about the books and sent them to the Ministry of National Education (KMKA, 1961). On the other hand, not every college had the same opportunity in terms of procuring textbooks. Since the Kadıköy Maarif College was located in Istanbul, it was able to get the books easier than the other schools. From time to time, other colleges asked for assistance from the Kadıköy Maarif College and the Ministry of National Education for their book-related needs.

Table 2

1956-1957 Weekly Lessons and Hours of the Prep Class and junior high school section of the Maarif Colleges

Lessons	Preparation Class		Junior High I	Junior High II	Junior High III
	1st Grade Period	2nd and 3rd Grade Periods			
Turkish	4 (1)	4 (1)	6 (1)	4	4
History	-	-	2	2	2
Geography	-	-	2	2	2
Civics	-	-	1	1	1
Mathematics	-	-	5	5	5
Science	-	-	4	6	6
English	25	25 (2)	8 (3)	8 (3)	8 (3)
Drawing	1	1	1	1	1
Music	1	1	1	1	1
Physical Education	1	1	1 (4)	1 (4)	1 (4)
Business Knowledge	-	-	1 (5)	1 (5)	1 (5)
Total	32	32	32	32	32

Source: KMKA, 1956.

Students studied 32 hours a week in the junior high school and 36-37 hours a week in the senior high school section of the colleges. Although senior high school education included the science and literature departments that students should choose from as of the second year, most of the students preferred the Science department.

Table 3

1960-1961 Weekly Lessons and Hours of the Senior High School section of the Maarif Colleges

Lessons	1st Year	2nd Year Science	2nd Year Literature	3rd Year Science	3rd Year Literature
Turkish Language and Literature	5	4	5	3	6
Psychology	-	2	2	-	-
Philosophy-Logic-Sociology	-	-	-	3	6
History	2	2	2	2	3
Art History	-	-	2	-	2
Mathematics	5	6	4	8	3
Geography	2	2	2	1	2
Biology	3	2	2	1	-
Physics	3	3	2	4	2
Chemistry	3	3	2	3	1
English	9	8	9	8	9
Physical Education	1	1	1	1	1
Military	1	1	1	1	1
Music	-	-	-	-	-
Drawing	-	-	-	-	-
Additional Foreign Language	2	2	2	1	1
Total	36	36	36	36	37

Source: KMKA, 1960.

5.4. Socio-Economic Status of the Families of Students Studying at Maarif Colleges

We understand that children from middle-and upper-middle-class families attended the Maarif Colleges. The reviews made on the student registration records of the Samsun Maarif College and Izmir Bornova Maarif College confirm this fact (Gündüz, 2017). In addition, similar results were obtained in a survey conducted on this subject (Duyuran, 1974). According to the aforesaid survey, the economic status of the families was middle and above the middle class, and the parents of the students were generally civil servants, merchants, officers, economists, engineers, doctors, teachers and self-employed, and there were also lawyers, judges, associate professors, and school of higher education principles among the parents.

In addition to the students who paid tuition to study in the Maarif Colleges, children of low- and middle-income families were accepted with free boarding. Although the students who have achieved great success in the government free boarding exam could not apply to the colleges directly, they have been placed in the colleges by the Ministry of Education.

Table 4

Number of Boarding Students in the Maarif Colleges from 1955 to 1973.

Name of Maarif College	Boarding Students											
	Junior high school						Senior High School					
	Paid		Free		Total		Paid		Free		Total	
	M	F	M	F	M	F	M	F	M	F	M	F
Ankara	96		9		105							
Bursa	14	23	31	36	45	59						
Diyarbakır	1730		410		2140		510		107		617	
Eskişehir	2179		649	5	2828	5	702		312		1014	
Istanbul Kadıköy	2349		165		2504		899		62		961	
Izmir Bornova	4253		694		4947		1696		330		2026	
Konya	1785		315		2101		675		79		754	
Samsun	2019		232		2251		816		66		882	
General Total	14425	23	2505	41	16921	64	5298		956		6254	

Source: Gündüz, 2017.

While 14.99% of the boarding students in the junior high school section of the Maarif Colleges stayed at the dormitories for free, 85.06% of boarders paid for it. Of the students who paid for the boarding, 0.16% of students were female and 99.84% were male. On the other hand, of the students who did not have to pay for the boarding, 1.61% of the students were female and 98.39% were male. While 15.29% of the boarding students in the high school section of the Maarif Colleges stayed at the dormitories for free, 84.71% of boarders paid for it. There were no female high school boarding students in Maarif Colleges.

The Minister of National Education Celal Yardımcı said during the opening of the colleges that, the colleges would accept students from all over Turkey, and 25-30% of the boarding quota would be allocated for the students coming from deprivation regions. (TBMMZC, 1955a). However, looking at the data above, we understand that the 25-30 % target set by the Minister was not achieved.

5.5. Social, Cultural and Sports Life in Maarif Colleges

In the Maarif Colleges, great importance is attached to social, cultural, and sports activities in order for students to have an enjoyable school life outside the classroom and to develop their foreign language skills. Such activities in the Maarif Colleges were varied. The colleges established in different cities and regions were influenced by the geographical and cultural characteristics of the region and the country. Foreign teachers from different countries enriched this variety.

Activities in various fields such as football, basketball, volleyball, athletics wrestling, table tennis, scouting, pipes, and drums were organized in the Maarif Colleges (1963 Samsun Koleji…). Ceremonies were held in commemoration of important days. Official holidays and religious holidays were celebrated. In addition, the "Farewell Tea Party" and graduation ceremonies were held with the participation of senior students and teachers (1963 Samsun Kolej; 1963-1964 Diyarbakır Maarif Koleji…). Poetry, quiz, and debate competitions were held in the Maarif Colleges, and theater and performances a foreign language teaching tool. The plays which were staged include William Shakespeare's Macbeth, Jules Irving's the Magic Butterfly, the Grimm Brothers' Snow White and the Seven Dwarfs, Joseph Kesselring's Arsenic and Old Lace, Fernando Arrabal's Picnic on the Battlefield, Arnold Ridley's The Ghost Train, Moliére's the Miser and Refik Erduran's the Rope Game (Diyarbakır Maarif College Archive (DMKA).

Student clubs were greatly emphasized in the Maarif Colleges and student clubs were established in many different fields and subjects. These clubs include Manners, Literature / Culture and Literature, Science / Engineering, Drama, Boy Scouts, Boys' Choir, Recitation, Photography, Newspaper, Travel / Travel Review, Aviation, Sister Village, Red Crescent, Culture, Librarianship / Library, Cooperative, English Speaking, Mandolin, Mathematics, Music, Music Branch, Schoolstore, Orchestra, Game House, Ping pong, Radio, Art, Sentinel, Sports Hall / Sports, Social, Agriculture, Debate, Theater Play Branch, Broadcasting, Green Crescent, and Walking Club.

Besides active student clubs, a school magazine, a school newspaper, and a school yearbook was published in the Maarif Colleges. A newspaper named *Voice of IK* was published in Izmir Bornova Maarif College, the magazines *Devinim 69 (Motion 69)*, *Evrim (Evolution)* and *Mevlana: Special Issue* were published in Konya Maarif College and a school newspaper named *Kılıçer*" was published in Kadıköy Maarif College. In addition to magazines and newspapers, the school yearbooks were issued with different names such as *Connect*, *Göç (Immigration)*, *Paradise*, *Echo* and *Ideal* (BAL'ın 50 Yılı, 2004; Devinim 69, 1969,; Evrim, 1968; Mevlana Special Issue; Yankı Echo 59-6*0*).

Another important aspect of the Maarif Colleges was the school anthems. Each college had its own school anthem. It is noteworthy that these school anthems, which played an important role in students' acquiring their school identity referred to concepts such as science, homeland, Turkish, advance, light, flag, ideal, country, Anatolia, knowledge, perseverance, faith, and morality.

5.6. Numerical Data Regarding the Students at the Maarif Colleges

From 1955 to 1973, there were a total of 6066 students in the preparatory classes of the Maarif Colleges, and 5391 students were successful while 675 students failed their classes. In the same period, there were 7740 students in the first year of junior high school and 7222 of them were successful, while 518 students were

unsuccessful. There were 5496 students in the second year of junior high school where the number of successful and unsuccessful students was 5093 and 403, respectively. There were 4581 students in the third year of junior high school and 4068 of these students were successful and 513 of them were unsuccessful. In short, there were 23779 students in total in the preparatory and junior high school section of the colleges in the said period and 21718 of these students were successful while 2061 were unsuccessful (Gündüz, 2017).

Education and teaching continued in the senior high school section of the Maarif Colleges, with 344 classes from 1957 to 1973. During this period, 4489 students and a total of 2867 students passed the class in June and September, respectively. And, 243 students were allowed to pass the year with one course failed. The number of students who failed the class was 1017. While 88.20% of the students were successful, 11.80% failed their classes. From 1956 to 1973, a total of 4896 students, including 4295 males and 601 females, graduated from the junior high school section of the Maarif Colleges and received their diplomas. The ratio of the male and female graduates was 87.72% and 12.28% respectively. In senior high school, 2489 students graduated, including 220 females and 2269 males. The ratio of the male and female graduates was 91.16 % and 8.84% respectively. A total of 287 students, 261 males and 26 females, graduated from the Literature branch, and a total of 2202 students, including 2008 males and 194 females, graduated from the Science branch. The total number of students who dropped out of school for various reasons from 1955 to 1974 in the Maarif Colleges is 1148 (Gündüz, 2017).

6. The Conversion of the Maarif Colleges into Anatolian High school

With the National Education Fundamental Law, No 1739, it has become compulsory for secondary education institutions to be named as high schools (Resmi Gazete, 1973). Accordingly, the directors of the Maarif Colleges gathered at the Ministry of National Education on 7 April 1974 and discussed the issue of the name change to be made. At the meeting, names such as Hittite, Anatolia and Seljuk were considered as replacements for Maarif Colleges. İbrahim Emiroğlu said that the word Hittite would have a chauvinistic connotation and that the word Seljuk would cause confusion with Selcuk University, and thus it was decided that the word Anatolia would be more meaningful for Maarif Colleges. Upon the adoption of the name Anatolian by the Principals Commission, the Ministry of National Education has changed the name of Maarif Colleges to Anatolian High School with the consent of the Minister dated 1 July 1975 and numbered 14903 (Emiroğlu, 1995).

Conclusion

The opening of Maarif Colleges coincides with the 1950s, during which close ties between the USA and Turkey were maintained in every field. The most important factor in the opening of the colleges was the need for staff, which were fluent in foreign languages. The government decided to open the Maarif Colleges to meet this need and train young people who could benefit from scientific studies. The fact that the colleges were foreign language medium schools has brought along the concerns that they would harm the national values. In order to eliminate the concerns during the establishment process, the Democrat Party emphasized that the colleges would be national schools and intended to develop our national values. The relevant discussions were mostly held in the Turkish Grand National Assembly, but there were no serious arguments regarding this in the public. The issues related to the colleges were announced in short news in the national press, and in more comprehensive news in the local media in the provinces where schools were opened.

The Ministry of Education spent substantial funds for the Maarif Colleges, especially for school buildings and foreign teachers. Although high wages were paid to the foreign teachers invited from abroad during the period when the schools were opened, they came to Turkey on the condition that they would work in certain cities. This also influenced the selection of the provinces where the Maarif Colleges were established. Allowing the foreign teachers to decide the cities where they would be employed suggests that the Ministry of National Education was not in full control of the opening process of the Maarif Colleges.

The opening of the Maarif Colleges has constituted a different dimension of the education policies of the Democrat Party. The Maarif Colleges were opened, and the groundwork was laid for the creation of an elite group while trying to increase the schooling rates. Since the Maarif Colleges were paid boarding schools, they could not be turned into schools where every successful student could attend. The annual boarding fee paid to these schools was equivalent to 18 Republic gold coins at that time. Adding other expenses, the parents who wanted to have their children enrolled in this colleges had to pay a large amount of money. Therefore, we can say that the Maarif Colleges are not a practice that sufficiently takes equal opportunity in education into account. As a matter of fact, the Minister of Education Celal Yardımcı, who was aware of this issue, said that 25-30% of students would be admitted to Maarif Colleges free of charge, but the Minister's goal was achieved at around 15%.

The number of Maarif Colleges, which were opened with the effect of developing relations with the USA, was not increased for a long time to preserve the quality. The number of Maarif Colleges, which was 6 until the 1970s, increased to 10 by 1975. It is observed that the students at the Maarif Colleges are generally successful. The main reason for the achievement seen in the schools with special status such as Maarif Colleges is not that these schools provide education in foreign languages, but that students are admitted to the colleges by exams, and generally, students with high academic levels are selected. Some of these recently opened colleges were turned into Anatolian high schools before anyone could even graduate. The number of Anatolian high schools, which were established on the legacy of Maarif Colleges, have gradually increased, reaching 2434 in the 2016 - 2017 academic year, and has become the most common school type of secondary education.

A good evaluation of the conditions that led to the emergence of the Maarif Colleges and full and accurate confirmation of the effect of the USA on the Turkish education system and policies will help to better understand the developments in secondary education today. In fact, the establishment of the Maarif Colleges also means the government acknowledges the failure to teach foreign languages in its own schools. Therefore, in order to solve the problem of foreign language education, which still maintains its importance today, solutions should be developed considering the conditions of Turkey. It is important for the future of Turkey that Turkish is the language of education at all levels and that it is taught well. On the other hand, it is of course a necessity to teach at least a foreign language that will meet the needs of the age. However, taking into account the pedagogical and scientific facts, it seems appropriate to make efforts to improve foreign language teaching in existing schools instead of foreign language education.

Ethic

This research was conducted in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and ethical standards.

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Validity and Reliability Study of a Turkish Form of the Machine Learning Attitude Scale

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Abstract

This study aims to adapt the learners' machine learning technologies attitude scale to Turkish. Participants of the study are 309 university students. Confirmatory factor analysis (CFA) was used on data obtained from Turkish students for construct validity of the scale. Following this, 23 items were excluded. A confirmatory factor analysis was performed again, completing adaptation of the scale to Turkish. Three reasons for excluding the items and factor following the confirmatory factor analysis emerged: item structure, domain self-efficacy, and the cultural adaptation process. This study has enabled the scale of attitudes toward artificial intelligence to be adapted to Turkish specifically for machine learning techniques and technologies. The scale can be used as a resource for further studies.

Key Words

Artificial intelligence • Machine learning • Attitude • Scale adaptation • Teacher candidates

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Attitudes toward artificial intelligence in information technologies has been of interest since the first generation of computers. It has attracted the attention of researchers since human interaction with computers became more widespread (Knezek & Christensen, 2008). In the early 1980s, many researchers agreed that the successful use of computers in the classroom was dependent on positive attitudes toward them. Studies conducted in the past 20 years have shown that teachers' positive attitudes toward information technologies can be passed on to their students (Christensen, 2002). Along with developing techniques and technologies, educational materials including software and hardware involving artificial intelligence (AI) technologies have begun to be used in learning environments. In recent years, machine learning has been used in discourse analyses (Yücel, 2021), interpreting sign language (Öztürk et al., 2021), the prediction of social relationships and delays in cognitive development (Metlek & Kayaalp, 2020), and in research on big data. For the long term development of educational projects in collaboration with field experts, it is important that teachers are aware of such research. In addition, by determining attitudes toward machine learning and technologies, this study can be seen as the first step in determining the kind of relationships and affective arrangements that may be needed in follow-up studies.

Interdisciplinary research into learning facilitates our understanding of learning processes and the nature of the teaching practices that can support these processes. With an understanding of these, machine learning technologies can be designed for use in education. As Luckin and Çukurova (2019) point out, the development of artificial intelligence technologies for use in education requires cooperation between researchers working in the learning sciences. Such collaboration is also needed for AI developers to better understand the training and learning activities involved. The educational challenges of bringing human intelligence to the fore and educating everyone in AI can make the more effective use of AI in educational activities one of the core goals. Although such processes can be investigated using AI on big data, teachers need to develop new skills so that educational processes can progress effectively in the classroom environment and they can regularly integrate AI into their teaching processes (Hampel & Stickler, 2005).

Big data in AI can provide information such as metrics of technical systems or social media filters that can facilitate education management. Subsequent developments can provide applications for students, teachers, researchers, administrators, policy makers, and institutes. Baker et al. (2019) divide "artificial intelligence tools used in education" into three groups oriented toward learning, teaching, and the system. While learning-oriented AI tools are those that students use to learn a subject area, teaching-oriented tools are used by teachers to reduce their workload and ensure effectiveness in certain tasks. System-oriented tools, on the other hand, enable administrators and managers to track information. While these categories of AI tools are used in education and training, understanding the attitudes of current teacher candidates toward them and toward machine learning technologies is important in terms of predicting their long-term use.

In foreign language education, studies have shown how teachers are integrated into educational processes and suggest methods for preparing teachers in the application of AI supported technologies. These studies predict that the application of machine learning technologies in education will make classroom management more effective, as well as providing personalized and flexible teaching. In addition, it is predicted that personalized AI tools will enable teachers to better understand their own development and that of their students, and to organize learning activities more easily (Pokrivcakova, 2019). In order to integrate intelligent computer-assisted language

learning tools into ongoing teaching processes, teachers need to develop new skills. Such tools will reduce workload and make repetitive tasks easier, allowing teachers more time to support their students' development (Dodigovic, 2009; Hampel & Stickler, 2005).

As teachers need to be trained in the use of machine learning technologies due to future use of such technologies by embedding into their teaching processes, it is important to understand their attitude toward them. Although attitudes toward computer use has received much attention from researchers, few studies have evaluated attitude dimensions based on machine learning technologies. In addition, where they have been carried out, evaluations have not been done in Turkish, and there is as yet no comprehensive research into attitudes toward machine learning technologies in the context of Turkey. For this reason, traditional methods for measuring attitudes toward computers, the internet, and information technologies are inadequate for applying to the field of machine learning technologies. Although we have insufficient knowledge of the differences between current attitudes, future studies may reveal that individuals' attitudes differ toward machine learning technologies and computer, internet, and information technologies. This could be due to either the different perceptions of developments in machine learning technologies or the differences between individuals' learning styles. In order to understand the core reasons, a reference research on attitudes toward machine learning technologies is needed.

The Learners' Attitude in Artificial Intelligence Scale was developed by Lee (2019) to measure the attitudes of university students studying in different fields toward machine learning technologies. This study aims to adapt that scale to Turkish, specifically for machine learning technologies. As AI technologies have developed, machine learning technologies have become important, and understanding attitudes toward these techniques and technologies within the scope of teacher training practices has become a priority for developing studies and workshops. It is important that teachers develop positive attitudes toward these techniques and technologies in order to prepare the young generation for the machine learning technologies that can develop their ways of thinking, enabling them to evaluate daily events, and improving their job opportunities. In order to prepare this awareness and workshop training, a scale development in Turkish is needed to determine students' attitudes and to clarify what kind of parameters can be added to the training content during the education process. Adapting the scale developed by Lee (2019) to Turkish will help guide content preparation for workshop-based training for university students in Turkey, and will also help to reveal any correlation between attitudes toward machine learning technologies and a variety of variables. In this sense, the scale is a reference resource and will be referred to as such throughout this paper.

Method

Research model

This research is a scale adaptation study. Permissions required for the scale's adaptation were obtained by e-mail. Additionally, required permissions were obtained from the Social Sciences Ethics Committee prior to administering the scale. The researchers first translated the scale into Turkish. After translation, a form was developed that included the original items of the scale and the translation items. The form provided space for experts to comment on each item and make recommendations. Two English language educators, five educational technology specialists, and one measurement and evaluation specialist were consulted for their expert opinions, and revisions were carried out in light of these opinions. Three university students were asked to read the Turkish scale aloud to ensure the language was clear. Following this stage, the original scale and the Turkish

version were distributed to 17 students fluent in English and Turkish. The students ranged in age from 18 to 27 years and were either studying English Language Education, studying at an English-medium university, or had mastered English at a preparatory course (and who had a good command of the language). The Pearson Product-Moment Correlation Coefficient was calculated to be 0.90 (p < 0.001) between the scores obtained from the original form and its translation. The Turkish and English forms of the scale were therefore determined to be equivalent.

Participants

The participants were 309 university students who volunteered to take part in the study. The participants' demographic information is presented in Table 1. Of the participants in the study, 59.9% were female and 40.1% were male. Almost all participants (95.5%) were students at public universities; half of them were freshmen (50.8%) and approximately a third were seniors (23.6%).

Table 1

Demographic Information

		n (309)	*f*
Gender	Female	185	% 59.9
	Male	124	% 40.1
University Type	Public	295	% 95.5
	Private	14	% 4.5
Grade	1	157	% 50.8
	2	36	% 11.7
	3	27	% 8.7
	4	73	% 23.6
	4+	16	% 5.2

Data Collection Instrument

The original scale consists of seven factors and 62 items. The factors are "interest in technology" (10 items), "gender role of technology" (10 items), "importance and impact of technology" (10 items), "ease of access to technology" (9 items), "technology and courses" (10 items), "technology-related career paths" (9 items), and "technology and creative activities" (4 items). The attitude measurement instrument used in this study was found to be valid and reliable. The Cronbach Alpha (CA) coefficient was found to be 0.89, which was deemed valid based on the face validity measurement. The scale was tested on five elementary school students and found to be appropriate for their age group. The parts of the scale related to artificial intelligence were modified to make them suitable for machine learning technology. The items were rated on a 5-point Likert scale, ranging from "Strongly Agree" (+2 points) to "Strongly Disagree" (-2 points) (Appendix: Turkish Machine Learning Attitude Scale).

Data Analysis

A confirmatory factor analysis (CFA) was conducted on the data collected from 309 Turkish university, obtained during the process of adapting the scale to Turkish. The goal of CFA is to see how well a predetermined structure — a model — fits the obtained data. In this context, the CFA was conducted to test the construct

validity of the Machine Learning Attitude Scale. The AMOS 21 software program was used to conduct the CFA. A CA coefficient was calculated for reliability.

Findings

Confirmatory Factor Analysis Results

The construct validity of the scale was evaluated using confirmatory factor analysis (CFA) after the prescribed factor structure of the original scale was found to be suitable as a result of consulting expert opinion. Fit statistics for the model with seven factors specified on the original scale were investigated. Items 2, 4, 5, 9, 11, 14, 16, 18, 24, 26, 28, 34, 41, 45, 46, 47, 49, and 52, which had small factor loads, were removed after the CFA. For reliability, the CA values were examined, and items 51 and 58 were excluded because they reduced the internal consistency of the factor. Because the internal consistency of items 35, 54, and 60 was low (CA = 0.58), they were removed, and thus the factor "Ease of Access to Technology" was removed entirely from the scale. Following these operations, a CFA was again conducted and CA values for each factor were calculated.

For such indices, although it is difficult to establish standards, a value of 0.50 or greater for PNFI (Hu & Bentler, 1999) and PGFI (Meyers et al., 2006), and a value of 0.08 or smaller for SRMR, RMR (Hu & Bentler, 1998) and RMSEA (Browne & Cudeck, 1993) are typically recommended as they correspond to adequate fit.

The p value of the χ^2 (chi-square) statistic was examined by taking into account the fit indices of the model. This value is considered a good fit at 0.00 (p < 0.05). As this value is significant in large samples, the χ^2 / df ratio and other indices should be taken into account (Tabachnick & Fidell, 2007). This value is acceptable if it is smaller than five (Wheaton et al., 1977). The χ^2 value was calculated as 1850.512, and the df value was calculated as 681. The χ^2 / df ratio (1850.512 / 681) was calculated as 2.72, which was considered a good fit. Other fit indices are shown in Table 2 and discussed in relation to the literature. All the indices listed in Table 2 were found to fit well. In this way, the model was confirmed to have six factors.

Table 2

Model Fit Measurements

	Model	*Criteria*	*Decision*	*Rationale*
χ^2	1850.51	-	-	-
df	681	-	-	-
χ^2/df	2.72	<3	Good Fit	Kline (2011)
RMSEA	.07	<.08	Good Fit	Browne and Cudeck (1993)
SRMR	.07	≤ .08	Good Fit	Hu and Bentler (1999)
RMR	.06	≤ .08	Good Fit	Hu and Bentler (1998)
PNFI	.70	≥.50	Good Fit	Hu and Bentler (1999)
PGFI	.65	≥.50	Good Fit	Meyers et al. (2006)

Because the data set had a normal distribution, the Maximum Likelihood Method was used to estimate the parameters, and the covariance matrix method was used to calculate the data matrix. Table 3 shows the factor loads, error variances, and t values. The t values of all items were greater than +1.96. According to the literature, T values should be different from ±1.96 (Kline, 2011). All values were significant (p < 0.05). A path diagram is shown in Figure 1. Due to the large number of items, the path diagram only displays the factors. As shown in

Figure 1, the factor with the lowest correlation with the scale results is "Gender Role of Technology", and that with the highest correlation is "Interest in Technology".

Table 3

Item Analysis

Factor	Item Number	Factor Loads	Error Variances	t^*
Interest in Technology	25	0.77	0.12	10.63
	13	0.76	0.13	10.53
	50	0.74	0.11	10.37
	38	0.72	0.13	10.13
	44	0.72	0.13	10.15
	57	0.71	0.10	10.10
	7	0.63	0.09	9.28
	31	0.61	0.11	9.02
	1	0.59	-	-
	19	0.57	0.10	8.50
Gender Role of Technology	39	0.83	0.08	13.38
	33	0.80	-	-
	20	0.77	0.07	13.01
Technology and Courses	42	0.76	0.13	8.85
	23	0.74	0.15	8.73
	12	0.70	0.14	8.50
	17	0.69	0.11	8.43
	55	0.56	0.12	7.48
	29	0.56	0.11	7.52
	36	0.54	0.13	7.36
	48	0.53	0.10	10.83
	61	0.50	-	-
Importance and Impact of Technology	15	0.71	0.15	9.68
	10	0.67	0.15	9.33
	40	0.66	0.15	9.22
	59	0.65	0.16	9.13
	27	0.63	0.16	8.93
	3	0.59	-	-
	22	0.55	0.17	7.99
Technology-related Career Paths	30	0.81	0.20	8.55
	43	0.79	0.18	8.46
	56	0.75	0.16	9.36
	37	0.66	0.21	7.82
	6	0.56	0.20	7.15
	62	0.48	-	-
Technology and Creative Activities	21	0.74	0.10	11.07
	8	0.67	0.11	10.16
	32	0.64	0.10	9.83
	53	0.63	-	-

*p<0.001 (for all t values)

Figure 1

Path Diagram of the Factors (Factor Path Diagram)
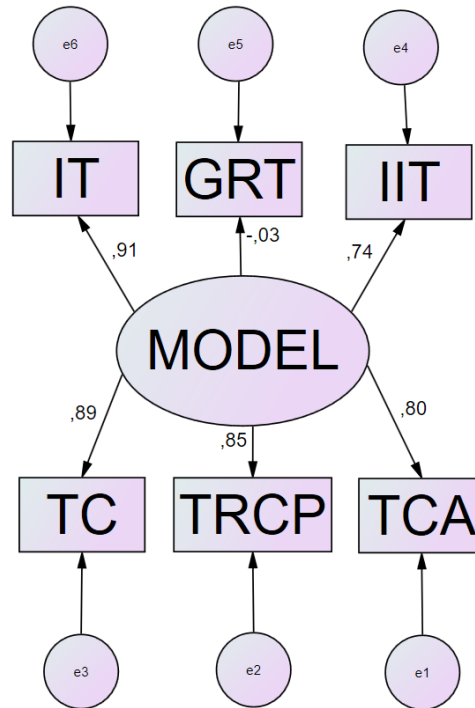
Note: (it: interest in technology, grt: gender role of technology, iit: importance and impact of technology, tc: technology and courses, trcp: technology-related career paths, tca: technology and creative activities).

The internal consistency coefficient of CA (α) varied from 0.76 to 0.89 (Table 4). A CA value that is greater than 0.6 is acceptable (Cortina, 1993).

Table 4

Reliability

Factor	Cronbach Alpha
Interest in Technology	0.89
Gender Role of Technology	0.84
Importance and Impact of Technology	0.82
Technology and Courses	0.86
Technology-related Career Paths	0.83
Technology and Creative Activities	0.76

Conclusion and Discussion

This study aimed to develop a reference scale in Turkish that can determine the attitudes of teacher candidates and newly graduated teachers toward machine learning technologies by adapting the scale created by Lee (2019) to Turkish. Items numbered 2, 4, 5, 9, 11, 14, 16, 18, 24, 26, 28, 34, 41, 45, 46, 47, 49, and 52 were

removed because of their low weights according to the results of the confirmatory factor analysis. Also, items numbered 51 and 58 were removed since they affected the internal consistency of the factor, and the "Ease of Access to Technology" factor (items numbered 35, 54, and 50) was removed due to its low internal consistency. Finally, a further confirmatory factor analysis was performed, completing the adaptation of the scale to Turkish.

Three reasons emerged regarding the items and factors removed following the confirmatory factor analysis. These can be classified as item structures, domain self-efficacy, and the cultural adaptation process. The fact that the item structures are directive is thought to be one of the primary reasons for removing the scale items from the original language when they are adapted to Turkish. Statements such as "He is smarter" and "even she can do it", which are among the items in the original scale, add directiveness to the items. The fact that such items specify the level of intelligence, emphasizes intelligence and the ease of access to technology, which may cause the items to be removed when they are adapted to Turkish. Examination of the removed items shows that the item structures in the original language in the scale are leading. The presence of leading (a bias included in the item sentence) items (questions) in any scale is to be avoided (Colosi, 2006).

The inability to provide domain self-efficacy can be interpreted as another reason for removing the "Ease of Access to Technology" factor from the scale. The distribution of answers given to the items may have been affected because as the current university students' level of self-efficacy was low, they could not make a decision about accessing technology, and also because these students were from different fields. The reason for this recommendation can be investigated with a follow-up study into the relationship between domain self-efficacy and attitude toward machine learning technologies. In addition, different researchers may suggest starting the scale's cultural adaptation process with exploratory factor analysis as one of the solutions. However, the confirmatory factor analysis can be given priority in cases where it is known how many factors exist for the variables (Orcan, 2018). In this study, confirmatory factor analysis was applied twice before and after the items were removed, effectively completing the cultural adaptation process.

As a result, the fact that the item structures are leading and the participants' lack of self-efficacy may be seen as the primary reasons for removing the above-mentioned items and factor from the scale. This scale also opens a road for follow-up researches. For example, studies examining the relationship between attitude toward machine learning technologies, domain self-efficacy, and learning motivation can be considered important.

Recommendations

This study adapted the scale of attitudes toward artificial intelligence into Turkish specifically for machine learning technologies. The results of the study have recommended potential effective items for detecting the attitude towards machine learning technologies among teacher candidates and potential sub-titles for determined machine learning course content. First, by determining attitudes toward machine learning technologies, this study can be seen as the first stage in determining what kind of relationships should be investigated in future research and what kind of emotional regulation may be needed in follow-up studies. Thus, reference studies can be encouraged for the development of positive attitudes toward machine learning technologies. Second, this study can act as a resource scale that facilitates the preparation of future teacher training content. In other words, considering the initial level of teacher candidates before a machine learning training course may encourage the adaptation of the course content.

Limitations

Limitations of this study are three-folded as the number of participant, data collection procedure and further scale testing, and having possible leading items. First of all, this study reached 309 students from 6 universities for the data collection. Second, students filled the scales via an online platform so that the time duration for completing the data may be varied within teacher candidates. Also, although the scale has been shown to be valid, it would be better to have different sample groups for further testing of the scale. Finally, the elimination of one factor ("Ease of Technology Use") and items remind the researchers about the leading items on the originally developed scale so that the final scale should be re-tested for further confirmation with the same group.

Ethic

All procedures in this study involving human participants were carried out in accordance with the ethical standards of Manisa Celal Bayar University Research Ethics Committee with date 12.04.2021 and number E.57768.

Author Contributions

This article was written with the joint contributions of three authors.

Conflict of Interest

The authors declare that they have no conflict of interest.

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Effects of Teachers' COVID-19 Fears on Burnout Levels: The Mediating Role of State Anxiety

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Abstract

This research aims to examine the mediating role of state anxiety in the effect of teachers' fears of Covid-19 on their burnout levels. For this purpose, survey model was used in the research. 387 teachers from different regions of Turkey participated in the research. 228 of the participants were female and 159 were male. In the research, Fear of Covid 19 Scale, State Anxiety Scale and Burnout Scale were used. The data were collected online due to the Covid 19 disease. We observed that the data showed a normal distribution. Cronbach's alpha coefficients of this study were found to be sufficient. It was found that teachers' fear of Covid 19 had a positive effect on state and state anxiety had a positive effect on burnout. Additionally, an indirect effect of state anxiety on burnout was found. In the study, it was seen that state anxiety played a mediating role in the effect of fear of Covid 19 on burnout.

Key Words

Fear of COVID-19 • State anxiety • Burnout • Teacher

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The coronavirus (COVID-19) disease began in Wuhan, China, and quickly spread throughout the world (Yıldırım et al., 2020). People worldwide have suffered negative consequences to their health, family life, work, and financial situation (Haas et al., 2021). COVİD-19, which has a high infection and death rate, has also caused various symptoms, including stress, anxiety, depression, fear, spiritual burnout, and physical effects on human life (Arslan et al., 2020; Torales et al., 2020). In the emergence of these symptoms, situations such as a complete change of daily routines, lengthening of stay at home, and experiencing uncertainties were effective with the quarantine measures applied within the scope of the measures taken as the epidemic spread to the world on a large scale (Yıldırım & Solmaz, 2020).

Along with the uncertainty and economic recession caused by COVID-19, the possibility of contracting this epidemic for people has created a state of fear (Xiong et al., 2020). Fear is a negative emotion that negatively affects people's mental and physical health in relation to the speed of infectious diseases, mortality rate (Kumar & Nayar, 2020; Martinez-Lorca et al., 2020) and can increase the harm caused by the disease itself (Ahorsu et al., 2020). A high level of fear of contracting COVID-19 can cause people who have been infected with this epidemic and are probably infected to think irrationally, however, they can be labeled and socially excluded. However, it may increase the risk of developing different mental health problems (Ahorsu et al., 2020; Fitzpatrick et al., 2020).

Worrying about one's own and loved ones' health, being isolated from the community, losing personal freedoms, and the uncertainty of the future has all contributed to people's anxiety as additional stress factors caused by the pandemic (Huremovic, 2019). Coping with the stressors and changes brought on by the pandemic, as well as managing and completing work tasks, increases anxiety as the state of emergency and restriction persist (Savolainen et al., 2021). The uncertainties experienced during this period are shown to be a source of fear, and these uncertainties push individuals and societies to pessimism and anxiety at the same time (Bozkurt, 2018).

Stress begins when the demands from the environment along with the pandemic conditions exceed the individual's own resources (Clegg, 2001). According to Spielberger (1972), unpleasant and observable reactions such as sadness and tension experienced in stressful situations are called anxiety. This anxiety is divided into two as state anxiety and trait anxiety. State anxiety is an emotional reaction that occurs because of the individual's perception and interpretation of events as threatening, mostly for real reasons (Act. Büyüköztürk, 1997). This anxiety occurs periodically as a reaction to a situation triggered by an event (Çalık, 2020).

When the individual's methods of coping with stress are insufficient, the process eventually leads him to burnout syndrome (Erdem et al., 2010). Burnout is the individuals being away from his work due to reasons such as not being able to fulfill the expectations from the individual, being exposed to stress factors intensely, and loss of motivation. Although it is common in the service group for people (Arpacıoğlu et al., 2021), teaching is also included in this group.

The pandemic has resulted in unprecedented declines in education and other aspects of human life (d'Orville, 2020). Due to unforeseen circumstances, schools had to temporarily close, and innovative educational practices such as online and distance learning have become the new normal at all educational levels (Cheng & Lam, 2021). In the school setting, teachers serve as role models for students facing various challenges, including the

threat of a pandemic. However, the pandemic environment has harmed teachers' mental health and well-being, which may impact their long-term commitment to the profession (Wong & Moorhouse, 2020).

Education has been one of the most affected areas by switching to distance and online education during the COVID-19 pandemic period. Considering that burnout causes many psychological problems, it is important to understand the factors associated with the stress experienced by individuals during the pandemic and the resulting anxiety and burnout to prevent such psychological problems. Accordingly, it was deemed necessary to reveal the extent to which the mental health of teachers was affected by the epidemic. Therefore, this study aims to examine the mediating role of state anxiety in the effects of teachers' fears of COVID-19 on their burnout levels.

Method

Research model

In the study, it was examined the mediator role of state anxiety in the effect of fears of COVID-19 on burnout levels. For this purpose, the relational survey model was used in the research (Karasar, 2007).

Study Group

The study included 387 teachers from various regions of Turkey. There were 228 female participants (58.9%) and 159 male participants (41.1%). The participants ranged in age from 26 to 55, with an average age of 36.18.

Data Collection Instruments

Personal Information Form: The researchers prepared this form to determine the characteristics of the participants (gender, age, marital status, educational status).

The Fear of COVID-19 Scale: Haktanir et al. (2020) translated and adapted the scale to the Turkish language. The scale consists of 7 items, such as "My hands become clammy when I think about coronavirus-19." The FCV-19S is Likert-type scale (1= strongly disagree and 5 = strongly agree). For this scale, a higher total score indicates a greater level of coronavirus fear. Item factor loads of the scale vary between .50 and .81. The Cronbach's alpha coefficient for the Turkish form was .86.

The State Anxiety Inventory (SAI): Le Compte and Öner (1976) translated and adapted the scale to the Turkish language (Eryüksel, 1987). The SAI consists of 20 items, such as "I am worried." Example item: 'I am nervous right now'. The Cronbach's alpha coefficient for the Turkish form was .94. The test-retest reliability coefficient of the scale was found between .68 and .26.

Burnout Snydrome Inventory Short Version: Tümkaya et al. (2009) translated and adapted the scale to the Turkish language. The scale consists of 10 items, such as "I feel tired." The scale is one factor and his factor explains 55.92% of the total variance. The factor loads of items varied from .54 to .87. Also, total score of items and correlation values were between .46 and .81. Internal validity reliability coefficient of inventory item was .91 and test-retest reliability was .70.

Period

Ethical standards were compliance in the collection, analysis and reporting of research data. The data were collected online due to the Covid 19 disease. Informed consent was obtained from all individual participants

included in the study. Demographic information form and scales were applied on the online platform (e.g. WhatsApp, email) The research was conducted on volunteer participants.

Data Analysis

In the study, firstly, missing data analysis was performed. SPSS package program was used to calculate the normality test and Cronbach alpha values of the scale. Direct and indirect impact analysis between variables was calculated using SPSS PROCESS (Hayes, 2018). Boostraping was performed with 5,000 samples and a 95% confidence interval (Montoya & Hayes, 2017).

Findings

Table 1 shows the mean, standard deviation, skewness and kurtosis values, and Cronbach's alpha coefficients. The skewness and kurtosis values were found to be in the 1.96 range, indicating a normal distribution (Karagöz, 2016). All Cronbach's alpha coefficients were found to be adequate because they were 0.70 or greater (Pallant, 2016).

Table 1

Descriptive Statistics

	α	M	SS	Skew.	Kurt.
Fear of COVID-19	.85	93.37	17.72	.33	-.35
State Anxiety	.88	57.72	43.57	.17	-.69
Burnout	.93	92.85	26.40	.25	-.68

**p< .01

Figure 1 shows that the partial mediating role of state anxiety in the effect of teachers' fear of Covid 19 on burnout. According to the boostraping result, fear of Covid 19 has a significant effect on state anxiety (B = 0.64, t = 6.82, p < .001). Similarly, state anxiety has a positive effect on burnout (B = 0.19, t = 6.53, p < .001). Additionally, the fear of Covid 19 has an indirect effect on burnout (B = 0.12, CI = 0.07, 0.19). In the study, the mediating effect of state anxiety on the effect of fear of Covid 19 on burnout is significant. Additionally, the fear of Covid 19 and state anxiety explain 54% of the variance (R2) of burnout (Figure 1).

Figure 1

Mediation Effect Model

Direct Effect

Indirect Effect

State Anxiety

B= 0.64***

B= 0.19***

$R^2 = 0.54$

Fear of COVID-19

B= 0.12***

Burnout

p < .001
B= Unstandardized coefficients
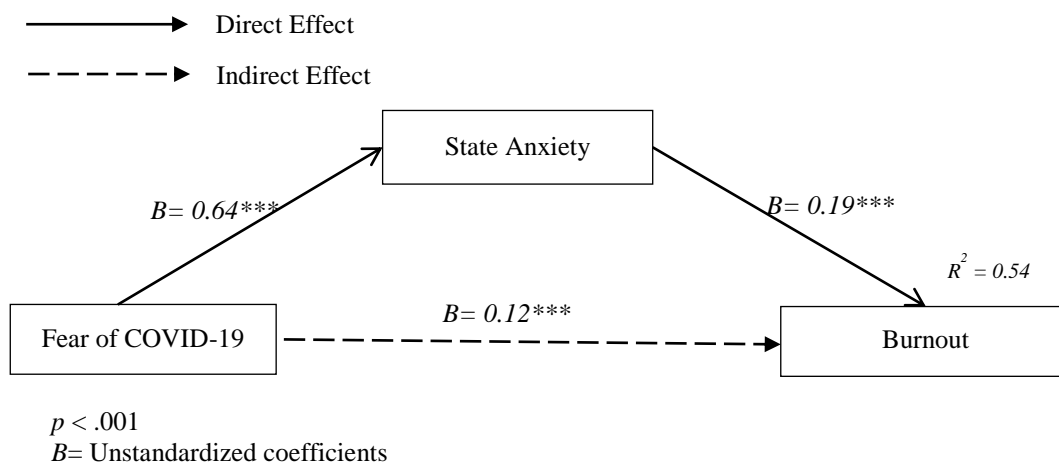
Discussion

The COVID-19 pandemic, which emerged in 2020 and spread rapidly around the world in a short time, caused a global health crisis. COVID-19 has unusually threatened people's livelihoods (Xu et al., 2020) and has caused a lot of anxiety and concern (Bao et al., 2020; Galea et al., 2020). Anxiety (Spielberger et al., 1971), an emotional state characterized by feelings of tension and anxiety that occurs when under stressful situations, had a greater impact on people during the pandemic period (Çalık, 2020; Khoshaim et al., 2020; Lee, 2020; Wan et al., 2020).

In the study, the mediating effect of state anxiety on the effect of fear of Covid 19 on burnout is significant. The study's findings were found to be in agreement with previous research. According to studies, being exposed to epidemic news (including the number of patients and deaths), being in crowded places, and seeing someone sneezing or coughing around them increases people's anxiety and fear during the pandemic period (Memiş Doğan & Düzel, 2020). These stress factors, which increase in our lives because of COVID-19, increase anxiety (Cao et al., 2020) and depression (Dilmen Bayar et al., 2020) in individuals. Studies shows that there is a close relationship between COVID-19 disease and mental health problems (Şimşir et al., 2021).

When an individual's coping strategies with increasing stress factors are insufficient, the process leads to burnout syndrome (Erdem et al., 2010). Burnout is defined as long-term fatigue, low motivation, and apathy toward work, as well as exposure to a high-stress work environment. Furthermore, individuals suffering from work burnout not only jeopardize their health and well-being, but also reduce the quality of their work, increasing the likelihood of making mistakes (Embriaco et al., 2007). In a recent study, Ölmezoğlu İri and Korkmaz (2021) reported that having COVID-19 anxiety negatively predicted employees' productivity at work and positively predicted absenteeism, according to their study.

It has been reported in the literature that an increased fear of contracting COVID-19 is associated with increased anxiety, and that excessive anxiety causes serious distress and dysfunction in individuals (Pittig et al., 2021). Similarly, it has been stated that excessive fear has a negative impact on well-being (Mertens et al., 2020) and creates disharmony (Asmundson &Taylor, 2020). Furthermore, it has been revealed that people who were

quarantined during the pandemic experienced mental health issues such as stress, fear, depression, hopelessness, and burnout (Brooks et al., 2020).

There is a negative relationship between increasing fear of COVID-19 and intolerance of uncertainty, depression, stress, and anxiety, according to the literature (Bakioğlu et al., 2020). Furthermore, fear of COVID-19 predicts burnout, depression, anxiety, and post-traumatic stress disorder in various occupational groups (Alper Ay & İçen, 2021; Arpacolu et al., 2021; Elhadi et al., 2020; Hu et al., 2020; Koç & Arslan, 2021; Luceo - Moreno et al., 2020).

The results of this study are limited to the data obtained from the study group. Repeating the research in different samples will contribute to the literature. In addition, different studies should be conducted on the impact of COVID-19 on teachers.

Ethic

I declare that the research was conducted in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

Author Contributions

All authors contributed equally.

Conflict of Interest

There is no conflict of interest in the research.

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Turkish Adaptation of the Group Metacognitive Scale: Metacognition in Online Collaborative Group Activity

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Abstract

Group Metacognition Scale (GMS) developed by Biasutti and Frate (2018) was adapted into Turkish in this study. The original scale was a 20-item, 4-factor self-report scale measuring students' metacognitive group skills and addressing what generally happened in their group during online collaborative activities. The study was conducted with 208 university students who performed group activities and tasks in online collaborative learning environments. Purposive and convenient sampling method was used in the selection of the participants. According to the confirmatory factor analysis performed in the study, it was found that the fit indices indicated an acceptable fit of the data. It was seen that the factor loadings of the items in the scale vary between 0.51 and 0.82. Cronbach's alpha values for the factors in the scale were calculated as knowledge of cognition, 0.851, planning 0.851, monitoring 0.787 and evaluating 0.845. In this study, the differentiation status of group metacognition scores according to gender and perception of achievement was also examined. The subscales and total score mean of the group metacognition scale of the participants showed a significant difference according to gender and perception of achievement. Suggestions were made within the framework of the findings.

Key Words

Collaborative learning • Metacognition • Group metacognition • University students

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Concepts

The Covid-19 outbreak has made the implementation of remote distance learning mandatory. The prevalence of online learning in education has also highlighted the importance of students taking responsibility for their own learning. In this context, it has become more important for individuals to gain awareness about the ways of accessing information, how information is accessed, and what their learning paths are. Knowing, planning and controlling how the learning process takes place plays a role in the effective management of the learning process. In this context, it is important to focus on the concept of metacognition. Metacognition is defined as knowledge about the regulation of cognitive activities in learning processes (Flavell, 1979). According to Reeve and Brown (1985), metacognition is the ability of individuals to control their own cognitive processes and direct them when necessary. According to Martinez (2006), metacognition is the monitoring and control of thought. According to Brown (1981, 1987), unlike cognition, metacognition is the state of determining when and how to use information by controlling the cognitive processes of the individual. Metacognitive skills include the use of strategies for determining learning goals, planning, monitoring, controlling and evaluating by students (Schraw & Dennison, 1994; Zion et al., 2015).

Biasutti and Frate (2018) emphasized that in addition to examining metacognition at the individual level, attention should also be paid to group metacognition. According to Biasutti and Frate (2018), metacognition of group processes, reflecting the cognitive skills of the group during collaborative learning, thinking about the cognitive characteristics and potential of the group, selecting and organizing information, planning activities, assigning tasks, changing, improving and evaluating different aspects of the process. focuses on their awareness.

Active and appropriate coordination of group processes is important for collaborative learning to be successful (Kwon et al., 2013; Yildiz-Durak, 2021). Social metacognition distributes metacognitive demands among group members, increases the visibility of each other's metacognition, and improves individual cognition, providing mutual scaffolding and more motivation (Chiu & Kuo, 2010). It is suggested that in the collaborative problem solving process, groups should also include metacognitive factors in order to reflect organizational and cognitive factors that affect mathematical problem solving (Chalmers, 2009). Zheng et al. (2019) found that students with group metacognitive scaffolding outperformed students without a metacognitive scaffold in terms of knowledge generation and group product achievement.

Biasutti and Frate (2018) defined four factors for measuring group metacognition: (a) knowledge of cognition, (b) planning, (c) monitoring, (d) evaluating. According to Schraw and Moshman (1995), knowledge of cognition is individuals' knowledge about their own cognition. Accordingly, general knowledge of cognition about one's skills, abilities, or strategies falls within the scope of declarative knowledge, procedural knowledge of how to use these strategies, and conditional knowledge of when and why they are used (Basu & Dixit, 2022). When the knowledge of cognition is examined within the scope of group metacognition, it is defined as awareness about group learning strategies, information selection, material use and classification of new information (Bisautti & Frate, 2018). Planning, another factor in GMS, is the selection of the appropriate strategy and the right allocation of resources before executing a task (Schraw and Dennison, 1994). Within the scope of group metacognition, planning is related to the awareness of understanding the learning goals of the group, choosing cognitive strategies, and considering

time and workload management before starting the learning task (Bisautti & Frate, 2018). Monitoring is the individual's understanding of what he has learned and describing his performance (Schraw and Dennison, 1994). Monitoring includes processes such as monitoring collaborative progress and ensuring that the content is understood by colleagues (Rogat & Linnenbrink-Garcia, 2011). Socially shared monitoring supports collective information construction processes (Malmberg et al., 2017). The fourth factor in GMS is evaluating. Evaluating is defined as the students' comparison of the conformity of their products with the standards set during the planning phase (Panadero et al., 2013). Evaluating within the scope of group metacognition is the group's awareness of results, working methods, tools, and teamwork evaluation skills (Bisautti & Frate, 2018). As a result, it is important to determine the metacognitive skills of the students at the group level for a successful online collaborative group learning application. On the other hand, no Turkish scale has been found in the literature on this subject. This study is considered important to fill this gap in the literature.

In this context, the aim of the current research is to adapt the GMS developed by Biasutti and Frate (2018) into Turkish. In addition, it was aimed to compare the scores obtained from the GMS according to gender and perception of achievement. The following research questions were formulated in the study:

RQ1: How is the validity and reliability of the GMS adapted into Turkish?

RQ2: Do the GMS scores of female and male students differ significantly?

RQ3: How do the scores obtained from GMS differ according to university students' perceptions of achievement?

Method

Participants

The participants of the study are 208 university students studying at various universities in Turkey, selected by a convenient sampling method. University students included in the study consisted of 72.1% female and 27.9% male participants. Their ages range from 18 to 24, with an average of 20.6. Examining the distribution of university students by grade, it was seen that 60.6% were in the second grade, 22.6% were in the third grade, and 16.8% were in the fourth grade. When the distribution of the participants according to their perceptions of achievement regarding online courses was examined, it was determined that 47.1% were at moderate level, 37.5% at high level and 15.4% at advanced level. In order to evaluate whether the number of participants of the study is sufficient for confirmatory factor analysis, criteria in the literature were taken into account. Accordingly, it is suggested that five or ten times the number of items in the scale is sufficient (Bryman & Cramer, 2001). Considering that there are 20 items in the measurement tool, it can be concluded that the number of participants meets the criterion of ten times the number of items.

Research Instrument and Adaptation Process

The adaptation of the GMS, originally developed by Biasutti and Frate (2018), into Turkish was carried out in the context of this study. The scale is intended to determine the items related to metacognition levels in collaborative online group activities with the self-reported method. The original scale consists of four sub-dimensions and 20

items. These sub-dimensions are as follows: Knowledge of cognition, planning, monitoring, and evaluating. There are five items in the scale for each sub-dimension. These items are in a 5-point Likert structure as "strongly disagree", "disagree", "neutral", "agree" and "strongly agree". Within the scope of this study, the results regarding the adaptation process of the scale are presented in the findings section. The Cronbach' alpha coefficient of the scale calculated within the scope of this study is 0.936.

To adapt the scale to Turkish, permission was obtained from Michele Biasutti via e-mail. After the consent process, the steps suggested by Hall et al. (2003) for language validity were followed. Accordingly, two independent translators were used. After the first translator translated the scale into Turkish, another translator performed the back-translation without seeing the original scale. Then, the original form of the scale and the back-translated version were compared, and necessary adjustments were made. After this process, the final form of the scale was evaluated in terms of meaning and intelligibility by three experts who had experience with the subject area.

Data Analysis

In this study, the factorial validity of the group metacognition scale was tested with CFA. Since CFA is an analysis in which a predefined structure is tested as a model (Çokluk et al., 2016), it is suitable for testing an existing theory (Güngör, 2016). Therefore, in this study, the factorial structure was tested with CFA, since a scale with a previously defined factor structure was adapted to Turkish. Convergent and divergent validity findings were examined to provide evidence for construct validity.

The differentiation status of the scores obtained from the GMS according to gender was examined with the independent samples t-test. Cohen's d values were examined in the evaluation of the effect size. Accordingly, .20 is interpreted as weak, .50 medium and .80 large effect sizes (Cohen, 1988). One-way analysis of variance (ANOVA) was conducted to examine the differentiation status of the scores obtained from the GMS according to the participants' perceptions of achievement. In order to perform ANOVA analysis, Levene's test was performed to examine whether the variances were homogeneous or not. Accordingly, ($F_{(2, 205)}= 1.214$, $p> .05$) for the knowledge of cognition factor, $F_{(2, 205)}= 1.552$, $p> .05$) for the planning factor, $F_{(2, 205)}= 1.763$, $p> .05$) for the monitoring factor, $F_{(2, 205)}= 2.432$, $p> .05$) for the evaluating factor, and ($F_{(2, 205)}= 2.367$, $p> .05$) for the total score were obtained. These findings showed that the variances did not differ statistically significantly from each other.

Results

Confirmatory Factor Analysis

Confirmatory factor analysis was performed to test the factorial validity of the GMS in Turkish culture. The standardized findings of 20 items and four-factor structure as a result of CFA are given in Figure 1.
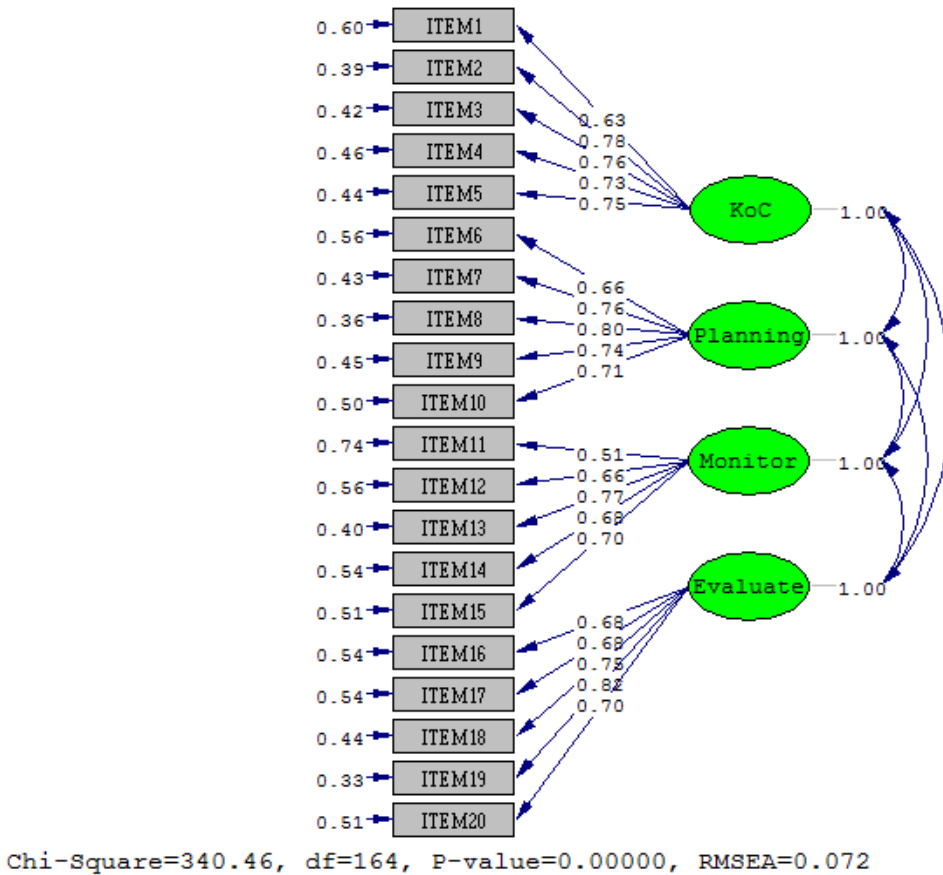
Figure 1. CFA results

When Figure 1 is examined, it is seen that the factor loadings of the items in the scale vary between 0.51 and 0.82. These values are statistically significant. In order to evaluate the model fit, Chi-square and degrees of freedom values $\chi2=340.46$, (df=164, p<.01) were examined. According to Bollen (1989), the $\chi2$/df ratio should be below five, and below three indicates a good fit (Kline, 2005). In this study, the $\chi2$/df ratio was calculated as 2.07 and it was concluded that it showed a good fit. In addition, Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square Residual (SRMR) values were examined in the evaluation of the model. According to the DFA findings, the RMSEA value was calculated as 0.072 and the SRMR as 0.05. These values were found to indicate acceptable fit (Browne & Cudeck, 1993; Hu & Bentler, 1999). Other fit indices for the evaluation of model fit are Normed Fit Index (NFI), Non-Normed Fit Index (NNFI), Comparative Fit Index, Incremental Fit Index (IFI). The calculated values for these indices are 0.95 for NFI; 0.97 for NNFI; 0.97 for CFI; 0.97 for IFI. These calculated values show that the model has a good fit (Hu & Bentler, 1999; Schermelleh-Engel et al., 2003; Tabachnick et al., 2001).

Construct Validity

Convergent and divergent validity methods were used for construct validity. According to Fornell and Larcker (1981), factor average variance extracted (AVE) values should be above 0.50. In addition, the AVE values should be

below the composite capability values. Table 1 presents the findings regarding the AVE, composite reliability values and Cronbach's alpha internal consistency coefficient of the factors in the scale.

Table 1

AVE, composite reliability and Cronbach's alpha values

Factor	AVE	Composite Reliability	Cronbach's alpha
Knowledge of cognition	0.535	0.852	0.851
Planning	0.541	0.854	0.851
Monitoring	0.448	0.800	0.787
Evaluating	0,532	0.850	0.845

When Table 1 is examined, it is seen that the AVE values of knowledge of cognition, monitoring and evaluating factors are above 0.50. The AVE value of the monitoring factor was calculated as 0.448, at the same time this value is below the composite durability value. However, it is stated that in cases where composite reliability is provided, it can be concluded that convergent validity can be reached by considering the conformity with the theoretical structure (Fornell & Larcker, 1981). As a result, it can be argued that sufficient results regarding the convergent validity of the scale have been reached. When the reliability findings are examined, it is seen that the composite and Cronbach's alpha values are above 0.70. These findings provide sufficient evidence for the reliability of the scale (Gefen et al., 2000; Hair et al., 1998).

The criteria proposed by Fornell and Larcker (1981) were considered to provide evidence of discriminant validity. Accordingly, the square roots of the AVE values should be above the correlation coefficients between the factors. Table 2 presents the findings regarding discriminant validity.

Table 2

Discriminant Validity

Factor	Knowledge of cognition	Planning	Monitoring	Evaluating
Knowledge of cognition	**0.731**			
Planning	0.684	**0.735**		
Monitoring	0.594	0.733	**0.698**	
Evaluating	0.560	0.705	0.678	**0.729**

The values highlighted in bold on the diagonals in Table 2 are the square roots of the AVEs. It has been determined that the correlations in each vertical column are below the square root AVE values. In conclusion, these findings provide evidence for discriminant validity.

Findings regarding the differentiation of group metacognition scores according to gender

The GMS scores of the participants according to gender are compared with the independent samples t test and the findings are given in Table 3.

Table 3

Independent sample t-test findings regarding the analysis of the scores obtained from the Group metacognition scale by gender

Factor	Gender	Mean	Standard Deviation	t	p	Cohen's d
Knowledge of Cognition	Female	19.0533	3.09532	2.261	0.025	0.327
	Male	17.8621	4.11437			
Planning	Female	20.3067	3.24388	3.696	0.000	0.528
	Male	18.2241	4.52689			
Monitoring	Female	19.8733	3.52802	2.576	0.011	0.386
	Male	18.4138	4.00015			
Evaluating	Female	20.4867	3.60971	2.886	0.004	0.421
	Male	18.7414	4.60572			
Total Scores	Female	79.7200	11.25430	3.324	0.001	0.476
	Male	73.2414	15.58937			

According to Table 3, it was found that the mean scores of females for group regulation sub-scales were higher than the males and this difference was statistically significant ($t(KoC)_{(206)}=2.261$, $p<.05$, d-$value=0.327$; $t(Planning)_{(206)}=3.696$, $p<.01$, d-$value=0.528$; $t(Monitoring)_{(206)}=2.576$, $p<.05$, d-$value=0.386$; $t(Evaluating)_{(206)}=2.886$, $p<.05$, d-$value=0.421$). A moderate level of effect for the factor of planning was calculated. A weak effect size for knowledge of cognition, monitoring and evaluating were founded. The t-test findings for the

total scores obtained from the scale show that there is a statistically difference between females and males and the difference has a weak effect ($t(Total)_{(49)}=3.324$, $p<.05$, d-value$=0.476$).

Findings on the differentiation of group metacognition scores according to the perception of achievement

ANOVA test was performed to examine the scores obtained from the GMS in terms of perception of achievement and the findings are given in Table 4.

Table 4

One-way analysis of variance findings regarding the examination of the scores obtained from the group metacognition scale in terms of perception of achievement

	Variance Source	Sum of Squares	df	Mean Square	F	p	LSD
Knowledge of cognition	Between Groups	293.400	2	146.700	13.933	.000	1-**2**; 1-**3**
	Within Groups	2158.427	205	10.529			
	Total	2451.827	207				
Planning	Between Groups	202.108	2	101.054	7.629	.001	1-**2**; 1-**3**
	Within Groups	2715.272	205	13.245			
	Total	2917.380	207				
Monitoring	Between Groups	94.757	2	47.379	3.518	.031	1-**2**; 1-**3**
	Within Groups	2761.007	205	13.468			
	Total	2855.764	207				

Evaluating	Between Groups	100.812	2	50.406	3.252	.041	1-**3**
	Within Groups	3177.188	205	15.498			
	Total	3278.000	207				
Total scores obtained from scale	Between Groups	2581.806	2	1290.903	8.296	.000	1-**2**; 1-**3**
	Within Groups	31898.636	205	155.603			
	Total	34480.442	207				

1: low-moderate, 2: moderate-high, 3: Advanced

According to Table 4, the mean scores of the participants obtainede from the sub-dimensions and total scores of the GMS showed a significant difference according to the perception of achievement. According to the results of the LSD test, the findings are summarized below:

- In the knowledge of cognition factor, it was determined that students with an advanced perception of achievement (M= 20,6563) had significantly higher group metacognition scores than students with a low-moderate level (M=17.5408). At the same time, the group metacognition scores of the students with a moderate-high perception of achievement (M= 19.4103) are significantly higher than those with a low-moderate level.
- It was determined that students with advanced perception of achievement (M=20.9688) had significantly higher group metacognition scores than students with low-moderate level (M=18.6939) for the planning factor. At the same time, the group metacognition scores of the students who have a moderate-high perception of achievement (M=20.5128) for the planning factor are significantly higher than those with a low-moderate level.
- It was determined that the students with an advanced perception of achievement (M= 20.2500) had a significantly higher group metacognition score than the students with a low-moderate level (M=18.7551) for the monitoring factor. At the same time, the group metacognition scores of the students who have a moderate-high perception of achievement (M= 20.0385) for the monitoring factor are significantly higher than those at the low-moderate level.

- In the evaluation factor, it was determined that students with an advanced perception of achievement (M= 20.6563) had significantly higher group metacognition scores than students with a low-moderate level (M=17.5408).
- When the differences between the groups were examined according to the scores obtained from the whole scale, it was determined that the group metacognition scores of the students with an advanced perception of achievement (M= 83.000) were significantly higher than the students with a low-moderate level (M=74.2959). At the same time, the group metacognition scores of students with a moderate-high perception of achievement (M=80.3718) are significantly higher than those with a low-moderate level.

Discussion, Conclusion & Suggestions

In this study, the group metacognition scale developed by Biasutti and Frate (2018) for university students who participated in online group studies was adapted into Turkish. The original scale consists of 4 sub-dimensions (knowledge of cognition, planning, monitoring and evaluating) and 20 items. The items of the scale provide a 5-point Likert-like evaluation as "strongly disagree", "disagree", "neutral", "agree" and "strongly agree". The four-factor structure in the scale was examined by confirmatory factor analysis. Model fit indices were found to indicate acceptable fit of the data. It was observed that the factor loadings of the items in the scale varied between 0.51 and 0.82 and these values were statistically significant. For the evaluation of model fit, Chi-square and degrees of freedom ratio, RMSEA, SRMR, NFI, NNFI, CFI, IFI were examined and it was concluded that findings indicate acceptable or good fit. Cronbach's alpha values calculated for the factors in the scale are above 0.7 for all sub-dimensions. AVE values range from 0.448 to 0.541, while composite reliability values range from 0.800 to 0.854. Based on these findings, it was concluded that the Turkish version of the scale was valid and reliable. In the literature, studies examining the subject of group metacognition are limited (Zion et al., 2015). On the other hand, Biasutti and Frate (2018) emphasized that metacognition is generally examined at the individual level. Therefore, it can be said that group metacognition is not emphasized enough in educational research based on collaborative group activities. However, according to Rapchak (2018), group metacognition is one of the key elements of successful collaborative learning. In this context, it can be said that the level of group metacognition is important in effective and successful collaborative learning activities. Based on these points, it is thought that the scale adapted in this study may be useful for researchers who want to study collaborative group studies. The adapted scale can be used in experimental studies to describe the existing situation.

In this study, the differentiation status of group metacognition scores according to gender and perception of achievement was also examined. The sub-dimension and total score averages of the GMS of the participants showed a significant difference according to gender and perception of achievement. In collaborative learning, group metacognition, social interactions between learners can be based on the theory of social constructivism (Vygotsky, 1978). Based on this theoretical basis in collaborative learning, it can be said that gender and perception of achievement may have affected one's interaction skills and thus the level of group metacognition. Liliana and Lavinia (2011) stated that female students have higher metacognitive skills than male students, and there are differences in

the metacognitive skills of male and female students. Nunaki et al. (2019) state that the findings in the literature regarding the differentiation of metacognition depending on gender and its causes are contradictory.

Future research can address the difference between male and female students' metacognitive skills in collaborative group work through qualitative research. On the other hand, in future studies, heterogeneous groups can be formed according to the level of academic achievement perception and the change in group metacognition in collaborative learning can be examined.

Ethic

In this study, all scientific ethical rules were followed.

Author Contributions

All stages of the study were organized and conducted by the authors.

Conflict of Interest

In addition, the authors declare that they have no conflict of interest.

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Student Opinions and Suggestions about Distance Education

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Abstract

The coronavirus pandemic, which emerged in 2019 in the city of Wuhan, China, affected societies very quickly. It has brought about important changes in many fields such as economy, health systems, education and so on. In order to avoid losses in education and adapt to this new situation, countries quickly switched from face-to-face education to distance education. This study, aiming to examine the opinions and suggestions of high school students about the compulsory distance education activities during the Covid-19 pandemic, is a phenomenological study designed in the qualitative research design. The participants of the study have been determined by purposeful sampling method and the data have been collected through a fixed format questionnaire. 151 high school students participated in the study which was carried out between May and June, 2021. The data have been analyzed using the descriptive analysis and content analysis techniques. The results show that high school students experienced various problems such as the internet connection problems, software and hardware problems required for the access, communication problems, motivational problems and so on. However, they got support from their families during these times, and apart from the factors negatively affecting their motivation, there were some factors affecting their motivation positively. They also offered some suggestions for the solution of problems encountered.

Key Words

Covid-19 • Distance education • Education • High school students • Pandemic • The Internet

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Education is defined as the process of creating the desired behavioral changes in individual in accordance with the pre-determined goals through their own lives (Ertürk, 1970). One of the objectives of education is to increase the well-being of the individual and society by improving democratic, social and political life in the country (Soylu, 2003). Today, with technology moving at an incredible pace, many disciplines, such as communication, education, transportation, health and so on are taking their share of the advances that technology brings.

Recently these advances, having transformed the world into a global village, have made societies more dependent on each other economically, socially and politically than ever before and, have prepared the ground for some negative developments as well (Buluk & Eşitti, 2020). To illustrate, the spread of the coronavirus epidemic, which has been reported to have emerged in Wuhan, China in December 2019, can be an example to these negative advances.

The epidemic has deeply affected social and economic order all around the world, forcing individuals and societies to change their habits, especially their social lives. In a short time, it was obvious that the level of transmission of the coronavirus epidemic was quite high and that it could lead to the death of individuals, and it was declared a pandemic by the World Health Organization on March 11, 2020 (Pandemi, n.d.). Moreover, it was emphasized that the disease spread through physical contact and through respiration. In the light of this information, considering that schools are places where interpersonal contact is highly intense, education and training activities in almost all schools in Turkey were suspended on the 14th of March, 2020.

Over time, due to the increase in the number of cases and death tolls in Turkey, as in all countries of the world, continuing face-to-face education in schools, which are places where formal education activities are carried out collectively, would increase the rate of transmission and accordingly, it might cause serious problems in the health services. Therefore, distance education activities, eliminating physical interaction between students and teachers, started.

Although face-to-face education is important, such measures were thought to be necessary to control the pandemic and ultimately to protect public health. Therefore, distance education activities were regarded as a form of education that must be started in order to resume education and training activities that have been disrupted or interrupted due to the coronavirus pandemic (Hastunç, 2020).

Bozkurt (2017) defines distance education as an interdisciplinary field that uses technology to eliminate the boundaries between students, teachers and learning resources. Distance education activities, dating back three hundred years in the world, extend to 1940's in our country where they started with radio programs for everyone in the past, cover online higher education today. Thus, considering the progress of distance education, it can be stated that our country is quite experienced in distance education activities. Furthermore, it would be quite reasonable to think that, recent advances in communication technology had an impact on the adaptation to distance education activities as well.

During the coronavirus pandemic, EBA TV content which are 20 minute TV broadcasts, prepared for each class level and each course, offered by the Ministry of National Education in cooperation with Turkish Radio and

Television Corporation (Vikipedi, n.d.), EBA portal, a free of charge educational network offered to teachers and students by the General Directorate of Innovation and Educational Technologies (Coşkunserçe & İşçitürk, 2019), and other similar platforms allowing teachers and students to organize online sessions and share educational content; various educational social media channels, family and peer support became the tools used in the continuation of educational activities for students.

Distance education activities have some advantages and disadvantages compared to face-to-face education. Some of its advantages can be flexible time frame, not being adhere to a physical place, and being able to benefit from a large number of media content and tools and low costs. However, concentration problems, interruption of electricity or internet connection, poor video or voice quality, inequality of opportunity due to the lack or inadequacy of the necessary tools for the course, some difficulties in controlling unwanted behaviors, lack of communication and various health problems can be regarded as some of the disadvantages of distance education activities (de Oliveira et al., 2018; Karakuş et al., 2020; Özyürek et al., 2016). Additionally, the literature also shows undesirable student behaviors such as low learning, high absenteeism rates, feeling of loneliness, and procrastination (Bernard & Rubalcava, 2000), high chances of distraction, having to deal with complicated technology, lack of social interaction, having difficulty in staying in contact with teachers (Sadeghi, 2019), lack of self-discipline and lack of enough feedback (de Oliveira et al., 2018) during distance education.

Taking all these into account, it is considered important to get the opinions and suggestions of students, who are one of the partners of the process, about the distance education activities, to reveal the shortcomings of these activities and to make suggestions for the shortcomings in the activities. In this study, opinions and suggestions of high school students regarding the compulsory distance education activities during the Covid-19 pandemic have been examined. Therefore, this research, tries to find answers to the question of "What are the opinions and suggestions of high school students about distance education?" In addition to this main research question, it also tries to find answers to the following questions.

i. How and how often do students communicate with their friends during the distance education?
ii. What kind of support do students get from their families during the distance education?
iii. What are the factors affecting student motivation positively and negatively during the distance education?

Method

Research Model

This research, designed in the qualitative research design, is a phenomenological study. Phenomenology is the study of essences. It is an attempt to define the essence of perception or consciousness (Merleau-Ponty & Bannan, 1956). In this context, this research aims to evaluate the distance education activities carried out during the Covid-19 pandemic from the students' point of view and to get the student suggestions for the activities.

Participants

The participants of this research are high school students. Before starting the research, the number of participants is one of the important concerns of a researcher (Florey, 1993, as cited in Yılmaz, 2019). Sample selection in qualitative researches is not as rigid as in quantitative researches; however, the effect of the sample on the quality of the research is undeniable (Coyne, 1997). Since collecting data in order to reveal the opinions and suggestions of all high school students who received distance education during the Covid-19 pandemic would not be economical and plausible for the researchers, the participants have been determined in accordance with the research design and access opportunities of the researchers. For this reason, the criterion sampling method, one of the purposeful sampling methods has been adopted in this study. Purposeful sampling is a method frequently used in qualitative research designs and consists of individuals or groups who can provide the appropriate data for the research, have the necessary knowledge about the research subject, and volunteer to participate (Bernard, 2002; Creswell & Plano Clark, 2011; Patton, 2002; Spradley, 1979, as cited in Palinkas et al., 2015), and in the criterion sampling method, participants or cases that meet the predetermined criterion are included in the research (Yıldırım & Şimşek, 2006, p. 112). Table 1 below shows the demographic distribution of the participants.

Table 1

Demographic Information of the Participants

Gender	n	f
Male	81	53.64
Female	70	46.36
Total	151	100
Type of School		
Anatolian high school	64	42.39
Vocational high School	87	57.61
Total	151	100

According to Table 1, 53.64% of the participants are males and 46.36% of them are females. Moreover, 42.39% of the participants attend Anatolian high schools and 57.61% of them attend vocational high schools.

Data collection tool and the data collection

In this research, a fixed format questionnaire, developed by the researchers using Google forms, has been used as the data collection tool. Before the preparation of the form, studies in literature on distance education during the Covid-19 pandemic have been reviewed. Hoping to fill the gap in the field, high school students have been determined as the participants, and their opinions and suggestions about distance education activities have been studied. Expert opinions have also been taken for the questions in the form.

The pre-application of the form was carried out with 14 students, and in the light of the feedback obtained from the pre-application and expert opinions, the form got its final form and the research started. The form consists of two

parts. While the first part of the form collects demographic information of the participants, the second part has questions related with distance education. During the data collection, since the online form did not allow any missing data, all participants answered the questions thoroughly.

Data Analysis

Descriptive analysis, which is one of the most frequently employed approaches (Sandelowski, 2000) and content analysis methods have been adopted in the analysis of the research data. Descriptive content analysis, aiming to find out the tendencies, makes use of descriptive statistics (Dinçer, 2018). Qualitative descriptive studies offer a summary of an event in everyday terms. In this method, researchers seek descriptive and interpretive validity as well (Sandelowski, 2000). On the other hand, content analysis is the process of categorizing the research data in terms of their similarities or conceptual categories to find patterns or relationships (Julien, 2008). In this context, the answers given by the participants have been examined by each researcher, and conceptual categories have been formed by bringing similar statements together. Next, the researchers consulted with an expert experienced in qualitative researches and asked him to match the answers with the conceptual categories. As a result, it was determined that the consistency between the raters was 92%. This value meets the rate of consistency among the raters suggested by Miles and Huberman (1994).

Findings

In this part of the study, the findings of the research are presented in tables. Table 2 shows how often the participants attended live classes.

Table 2

Frequency of Attending Live Classes

Frequencies	f	%
Never	10	6.62
Rarely	16	10.60
Sometimes	30	19.87
Often	37	24.50
Always	58	38.41
Total	151	100

Table 2 shows that %38.41 of the students always, %24.5 of them often, %19.86 of them sometimes, %10.59 of them rarely, and %6.62 of the them never participated in live classes during the distance education. Accordingly, it can be concluded that most of the students participated in the live classes.

Table 3

Platforms Students Follow and Things They Do When They don't Attend Live Classes

Platforms followed/Things done	f	~%
Watching videos from YouTube	99	58.57
Spending time on social media	28	16.56
Following online educational platforms	23	13.7
Getting peer support	6	3.55
Doing nothing	4	2.36
Solving tests	3	1.77
Attending private teaching courses	3	1.77
Other (working, playing, doing sports etc.)	3	1.77
Total	169	100

It is clear from Table 3 that students engage in educational or non-educational activities when they do not attend live sessions during the distance education. When students do not attend live sessions, they mostly watch videos on YouTube (58.57%), then spend time on social media (16.56%), and use online educational platforms (13.7%).

Table 4

Student Opinions on Distance Education

Dimensions	Student Opinions	f	%	x̄
Education	It is useless (You cannot learn anything by means of distance education)	50	30.3	
	I'm lagging behind classes	18	10.9	
	It is useful, it should continue like this	12	7.3	16.66
	There is no change	12	7.3	
	We have learned the importance of school	6	3.63	
	I started to pay attention to studying	2	1.21	
Self-view	I am bored	19	11.51	
	I got lonely	3	1.81	
	I started having fun on the Internet with friends	2	1.21	5.2
	I have gained weight due to staying at home	1	0.6	
	I am having health problems	1	0.6	
Participation	We cannot pay attention to the lesson as in the classroom	8	4.84	
	Participation in classes is quite low	6	3.63	4
	They play games and watch videos in class	3	1.81	
	They have difficulty attending morning classes	2	1.21	

Technology	They do not attend classes on time	1	0.6	
	The rate of technology use is increasing	12	7.3	
	There are connection problems	5	3.03	6.33
	Distance education is developing	2	1.21	
Total		165	100	32.19

According to Table 4, it is clear that student opinions about distance education are grouped under education ($\bar{x}$=16.66), self-view ($\bar{x}$=5.2), technology ($\bar{x}$=6.33) and participation ($\bar{x}$=4) categories respectively. Regarding the distance education, high school students think that "It is useless; you cannot learn anything by means of distance education (30.3%), I'm lagging behind classes (10.9%), it is useful, it should continue like this (7.3%), there is no change (7.3%), we have learned the importance of school (3.63%), I started to pay attention to studying (1.21%)". In terms of self-view, they expressed some negative opinions such as "I'm bored (11.51%), I got lonely (1.81%), and some positive opinions such as "I started having fun on the Internet with friends (1.21%)". In the participation dimension, the students expressed opinions like "we cannot pay attention to the lesson as in the classroom (4.84%), participation in classes is quite low (3.63%), they play games and watch videos in class (1.81%)". In the technology dimension, they stated that "the rate of technology use is increasing (7.3%), there are connection problems (3.03%) and distance education is developing (1.21%)".

Table 5

Getting or not Getting Support from the Family during the Distance Education

Getting/not getting support	f	%
I do not get any support	54	35.76
I get support	97	64.24
Total	151	100.00
Getting support	f	%
Following the process closely, they remind me of my responsibilities.	78	58.65
They help me with my homework and exams.	31	23.31
They communicate with my teacher about my lessons.	24	18.05
Total	133	100.00

According to Table 5, while 35.79% of the students do not get any support from their families during the distance education, 64.24% of them get family support. Students who stated that they received support report that "following the process closely, they remind me of my responsibilities (58.65%), they help me with my homework and exams (23.31%) and they communicate with my teacher about my lessons" (18.05%).

Table 6

Getting in Contact with Friends during the Distance Education

Frequency of getting in contact	f	%
In sessions only	65	43.05
Often	49	32.45
Everyday	27	17.88
I do not get in contact	9	5.96
Sometimes	1	0.66
Total	151	100.00
Way of contact	f	%
Messaging	74	50.34
Video calls	28	19.05
Playing online games together	22	14.97
Doing homework together	14	9.52
Meeting with close friends outside	8	5.44
Talking on the phone	1	0.68
Total	147	100.00

According to Table 6, during the distance education, 43.05% of the students get in contact with their friends only during live sessions, 32.45% of them often, 17.88% of them every day, 5.96% of them do not get in contact with their friends and 0.66% of them state that they sometimes get in contact with their friends. During the distance education, students contact their friends by messaging (50.34%), video calling (19.05%), playing online games together (14.97%), doing homework together (9.52%), meeting with close friends outside (5.44%) and talking on the phone (68%).

Table 7

Factors Affecting Student Motivation Negatively during Distance Education

Dimensions	Reasons for Negative Motivation	f	%	x̄
	Connection problems	61	23	
	Webcam and microphone problems	14	5.38	
	Device shortages and malfunctions	13	5.00	
Negative extrinsic motivation	Being at home	12	4.62	6.88
	Too much noise in the sessions	8	3.08	
	Distance education is unrealistic	8	3.08	
	Having to work	7	2.69	
	Not being able to learn face to face	6	2.31	

	Power cuts	5	1.92	
	Lack of communication	5	1.92	
	Family pressure	5	1.92	
	Pandemic	4	1.54	
	Unauthorized entry of people into the sessions	4	1.54	
	Overlap of courses	3	1.15	
	Lack of topics	3	1.15	
	Sharing the room with siblings	3	1.15	
	Lack of discipline in class	3	1.15	
	Lack of homework check	2	0.77	
	No responses	1	0.38	
	No help except from the family	1	0.38	
	Having to attend classes early in the morning	1	0.38	
	Constant change of course hours	1	0.38	
	Too much homework	1	0.38	
	Attendance to the sessions is not compulsory	1	0,38	
Negative intrinsic motivation	Not understanding	17	6.54	
	Attention disorder	17	6.54	
	Uncertainty - anxiety about the future	12	4.62	
	Back, head, eye problems	10	3.85	
	Technology addiction	8	3.08	
	Boring lectures	5	1.92	
	Unwillingness and feelings of emptiness	5	1.92	6.76
	Exam anxiety	4	1.54	
	Sleep disorders	4	1.54	
	Not participating in discussions	3	1.15	
	Psychological deterioration	1	0.38	
	Not studying	1	0.38	
	Problems related with puberty	1	0.38	
Total		260	100.00	13.64

It is obvious in Table 7 that the reasons that negatively affect high school students' motivation towards distance education are gathered in two dimensions as extrinsic ($\bar{x}$=6.88) and intrinsic ($\bar{x}$=6.76). In negative extrinsic motivations dimension, students have such problems as "connection problems (23%), webcam and microphone problems (5.38%), device shortages and malfunctions of the necessary equipment (5%) and being at home (4.62%)". On the other hand, in negative intrinsic motivation dimension they have such problems as, "not understanding

(6.54%), attention disorder (6.54%), uncertainty- anxiety about the future (4.62%), back, head and eye problems (3.85%)".

Table 8

Factors Affecting Student Motivation Positively during Distance Education

Dimensions	Reasons for positive motivation	f	%	x̄
Positive extrinsic motivation	More studying opportunities	28	18.54	7.5
	Teacher support	19	12.58	
	Being at home	13	8.61	
	Being distance	10	6.62	
	Having more time	8	5.30	
	Our family's support	7	4.64	
	I can learn the topics I do not understand by watching videos	4	2.65	
	Increase in learning resources	3	1.99	
	Being in an online course with my friends	3	1.99	
	Teachers make the lesson fun	3	1.99	
	Having a session at an early hour	2	1.32	
	Sparing time for my animals	2	1.32	
	No pressure as in school	2	1.32	
	No exams	2	1.32	
Positive intrinsic motivation	Online games improve my mind	9	5.96	5.11
	Quiet environment increases motivation	8	5.30	
	Being more comfortable	6	3.97	
	I stay healthy	5	3.31	
	Increased confidence in myself	5	3.31	
	I can focus better on the lesson	4	2.65	
	I can study regularly	4	2.65	
	Reading books	4	2.65	
	Having an advantage over students who cannot attend	1	0.66	
Total		151	100.00	12.11

It is clear in Table 8 that reasons positively affecting high school students' motivation towards distance education are gathered in two dimensions as extrinsic (x̄ =7.5) and intrinsic motivation (x̄=5.11). In positive extrinsic motivation dimension the students stated some motivational factors like "more studying opportunities (18.54%), teacher support (12.58%), being at home (8.61%)", had positive effects on them. On the other hand, in the positive intrinsic motivation dimension, they stated some motivational factors such as "online games improve my mind (5.96%), quiet environment increases motivation (5.30%), and being more comfortable (3.97%)".

Table 9

Student Suggestions to Increase Participation in Distance Education

Categories	Codes	f	%	x̄
Teaching and Learning Procedure	Lessons should be more fun	39	22.54	6.58
	Students should study	4	2.31	
	Memory techniques should be used	1	0.58	
	Topics should be consolidated	1	0.58	
	There should not be question solving activities during 30 minutes in a lesson	1	0.58	
	Students should have more opportunities to speak	1	0.58	
	There should be less homework	1	0.58	
Motivation	There should be rewards (financial rewards, marking up, etc.)	13	7.51	9.33
	Students should be encouraged for the lessons	10	5.78	
	Those who do not participate should be penalized (marking down, having to study more, etc.)	5	2.89	
Communication	Teachers should be in constant contact with families	9	5.20	3.75
	There should be more interaction between the student and the teacher	3	1.73	
	Teachers should chat with students outside the class	2	1.16	
	Teachers should also take students into consideration when making syllabus	1	0.58	
Legislation	There should be fewer lessons	13	7.51	5.25
	Attendance should be a must	10	5.78	
	Education should be face to face	6	3.47	
	Attendance should be optional	4	2.31	
	Webcams should be on	4	2.31	
	There should be mid-terms	3	1.73	
	Students should repeat the grade	1	0.58	
	Attendance must be taken	1	0.58	
Practice	Sessions should be in later hours	9	5.20	4.5
	Duration of courses should be longer	5	2.89	
	Duration of courses should be shorter	3	1.73	
	Breaks should be longer	1	0.58	
Background	The necessary devices and internet must be provided to those who are in need	17	9.83	3.66
	EBA should be checked frequently	1	0.58	

	There should be the necessary studying environment at home	1	0.58
	Ready-made course content should be reproduced	1	0.58
	Applications creating a class like atmosphere should be developed	1	0.58
	Teachers should learn how to use Zoom and some other applications	1	0.58
Total		173	100.00	33.07

Table 9 shows that the participants made suggestions in the teaching and learning procedure ($\bar{x}$=6.58), motivation ($\bar{x}$=9.33), communication ($\bar{x}$=3.75), legislation ($\bar{x}$=5.25), practice ($\bar{x}$=4.5) and background ($\bar{x}$=3.66) dimensions.

Some of the suggestions in the teaching and learning procedure dimension are, "lessons should be more fun (22.54%), students should study (2.31%), memory techniques should be used (0.58%) and topics should be consolidated (0.58 %)". Some of the suggestions in the motivation dimension are, "there should be rewards (7.51%), students should be encouraged for the lessons (5.78%) and those who do not participate should be penalized (2.89%)". On the other hand, in the communication dimension, students made suggestions like "teachers should be in constant contact with families (5.20%), there should be more interaction between the student and the teacher (1.73%) and teachers should chat with students outside the class (1.16%)".

Some of the suggestions in the practice dimension are "sessions should be in later hours (5.20%), duration of courses should be longer (2.89%), and duration of courses should be shorter (1.73%)". Lastly, they made some suggestions in the background dimension like "the necessary devices and internet must be provided to those who are in need (9.83%), EBA should be checked frequently (0.58%) and there should be the necessary studying environment at home (0.58%)".

Table 10

Words and Concepts Associated with Distance Education

Dimensions	Words and concepts	n	f	%
	Course	1	24	5.61
	Online education	2	14	3.27
	School	3	12	2.8
	Exam	4	10	2.34
Items related with education	Not understanding	5	9	2.1
	Book	6	8	1.87
	Education	7	8	1.87
	Homework	8	7	1.64
	Teacher	9	5	1.17
	Ziya Selçuk	10	5	1.17

Topic	11	4	0.93
Learning	12	4	0.93
Family	13	4	0.93
Morning	14	4	0.93
Friend	15	4	0.93
Attention disorder	16	3	0.7
Missing	17	3	0.7
Unnecessary	18	3	0.7
Unable to participate	19	2	0.47
Disorganization	20	2	0.47
Being destroyed	21	2	0.47
Syllabus	22	2	0.47
Break	23	2	0.47
Time	24	2	0.47
Student	25	2	0.47
Notebook	26	2	0.47
Nonsense	27	2	0.47
Listening	28	1	0.23
Loss	29	1	0.23
Practical intelligence	30	1	0.23
Eraser	31	1	0.23
Internship	32	1	0.23
Duration	33	1	0.23
Getting prepared for the university	34	1	0.23
Pressure	35	1	0.23
Studying	36	1	0.23
Different	37	1	0.23
It is useful	38	1	0.23
It is useless	39	1	0.23
Communication	40	1	0.23
Of poor quality	41	1	0.23
Word	42	1	0.23
Sharing	43	1	0.23
Repeating the grade	44	1	0.23
Giving up	45	1	0.23
Attendance	46	1	0.23

	Waste of time	47	1	0.23
	Difficult	48	1	0.23
	Pencil	49	1	0.23
	Table	50	1	0.23
Feeling	Getting bored	1	29	6.78
	Bad	2	9	2.1
	Stress	3	9	2.1
	Comfort	4	4	0.93
	Good	5	4	0.93
	Unwillingness	6	3	0.7
	Longing	7	3	0.7
	Asociality	8	2	0.47
	Enjoyable	9	2	0.47
	Happiness	10	2	0.47
	Feeling of inadequacy	11	2	0.47
	Failure	12	2	0.47
	Mixed feelings	13	1	0.23
	Fear	14	1	0.23
	Depression	15	1	0.23
	Joy	16	1	0.23
Items related with technology	Computer, tablet	1	36	8.41
	Zoom application	2	21	4.91
	EBA application	3	21	4.91
	The internet	4	20	4.67
	Microphone	5	6	1.4
	Webcam	6	5	1.17
	Link	7	3	0.7
	Game	8	3	0.7
	Screen	9	2	0.47
	YouTube	10	2	0.47
	Image	11	2	0.47
	Voice	12	2	0.47
	Modem	13	1	0.23
Items related with health	Virus	1	8	1.87
	Staying at home	2	8	1.87
	Coronavirus	3	7	1.64

Mask	4	5	1.17
Distance	5	4	0.93
Isolation	6	3	0.7
Pandemic	7	3	0.7
Restriction	8	3	0.7
Illness	9	2	0.47
Hygiene	10	2	0.47
Insomnia	11	2	0.47
Restriction	12	2	0.47
China	13	2	0.47
Tiredness	14	1	0.23
Health	15	1	0.23
Vaccine	16	1	0.23
Breakfast	17	1	0.23
Hospital	18	1	0.23
Pray	19	1	0.23
Total		98	428	100.00

Table 10 shows that, words or expressions students associate with distance education are related to education (3.44%), emotion (4.68%), technology (9.53%) and health (3%) dimensions. In education dimension, students relate distance education with expressions like "course (5.61%), online education (3.27%) and school (2.80%)"; in feeling dimension they relate it with expressions like "boring (6.78%), bad (2.10%) and stress (2.10%); in technology dimension they relate it with expressions like "computer, tablet (8.41%), Zoom application (4.91%) and EBA application (4.91%)"; in the health dimension they relate it with expressions such like "virus (1.87%), staying at home (1.87%) and coronavirus (1.64%).

Discussion

In this section, results obtained from the findings of this study, which aims to determine the opinions and suggestions of high school students about distance education, have been interpreted comparing to the results of other studies. Considering the results of this study, it can be concluded that while benefiting from distance education activities, high school students experience some obstacles like internet connection problems, lack of the required hardware, software or technological devices, socialization problems, and various factors affecting their motivation negatively. However, the participants state that there are some factors affecting their motivation positively as well, and they receive support from their families for the problems they encounter.

As in many other countries of the World, during the Covid-19 pandemic, online education platforms have been used in Turkey so that students are not totally alienated from education. A significant part of the students participating in the research stated that they attended the live sessions during the distance education. Similarly,

Karakuş et al. (2020) concluded in their research that all teacher candidates participating in the research attend live sessions regularly, but sometimes they cannot follow all of the sessions due to various unexpected technical difficulties. In this research it has come out that the students, who do not attend live sessions regularly, watch videos on YouTube, spend time on social media or in several online environments such as online educational platforms. Some factors such as "boring lessons and internet connection problems" may be some of the reasons of the students' not attending live sessions and doing extracurricular work.

Opinions of high school students regarding distance education are grouped under four dimensions as education, self-view, participation and technology. In these dimensions, students mostly came up with negative opinions such as "distance education is boring (Jun et al., 2021), it is useless, because students cannot learn anything in distance education (Scarpellini et al., 2021), they cannot pay attention to the lesson as in the classroom (Sarikaya & Yarimsakalli, 2020), the level of participation in the lessons is low" (Genç, 2020). Likewise, teachers participating in Sarı and Nayır (2020)'s research emphasized similar problems such as not being able to communicate adequately with students during distance education and not being able to attract student attention to the courses. Therefore, as Scarpellini et al. (2021) stated, if the online learning-teaching process is ineffective, the academic development of students may be at risk.

The family has a great place in the child's physical, mental, social and emotional development and school success. A healthy development of the child in these aspects is closely related to the family environment (Şişman, 2001). The majority of high school students stated that they received support from their families during the distance education. It has come out in the research that families provide support to their students by following the process closely, reminding their children of their responsibilities, and helping them with their homework and exams. As Bozkurt et al. (2020) stated, parents have suddenly assumed new educational roles as students leave schools and universities and return to their homes due to the pandemic. In the study of Kuş et al. (2021), parents stated that family ties were strengthened, their personalities developed, communication and awareness in the family increased during the pandemic.

Moreover, it has come out in the research that, during the distance education, nearly half of the students meet their friends only during courses. So, it is reasonable to come to the conclusion that the distance education negatively affects the communication of students with each other. In a similar vein, some other researchers also state that distance education, where communication is carried out only with a technical tool, negatively affects the social skills of students (de Marcellis-Warin et al., 2020; Genç, 2020; Karakuş et al., 2020). In the distance education, there are some other negative aspects such as lack of interaction between education stakeholders, difficulties in socializing and not being able to benefit from adequate guidance services, too (Başaran et al., 2020; Blahušiaková et al., 2021; Hawley et al., 2021; Özdoğan & Berkant, 2020). According to the results of our research, students who state that they meet their friends outside the classroom communicate via messaging or video calling.

Motivation is defined as activating the individual with certain motives (Püsküllüoğlu, 1991). While the one related to environmental factors is defined as extrinsic motivation, the one related to the work done by the individual himself/herself is defined as intrinsic motivation (Argon & Ertürk, 2013). Students stated that extrinsic and intrinsic

factors such as "the opportunity to study more, a quiet environment (Blahušiaková et al., 2021; Fırat et al., 2018) and online games improving their minds" positively motivated them for distance education.

On the contrary, factors negatively motivating high school students for distance education are mostly external such as internet connection problems, webcam and microphone problems, lack of the required equipment and unexpected malfunctions; and some intrinsic factors like not understanding, attention disorder, uncertainty and anxiety about the future (Hawley et al., 2021; Jun et al., 2021; Kuş et al., 2021; Sarikaya & Yarimsakalli, 2020; Sever & Özdemir, 2020). Eventually, it can be concluded that this situation causes loss of motivation in all education stakeholders, including teacher candidates (Karakuş et al., 2020), teachers and administrators (Özdoğan & Berkant, 2020) and students (Sarikaya & Yarimsakalli, 2020). Students, who are aware of this unwanted outcome, made some suggestions like financial rewards, marking up, encouraging participation, and punishment for those not participating.

In order to increase student participation in distance education, suggestions offered by high school students are grouped under six dimensions as teaching and learning procedure, motivation, communication, legislation, practice and background. The participants think that the distance education is boring and suggest that courses should be more fun in order to increase participation.

During the distance education, reasons such as connection problems, lack of equipment, audio or video problems prevent the lessons from being fully understood. It also negatively affects the interaction between the student and the teacher, as well as the effective regulation of the learning and teaching procedure, as in face-to-face education.

Since distance education is a type of education that does not take place face-to-face, there is no direct communication between the participants (Karakuş et al., 2020). In communication dimension, high school students having difficulties during these times suggested that teachers should constantly communicate with their families. As Sarikaya and Yarimsakalli (2020) stated, there should be no communication problems between the student and the teacher in order for a course to be successful or efficient.

In legislation dimension, high school students stated that there should be less courses and attendance to the courses should be compulsory. It can be said that optional participation in courses in distance education causes low attendance and negatively affects the efficiency of the courses. Therefore, identifying and resolving the factors negatively affecting student participation in courses is considered to be highly important.

In practice dimension, the participants stated that courses should be held at a later time and their duration should be longer. Contrary to the findings of this research on the extension of duration of courses, Jun et al. (2021) found out that the participants had a positive stance on the reduction of course duration.

The participants, to solve problems such as lack of the Internet or computers (Flores & Gago, 2020; Özdoğan & Berkant, 2020; Yilmaz Ozelci, 2021), have suggested providing the necessary devices and the Internet to the ones who are in need of them. Türker and Dündar (2020), in their study with high school teachers, concluded that infrastructure problems and lack of equipment in teachers and students are important obstacles in distance education. As Bozkurt (2020) stated, investments should be made in technology infrastructure and educational technologies in a

meaningful way and according to the needs, and a balance policy should be followed by investing in abstract technologies as well as concrete technologies.

According to the results, it is clear that the expressions high school students associate with distance education are grouped under the dimensions of education, feeling, technology and health. Considering the expressions such as course, getting bored, computer, tablet, virus that students metaphorically associate with distance education, it is clear that they are similar to the views expressed in other themes. Accordingly, it can be concluded that students have a clear and holistic perspective on distance education.

Suggestions

Depending on the findings of this research;

i. It is suggested to meet the necessary technical, hardware or software requirements, which are one of the most common needs in distance education.
ii. It is recommended to determine the factors preventing student motivation in extraordinary conditions such as the pandemic, and to carry out studies that will motivate students for the courses.
iii. During the distance education, necessary efforts should be made to diversify and keep communication channels open among education stakeholders.

Ethic

All procedures in this study involving human participants were carried out in accordance with the ethical standards.

Author Contributions

This article was written with the joint contributions of two authors.

Conflict of Interest

The authors declare that they have no conflict of interest.

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Adaptation After Covid-19 Scale: The Study of Validity And Reliability

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Abstract

This study aims to conduct validity and reliability studies of the Adaptation After COVID-19 Scale (AACS) to measure adults' perceptions of adapting to life after COVID-19. The research study group consists of 2,042 adults who were accessed in July 2020 using convenience sampling. Half of this group was used in the exploratory factor analysis (EFA) and the other half in the confirmatory factor analysis (CFA). As a result of the two-step EFA analysis conducted in the validity studies, the scale was revealed to have 18 items with two factors explaining 50.37% of the total variance whose eigen values are greater than 1.00. However, because the difference between the first factor and the second factor is very large (42.68%), the scale has been evaluated as having one factor. In the second study group for the CFA after the modification procedures, the model showed good fit (x^2/df = 3.62; p <.001), and the other fit-indices of the model (*RMSEA* = .06; *RMR* = .05; *NFI* = .96; *CFI* = .97; *GFI* = .96; *AGFI* = .92) were found to be within acceptable ranges. In the reliability analyses, Cronbach's alpha of internal consistency has been determined as α = .94, the Guttman variable as *G* = .97; Spearman-Brown predicted reliability as *SB* = .97; split-half reliability as r_{1-2} = .94; and test-retest reliability as *r* = .87. As a result, the study reveals the AACS to be acceptable as a valid and reliable scale.

Key Words

Adaptation After Covid-19 Scale • Covid-19 • Pandemic • Pandemic psychology • Corona

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The world has been going through a pandemic that has had psychological, sociological and economic consequences for people. Possibly fatal effects of the pandemic have forced people all around the world to transition into a life style they have never experienced before. The pandemic has some characteristics beyond being a disease with physical symptoms. It has had similar psychological effects on not only those who caught the disease, but also on the population who did not. Since the beginning of the pandemic, numerous articles have been written not only on the medical examination of the pandemic but also on its psychological effects on people. The lack of sufficient records on the previous pandemics limits the reference materials on the subject. It is evident that any kind of study and research on this subject will be a guiding light in managing pandemics that may emerge in the future.

People's reactions to crises are shaped by various factors. For instance, factors such as poor mental health, having relatives who got sick or died, working at a job that puts the individual at a constant life-threatening risk*, panic, being separated from family, having low-income etc. increase the chances of being negatively affected by the crisis (Duan & Zhu, 2020). Previous global crises were better managed by countries that had better crisis management plans. It shows how important it is to preplan actions to be taken before, during and after a crisis in order to anticipate negative situations that may ensue, take necessary precautions and implement the required interventions. For instance, various methods for helping people were tested in the previous viral outbreaks in China, such as telephone support lines (Duan, Zhu, 2020). Western countries also prepared a variety of broadcasts for psychological interventions during emergency situations that involve public health (World Healt Organization [WHO], 2020). However, adaptation of individuals after a crisis is as essential an issue as psychological intervention during a crisis.

The pandemic is progressing with the emphasis that the way of survival for people is through social isolation and is causing changes in the familiar life routines of humans, who otherwise tend to be social beings. Psychological effects of the feeling of isolation have been recognized through various studies conducted all over the world (Qiu et al., 2020). The life-threatening aspect of the pandemic has necessitated a quick acquirement of survival behaviors that go beyond self-protection. Behaviors that could have been perceived as compulsive behaviors before the pandemic such as frequent handwashing, wearing a mask, using gloves, avoiding contact with surfaces and objects have been encouraged and reinforced by powerful sources such as media, school, and family due to the nature of the pandemic. This includes the emphasis on the danger of going outside. As a result, many studies conducted during the pandemic in various countries report frequent cases of panic disorder, anxiety, and depression (Qiu et al., 2020).

It is likely that the effects of these problems have turned into corona anxiety and will continue to exist after the days of Covid-19 thus necessitating precautions to be taken by mental health workers. According to the Behavioral Immune System theory, in this kind of situations people tend to develop negative emotions and negative cognitive appraisals that are aimed at self-protection such as avoidance, refraining from forming social relations, avoiding people that display symptoms of disease, anxiety, strictly conforming to social norms (conformity). While these types of behaviors may help individuals protect themselves from the disease, long-term negative moods lower individuals' immune functions and damage their normal psychological mechanisms (Li et al., 2020; Terrizzi et al., 2013). In fact, studies on epidemic diseases show that people may experience cognitive distortions such as thinking

they will get sick or even die, despair, blaming those who get sick, and psychiatric symptoms such as anxiety, depression, somatic disorders, panic attacks, PTSD, or even suicidal tendencies (Ho et al., 2020).

It is certainly expected for a pandemic of an unprecedented scale that affects the whole world and can be fatal in some cases to have negative effects on human psychology. However, it is an issue of concern to what extent normalization can be achieved, and to what extent the behaviors that did not exist and in some cases were not considered normal within the normal life style before the pandemic will turn into habits after it ends. It is for future to answer how persistent the behaviors caused by anxiety and fear will be and for how long. Nevertheless, conducting studies on issues such as to what extend individual adaptation may be achieved and what kinds of anxiety and fears may be permanent will be instructive for the measures needed to be taken by professional service areas such as psychology, sociology or social services. It is evident that the effective management of situations that affect the psychology of large masses is only possible through effective social policy making by countries (Li et al., 2020).

It appears that the number of studies on the psychological effects of the pandemic worldwide are swiftly increasing. However, there do not seem to be many studies about the after-effects of the pandemic or behaviors that may persist afterwards. Yet, it is thought that such a study would be important in determining groups that may be at risk, especially after the pandemic (Li et al., 2020).

When scales used in studies on Covid-19 period are considered, it appears that there is a common tendency to use anxiety scales to measure the anxiety caused by Covid-19 as well as scales measuring depression and stress levels in individuals (Cao et al., 2020; Wang et al., 2020a). It is seen that a group of scale studies have been conducted on fear of Covid-19 and anxiety of Covid-19 (Ahorsu et al., 2020; Conway et al., 2020; Pakpour & Griffiths, 2020; Tan et al., 2020). There are also studies that measure the mental health of the general population during Covid-19. For instance, a longitudinal study that was conducted in China tracked the mental health of the public during coronavirus period (Wang et al., 2020b). However, there do not seem to be any scale study on adaptation, normalization and returning to life after Covid-19. It is a matter of curiosity whether the pre-Covid-19 and post-Covid-19 life attributions of the Covid-19 period within the perceptional framework will make certain habits that did not previously exist in individuals' lives permanent after the pandemic. Questions about whether the close-distance social interaction habits of eastern societies will change, how much behaviors that were reinforced during the Covid-19 days such as frequent and even constant hand washing and sterilization will return to normal, and to what extent the online life spent at home will have been adopted occupy the minds of researchers. When we look into the theories that may shed a light on these issues, Adaptation Level Theory stands out (Helson, 1947). According to this theory, which examines the adaptation and adjustment levels of individuals after adverse experiences, the individual eventually gets used to any circumstance that may have been perceived as unfavorable at first. Subjective well-being of the individuals depends on how they evaluate the situations, incidents and circumstances they are in. In the current social context, the traumatic experience we are going through is met with panic by individuals and the conditions of protection are shaped by behaviors which would have been considered as abnormal before the pandemic such as refraining from going outside the house and excessive hand washing. However, determining to what extent these behaviors can be eliminated and how long it would take will shed light on future studies. The still ongoing process of

pandemic can be monitored by comparing the measurements to be taken during the problem with the measurements to be gradually taken after the problem, thus assessing both society's and the individuals' adaptation skills.

The question of whether people's perceptions of pre-Covid-19 and post-Covid-19 will continue after the pandemic, how much normalization at the perceptual level will be possible will play a determining role in what measures and studies should be carried out by mental health workers working on this issue. To that end, it is the aim of this study to develop a valid and reliable measurement instrument aimed at determining the possible problems that can be encountered during the back-to-normal-life phase after Covid-19.

Method

Under this heading, information about the research model, population and sample, measurement instruments that were used, data collection and data analysis are presented.

Research Model

The research is a scale development study in terms of its structure. A post-Covid-19 adaptation scale was developed that can be applied to adults at the end of the study. On the other hand, comparisons of scores between various demographic variables, which can be an indicator of the construct validity of the scale, are also included.

Study Group

The general population of the study is adults aged 18 and above residing in Istanbul. A total of 2042 people from this population, who were reached online on social media platforms via the convenience sampling method, form the study group of the research. One half of this group was used in EFA analysis, and the other half in CFA analysis. The table summarizing the status of the study group in terms of various variables is presented below.

Table 1

Descriptive Values Regarding the Demographic Structure of the Sample

Variable	Groups	f	%	Variable	Groups	f	%
Age	20 and below	142	13.9	Educational Status	High School Graduate	82	8.0
	21-29	449	44.0		Undergraduate Student	364	35.7
	30-39	213	20.9		Graduate	374	36.6
	40-49	133	13.0		Postgraduate Student	49	4.8

	50-59	64	6.3		Postgraduate	152	14.9
	Over 60	20	2.0		Total	1021	100.0
	Total	1021	100.0		Female	881	86.3
Perceived Level of Income	Below Average	157	15.4	Sex	Male	140	13.7
	Average	636	62.3		Total	1021	100.0
	Above Average	194	19.0	Work Status During Pandemic	I worked	126	12.3
		34	3.3		I stayed home	895	87.7
	Total	1021	100.0		Total	1021	100.0

Data Collection Tools

Besides "Post-Covid-19 Adaptation Scale" (PCAS), which was developed within the scope of the research, the personal information form was used in order to determine certain demographic features of the individuals participating in the research.

Personal Information Form

It was prepared for the purpose of obtaining five pieces of personal information such as age, gender, perceived income level, educational status and work status during the pandemic.

Post-Covid-19 Adaptation Scale (PCAS)

The scale was developed by the researchers within the scope of the research. Explanations concerning the development process of the scale are given below.

PCAS Item Preparation and Validity-Reliability Analysis

The scale is a 5-point Likert type graded between "1 - I strongly disagree" – "5 - I strongly agree". Initially, an autobiographical exercise was conducted with 25 individuals, a literature review was made, and the scales used in similar studies were examined, after which 30 items aimed at determining the perception of individuals about the post-corona adaptation process were prepared. After the Lawshe analysis based on the opinions of 11 members of the expert group (consisting of 2 assessment and evaluation experts, 8 psychological counseling and guidance experts, 1 family physician) was done, the items of the candidate scale dropped to 22, 10 of which were reversed items and 12 straightforward items. With this form, a pilot study was conducted on a data group of 53 people, and language and

spelling corrections were made based on the feedback received. the process of data collection for the purpose of developing the scale was initiated with this item group.

Data Collection

The data were collected in two steps: for the development of the scale and the research itself. An online database was designed to be used during the data collection process, enabling participants to fill out the personal information form and scale items online. After that, the research was introduced via various internet groups and social media communication tools and participation was encouraged. It was observed in the pilot study that the exercise took 12-15 minutes to complete.

Data Analysis

In data analysis, firstly the exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) results, which reveal the construct validity, and then the findings regarding the other complementary analyses were included. In addition, comparative analyses supporting the construct validity of the instrument were also included. To that end, descriptive statistics obtained from the scale such as the mean and the standard deviation were calculated and the perceptions of the people were revealed. Afterwards, skewness and kurtosis values were calculated for the analyses to be made in order to deal with the problematic aspects of the research, and then hypotheses were tested through the independent groups t-test and one-dimensional analysis of variance.

Results

In this section, the results obtained from the validity and reliability analyses of the Post-Covid-19 Scale (PCAS) based on the data at hand, and the results of the analysis comparing the scale scores between various demographic variable groups were included.

Validity and reliability are necessary for converting values whose structures cannot be observed directly into structural forms through measurements (Neuman, 2014, 276). First Exploratory Factor Analysis (EFA) and then Confirmatory Factor Analysis (CFA) were performed in order to test the construct validity of the data collection tool. Factor analysis is basically transforming complex structures into explainable structures (Altunışık et al., 2004, 222). The first thing to do while performing a factor analysis is to decide how to determine the number factors. While eigen cutoff value was set as 2.00, aiming to make the structure stronger, axis rotation number (iteration) was decided as 25 and varimax vertical rotation method was preferred. Lower cutoff point of the variance of the factor loads was established as .40. After making these preferences, EFA was performed on 22 items, results of which is given below.

Table 2

KMO, Bartlett's Test Results and Values for Communalities

Items	EFA 1		EFA 2	
	Initial	**Ext.**	**Initial**	**Ext.**
Item1.	1.00	.471	1.00	.481
Item 2.	1.00	.514	1.00	.528
Item 3.	1.00	.453	1.00	.451
Item 4.	1.00	.343	-	-
Item 5.	1.00	.431	1.00	.441
Item 6.	1.00	.570	1.00	.590
Item 7.	1.00	.510	1.00	.518
Item 8.	1.00	.427	1.00	.404
Item 9.	1.00	.627	1.00	.627
Item 10.	1.00	.655	1.00	.661
Item 11.	1.00	.651	1.00	.643
Item 12.	1.00	.471	1.00	.460
Item 13.	1.00	.314	-	-
Item 14.	1.00	.590	1.00	.598
Item 15.	1.00	.347	-	-
Item 16.	1.00	.480	1.00	.477
Item 17.	1.00	.416	1.00	.423
Item 18.	1.00	.471	1.00	.470
Item 19.	1.00	.549	1.00	.550
Item 20.	1.00	.547	1.00	.567
Item 21.	1.00	.593	1.00	.606
Item 22.	1.00	.115	-	-
KMO	.94		.95	
Bartlett	9326.43 / p=.000		8808.78/ p=.000	

As seen in Table 2, Kaiser-Meyer-Olkin (KMO=.94) and Bartlett (=9326.43; .001) values in factor analysis at all stages show that the data are excellent in terms of factorability. According to Sipahi, Yurtkoru and Çinko (2008), a KMO value greater than .80 indicates that the scale is excellent in terms of factorability. On the other hand, four items whose communalities value was less than 0.40 were eliminated, and since all the items had a value above .40 after the second stage, the process was continued with the remaining 18 items without repeating EFA. Below is the scree plot* that shows the factor groups and percentages of total variance explained after the second stage EFA.

Table 3

Total Amount of Variance Explained

Factor	Initial Eigenvalues			Total Factor Loads		
	Total	**% Var.**	**Cum.%**	**Total**	**% Var.**	**Cum.%**
1	9.07	50.37	50.37	9.07	50.37	50.37
2	1.38	7.69	58.06			
3	.92	5.08	63.14			
4	.74	4.12	67.26			
5	.72	4.00	71.26			
…	...	...	...			
18	.22	1.25	100.00			
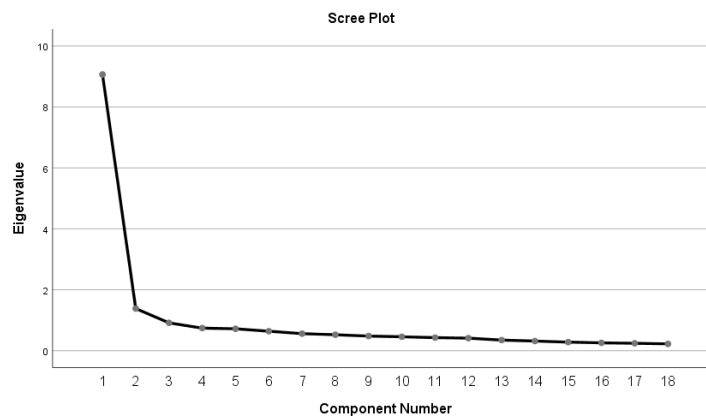
Figure 1. Scree Plot for the EFA 2

As seen in Table 3, the single factor structure with 18 items revealed at the end of the EFA accumulated in a factor with an eigen value greater than 2, and this single factor explains approximately 50.37% of the 9 total variances with a factor load of 9.07. On the other hand, when the scree plot was examined, it was seen that the trend turned horizontal after the first factor, so it was decided to consider the structure as a single factor. Under these conditions, the factor loads of the items included in the scale were as follows:

Table 4

Factor Loads of the Scale Items

Items	Load	Items	Load
Item01	-.68[*]	Item12	.63
Item02	-.69[*]	Item14	.75
Item05	-.64[*]	Item15	.53
Item06	-.75[*]	Item16	.68
Item07	.71	Item17	-.65[*]
Item08	.65	Item18	.67
Item09	.80	Item19	.73
Item10	.83	Item20	-.78[*]
Item11	.80	Item21	-.77[*]

As seen in Table 4, all the items had a value higher than .50 in the factor they are included in, and their load values were calculated to be between .53 and .83. On the other hand, seven of these items (items 1,2,5,6,17,20 and 21) function as reverse items. During scoring, these items should be scored in reverse. These items were scored in reverse in other analysis.

The construct validity of the scale, whose exploratory nature was revealed via EFA, was also tested through Confirmatory Factor Analysis (CFA). Confirmatory factor analysis, tests the accuracy of the proposed scale (Tabachnick & Fidell, 2007). Before starting CFA, the structure is tested for multivariate normality. When the multivariate critical ratio is <10.00 in the multivariate normality test for CFA, the structure can be considered to have multivariate normality without taking other values into account (Kline; 2005, Mardia, 1974:118). In that context, results of the normality test performed on the scale are given below.

Table 5

Draft Scale Multivariate Normality Test

Variable	Min	Max	Skew	Critical Ratio	Kurtosis	Critical Ratio
Item01	1	5	.11	1.24	-.56	-3.30
Item02	1	5	.00	0.05	-.85	-4.99
Item05	1	5	-.69	-8.01	-.54	-3.13
Item06	1	5	-.23	-2.74	-.61	-3.56
Item07	1	5	.10	1.22	-.66	-3.83
Item08	1	5	-.23	-2.69	-.97	-5.67
Item09	1	5	-.15	-1.77	-1.05	-6.11
Item10	1	5	-.87	-10.17	-.20	-1.18
Item11	1	5	-.09	-1.09	-1.11	-6.50
Item12	1	5	-.29	-3.38	-.88	-5.17
Item14	1	5	-.39	-4.53	-.85	-4.98
Item15	1	5	-.25	-2.94	-1.11	-6.51
Item16	1	5	-.79	-9.23	-.27	-1.58
Item17	1	5	-.73	-8.50	-.56	-3.26
Item18	1	5	.20	2.36	-.96	-5.60
Item19	1	5	-.46	-5.43	-.93	-5.41
Item20	1	5	-.53	-6.21	-.71	-4.17
Item21	1	5	-.24	-2.82	-.92	-5.35
Multivariate					12.00	**6.40**

As seen in Table 5, the scale meets the multivariate normality criteria as the multivariate normality critical ratio of the 18 items is 6.40. Since the research data indicates multivariate normality, Maximum Likelihood method was preferred as it is the most preferred method when multivariate normality is ensured (Golob, 2003; Schumacher & Lomax, 2004). Firstly, goodness of fit indicators were examined for the fit of the model.

Table 6

Model-1 Goodness of Fit Indicators*

Indicator	Good Fit	Perfect Fit	Model Tested
χ^2	-	-	1442.44
p value	-	-	.000
df	-	-	135
χ^2/df	$0 \leq \chi^2/df \leq 3.00$	$3 \leq \chi^2/df \leq 5.00$	1.69
RMSEA	$0 \leq RMSEA \leq .05$	$.05 \leq RMSEA \leq .08$	.11
SRMR	$0 \leq SRMR \leq .05$	$.05 \leq SRMR \leq .08$	.09
NFI	$.95 \leq NFI \leq 1.00$	$.90 \leq NFI \leq .95$	.84
CFI	$.95 \leq CFI \leq 1.00$	$.90 \leq CFI \leq .95$	.85
GFI	$.95 \leq GFI \leq 1.00$	$.90 \leq GFI \leq .95$	.80
AGFI	$.90 \leq AGFI \leq 1.00$	$.85 \leq AGFI \leq .90$	.75

*Sources of reference ranges: Jöreskog, 2004; et al., Çokluk et al., 2012; Jöreskog & Sörbom, 2001; Tabachnick & Fidell, 2007; Kline, 2011; Schumacher & Lomax, 2010.

As seen in Table 6, some of the indicators ($\chi^2/df=10.69 > 5.00$; RMSEA=.11; SRMR=.09; NFI=.84; CFI=.85; GFI=.80; AGFI=.75) do not have the values to fall within the required reference range for the fit of the model. Therefore, in order to improve the fit of the model, the following modification indices suggested by the AMOS program were applied to the model and the model was retested.

Table 7

Covariances

Covariance			M.I.	Par Change	Covariance			M.I.	Par Change
e17	<-->	e18	145.47	.34	e1	<-->	e13	22.30	-.14
e1	<-->	e2	135.27	.27	e11	<-->	e18	22.19	-.10
e14	<-->	e15	120.97	.26	e5	<-->	e8	22.10	-.14
e7	<-->	e13	106.51	.42	e10	<-->	e16	22.04	-.14
e10	<-->	e15	49.98	-.17	e6	<-->	e17	21.44	-.14
e10	<-->	e12	46.70	.17	e13	<-->	e17	20.91	-.15
e4	<-->	e10	40.17	.18	e3	<-->	e4	20.32	.15
e10	<-->	e13	38.74	.19	e12	<-->	e18	19.83	-.11
e13	<-->	e15	36.01	-.17	e2	<-->	e13	18.94	-.12
e7	<-->	e10	34.55	.20	e2	<-->	e10	17.75	-.10
e4	<-->	e15	34.48	-.16	e3	<-->	e14	17.08	-.12
e15	<-->	e18	34.22	.14	e8	<-->	e9	16.93	.12
e5	<-->	e9	32.12	-.19	e10	<-->	e17	16.22	-.11
e15	<-->	e16	31.99	.15	e11	<-->	e17	15.85	-.09
e2	<-->	e12	31.12	-.13	e13	<-->	e16	15.70	-.14
e15	<-->	e17	26.98	.13	e2	<-->	e15	15.36	.09
e7	<-->	e15	25.78	-.16	e5	<-->	e12	15.20	-.11
e16	<-->	e17	25.41	.16	e4	<-->	e5	14.97	-.13
e8	<-->	e12	24.89	.13	e8	<-->	e13	14.73	-.12
e1	<-->	e12	24.34	-.12	e6	<-->	e11	14.63	.09
e5	<-->	e18	24.01	.15	e1	<-->	e10	14.53	-.09
e9	<-->	e10	23.97	.14	e4	<-->	e13	14.28	.13
e2	<-->	e5	23.18	.13	e5	<-->	e16	14.20	.13
e12	<-->	e13	23.15	.14					

Covariances were drawn between the error scores of the scale items by applying the modification indices. It is an acceptable practice to have inter-item covariances within a scale. Inter-item covariances were considered normal in the scale, which was tested as a single-factor model and parameters of which are given below.
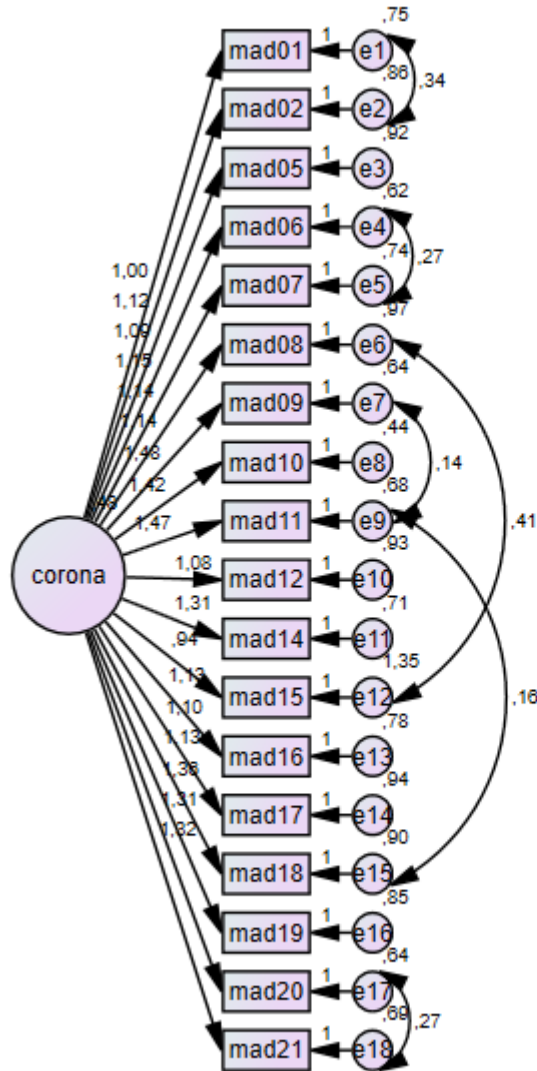
Figure 2. Diagram for the Item Covariances

Table 8

Model-2 Goodness of Fit Indicators*

Indicator	Good Fit	Perfect Fit	Model Tested
χ^2	-	-	318.31
p value	-	-	.000
df	-	-	88
χ^2/df	$0 \leq \chi^2/df \leq 3.00$	$3 \leq \chi^2/df \leq 5.00$	3.62
RMSEA	$0 \leq RMSEA \leq .05$	$.05 \leq RMSEA \leq .08$	.06
SRMR	$0 \leq SRMR \leq .05$	$.05 \leq SRMR \leq .08$	.05
NFI	$.95 \leq NFI \leq 1.00$	$.90 \leq NFI \leq .95$	.96
CFI	$.95 \leq CFI \leq 1.00$	$.90 \leq CFI \leq .95$	.97
GFI	$.95 \leq GFI \leq 1.00$	$.90 \leq GFI \leq .95$	.96
AGFI	$.90 \leq AGFI \leq 1.00$	$.85 \leq AGFI \leq .90$	.92

*Sources of reference ranges: Jöreskog, 2004; Çokluk et al., 2012; Jöreskog & Sörbom, 2001; Tabachnick & Fidell, 2007; Kline, 2011; Schumacher & Lomax, 2010.

As seen in Table 8, values of the χ^2/df=3.62; RMSEA=.06; SRMR=.05; NFI=.96; CFI=.97; GFI=.96; AGFI=.9 goodness of fit indicators makes the model a perfect fit. Since the goodness of fit of the model is based on these values, the standardized variance values of the model is given below.

Table 9

Draft Scale Standardized Regression Table

Regression Weights			Crude Prediction Coeffcicient	sh	Critical Ratio	p	Std. Prediction Coefficient
Item21	<---	Corona	1.00	-	-	-	.76
Item20	<---	Corona	.98	.03	28.58	***	.76
Item19	<---	Corona	1.00	.05	20.94	***	.71
Item18	<---	Corona	.82	.05	18.18	***	.63
Item17	<---	Corona	.82	.05	17.99	***	.62
Item16	<---	Corona	.82	.04	18.95	***	.65
Item15	<---	Corona	.68	.05	13.63	***	.48
Item14	<---	Corona	.96	.05	21.38	***	.73
Item12	<---	Corona	.78	.05	17.39	***	.60
Item11	<---	Corona	1.09	.05	22.51	***	.79
Item10	<---	Corona	1.05	.04	25.01	***	.83
Item09	<---	Corona	1.10	.05	21.97	***	.79
Item08	<---	Corona	.86	.05	17.22	***	.65
Item07	<---	Corona	.84	.04	19.90	***	.68
Item06	<---	Corona	.85	.04	20.82	***	.71
Item05	<---	Corona	.79	.05	17.54	***	.61
Item02	<---	Corona	.84	.04	18.95	***	.66
Item01	<---	Corona	.74	.04	18.18	***	.63

Factor loads of the items should ideally be .70 or above, and at least .50 (Hair et al. 2009). As seen in Table 9, all of the standardized variances are significant at the $p<.001$ level and the lowest is at the acceptable level of .62.

Pearson product moment correlation analysis was performed in order to calculate the significance of the relationship between the scale items and the total scores of the scale (item total) (). It was revealed that all the

correlation values, which were calculated as the highest and the lowest, were significant (p<.001), and all items measured the same structure.

For item discrimination, the significance of the difference of means between the lower () and the upper () groups was tested with the independent groups t-test. At the end of the analysis, the differences between the arithmetic means for all items and scale total scores were found to be significant (p<.001). These differences were in favor of the upper group. The results in question reveal that the total score of the items and the scale is distinctive.

After the statistical validation of the single-factor structure of the 18-item scale at the end of EFA and CFA, lastly the reliability of the 18-item structure of the scale was tested. The results of the reliability analysis showed that the internal consistency indicator (Cronbach's alpha) was α=.94; Guttman's reliability coefficient .97, and Spearman-Brown coefficient .97, split-half reliability coefficient r_{1-2}=.94 and, test-retest coefficient was r=.87. These values indicate that the scale has a high level of internal consistency. Since no item that had a reductive effect on the reliability of the scale was detected at the end of the reliability test, no item was eliminated.

In conclusion, the 18-item scale has KMO=.95 sample adequacy and explains 50,37% of the total variance with a total factor load of 9.07 in 1 factor. EFA results of the scale shows that among the goodness of fit indicators, χ^2/df=3.62<5.00; RMSEA=.06; SRMR=.05; NFI=.96; CFI=.97; GFI=.96; AGFI=.92, have perfect fit with their corresponding values. According to the results of the reliability analysis performed to test the reliability of the scale, it was found to be reliable with the internal consistency α=.94; Guttman's reliability coefficient .94, and Spearman-Brown coefficient .94. Scale scoring is calculated by dividing the total score calculated after reversing the reversed items by the number of items. In that context, the lowest score that can be obtained from the scale is 1,00, and the highest is 5.00.

While an increase in the scale score signifies an increase in the negative perception and expectations regarding the ability to successfully adapt to the post-pandemic life as easily as the pre-pandemic life; a decrease in the scale score signifies a decrease in the negative perception and expectations regarding the ability to successfully adapt to the post-pandemic life as easily as the pre-pandemic life.

Table 10

Descriptive Values for PCAS Scores

Score	N	Min	Max	x−	ss	Skew	Kurtosis
PCAS Score	1021	1.00	5.00	3.28	.84	-.40	-.24

As seen in Table 10, the arithmetic mean of the PCAS scores of the individuals that form the sample group is calculated as the standard deviation. These values indicate that the expectation levels of individuals regarding post-Covid-19 adaptation are indecisive, although slightly inclined towards positive. On the other hand, there are different

references to the limits of skewness and kurtosis. According to Bayram (2013), Büyüköztürk (2020) and Çokluk et al. (2012), the distribution is assumed normal if it is between skewness and kurtosis. The skewness (-.40) and kurtosis (-.20) values in the table indicate the distribution is quite similar to the normal distribution. On the other hand, Çil (2008) suggests that from the perspective of the central limit theorem, a sample size of approximately 30 people is considered sufficient to deem a distribution normal, whereas Armutlulu (2008) suggests that no matter however the shape of the variable in the population is distributed in practice, if the sample size is n≥30, the shape of the distribution can be considered close to the normal distribution. The distribution can also be considered similar to the normal distribution when the size is =1021. In that context, parametric techniques were utilized in comparative analyses.

Table 11

Comparison of PCAS Scores for Gender Variable

Score	Groups	N	x̄	ss	shx̄	T Test			Cohen d
						t	sd	p	
PCAS Scores	Female	881	3.34	.82	.03		1019	.000	.468
	Male	140	2.93	.83	.07				

As seen in Table 11, t-test was performed in order to determine the significance of the difference between the gender groups. Levene analysis shows that the variances are homogenous (=.81; =.368). At the end of the analysis, the difference between the arithmetic means of the groups was found to be significant ($t_{(1019)}=5.48; p=.000$). IT was found that women's expectations for adaptation after Covid-19 were significantly more positive than men's. On the other hand, Cohen's D was calculated in order to measure the effect size of gender on PCAS scores. The value obtained ($\eta2 \cong. 02$) indicates that it has an effect size closer to medium.

As seen in Table 12, one-way ANOVA was performed to determine the significance of the difference between the age groups in terms of PCAS scores. Variances of the data are homogenous (=*1.15;* =*.334).* The difference between the arithmetic means of the groups was found to be significant ($F_{(4;1016)}=6.36;$ p=*.000*). According to the Scheffe analysis that was performed, post-Covid-19 expectation levels of the 50 and over age group were significantly more positive than both the 20 and under and 21-29 age groups. In addition, eta squared value (η^2) was calculated to determine the effect size of age groups on PCAS scores. The value obtained ($\eta^2 \cong. 02$) indicates a small effect size.

Table 12

Comparison of PCAS Scores for Age Variable

f, $\bar{x}$ ve ss Values					ANOVA, Scheffe and Results							
Score	Group	N	$\bar{x}$	ss	Var. K.	KT	Sd	KO	F	p	Scheffe	$\eta2$
	20 and below (1)	142	3.12	.84	Intergroup	17.45	4	4.36				
	21-29 (2)	449	3.21	.81	Ingroup	695.95	1016	.69				
PCAS Scores	30-39 (3)	213	3.33	.86	Total	713.40	1020		6.36	.00	1<5 2<5	.024
	40-49 (4)	133	3.43	.84								
	50 and above (5)	84	3.60	.78								
	Total	1021	3.28	.84								

As seen in Table 13, one-way ANOVA was performed to determine the significance of the difference between groups of educational status in terms of PCAS scores. Variances of the groups are homogenous (=1.35; p=.243). The difference between the arithmetic means of the groups was not found to be significant ($F_{(5;1015)}=1.58; p=.163$). On the other hand, eta square value (η^2) was calculated to determine the effect size of educational status on PCAS scores. The value obtained ($\eta2 \cong .01$) indicates a small effect size.

Table 13

Comparison of PCAS Scores for Educational Status Variable

f, $\overline{x}$ ve ss **Values**					**ANOVA, Scheffe and** $\eta2$ **Results**							
Score	**Group**	N	$\overline{x}$	ss	**Var. K.**	KT	Sd	KO	F	p	**Sche ffe**	$\eta2$
	High school Std (1)	58	3.13	.97	**Inter group**	5.51	5	1.10				
	Undergraduate Std (2)	306	3.25	.78	**Ingr oup**	707.89	1015	.70				
	Postgraduate Std (3)	49	3.10	.87	**Total**	713.40	1020					
PCAS Scores	High School Graduate (4)	82	3.40	.88					1.58	.163	-	.01
	Undergraduate Std (5)	374	3.34	.83								
	Postgraduate. (6)	152	3.27	.86								
	Total	1021	3.28	.84								

As seen in Table 14, one-way ANOVA was performed to determine the significance of the difference between groups of perceived income level. Variances of the data are homogenous *(=.80; p=.496)*. The difference between the arithmetic means of the groups was not found to be significant *(F$_{(3;1017)}$=.59; p=.163)*. On the other hand, eta square value *(η^2)* was calculated to determine the effect size of perceived income level on PCAS scores. The value obtained *($\eta2 \cong. 001$)* indicates a negligible effect size.

Table 14

Comparison of PCAS Scores for Perceived Income Level Variable

f, $\bar{x}$ ve ss **Values**					**ANOVA, Scheffe and $\eta 2$ Results**							
Score	**Group**	N	$\bar{x}$	ss	**Var. K.**	KT	Sd	KO	F	p	**Sche ffe**	$\eta 2\eta 2$
PCAS Scores	Below Middle (1)	157	3.22	.83	**Inter group**	1.24	3	.41				
	Middle (2)	636	3.31	.82	**Ingr oup**	712.16	1017	.70				
	Above Middle (3)	194	3.27	.89	**Total**	713.40	1020		.59	.622	-	.001
	High (4)	34	3.21	.88								
	Total	1021	3.28	.84								

Levene: ,797 (p=.496)

As seen in table 15, t-test was performed to determine the significance of the difference between groups of work status during pandemic in terms of PCAS scores. Levene analysis indicates that the variances are homogenous ($L_F=2.88; p=.090$). According to the analysis results, no significant difference was found between the arithmetic means of the groups ($t_{(1019)}=-1.79; p=.074$). On the other hand, Cohen's D was calculated to determine the effect size of work status during pandemic on PCAS scores. The value obtained ($d \cong .16$) indicates a small effect size.

Table 15

Comparison of PCAS Scores for Work Status During Pandemic Variable

Score	Groups	N	x-	ss	shx-	T-Test			Cohen d
						t	sd	p	
PCAS Scores	I worked outside	126	3.16	.90	.08	-1.79	1019	.074	.162
	I was home	895	3.30	.83	.03				

Findings

According to the research results, during the scale development process, which started with an item pool of 30 items, 8 items were eliminated after the Lawhe analysis and 4 items were eliminated after the EFA, and the scale was completed with 18 items. The items obtained minimum .53 and maximum .83 load value from the factor. It is suggested a item load value of .30 or higher indicates a good discrimination index, whereas .45 or higher indicates that it will be a far better criterion for selection (Büyüköztürk, 2020). Seven items in total in the scale (items 1, 2, 5, 6, 17, 20 and 21) are reversed items. Tavşancıl (2019) states that care should be taken to include negative statements (reverse items) as well as positive ones in a scale.

The scale in its final version displays a single-factor structure, and this single factor explains approximately 50,37% of the total variance with a 9.07 eigenvalue. Yaşlıoğlu (2017) suggests that the explained variance value exceeding 50% of the total variance is an important criterion in factor analysis. The scale meets the requirements stated in the literature both in terms of item loads and the explained total variance. In the construct validity of the scale, which was also tested via the CFA, acceptable fit indices were reached after modifications suggested by the AMOS program. These values were found as $\chi2/df=3,62$; RMSEA=.06; SRMR=.05; NFI=.96; CFI=.97; GFI=.96; AGFI=.92, and the values in question indicates that the model is a perfect fit (Çokluk et al., 2012; Jörekog, 2004; Jöreskog & Sörbom, 2001; Tabachnick & Fidell, 2007; 2011; Schumacker & Lomax, 2010).

While the factor loads obtained from the DFA analyses were expected to be a minimum of .50 (Hair et al. 2009), total of the variances standardized a result of the analyes were found to be significant at the level of <.001 and the lowest load was found to be .62.

Alternative techniques were also utilized for the reliability processes of the scale. Alpha (Cronbach's Alpha) coefficient calculated as an internal consistency indicator was found to be α=.94; Guttman's reliability coefficient obtained from the split-half technique =.97; Spearman Brown coefficient SB=.97 and split half reliability =.94; and finally test-retest reliability was found to be =.87.

Özdamar (1999), Tavşancıl (2019) and Alpar (2020) suggests that reliability values over .80 indicates a high level of reliability. In that context, the values obtained suggests that the scale has a high level of reliability. In addition, item total correlations and item discrimination analyses were also performed in the context of reliability.

According to Büyüköztürk (2020), when the correlation between each item and the total score obtained from the sub-scale it belongs to is above .30, the items are considered to be compatible with each other. On the other hand, that results of the t-test, which is applied to measure the discrimination tested between the top and bottom 27% slices after the data are sorted, show a significant difference between the means is an evidence of the internal consistency of the scale. Total item correlations obtained in the research ranges from .53-.75 and reveals that all items have a high level of correlation ($p<.001$) with the scale. On the other hand, in discriminant analyses of all items, the means of the group in the top 27% slice were also significantly higher. These results reveal that the scale is discriminative for individuals in different levels in terms of the measured trait. The scoring of the scale is done by dividing the total number of points obtained from the responses to 18 items by the number of items. While an increase in the scale score signifies *an increase in the negative perception and expectations regarding the ability to successfully adapt to the post-pandemic life as easily as the pre-pandemic life;* a decrease in the scale score signifies *a decrease in the negative perception and expectations regarding the ability to successfully adapt to the post-pandemic life as easily as the pre-pandemic life.*

Discussion

This study was conducted just before the normalization process after Covid-19 started; while lockdown was still in effect. Studies from all over the world suggest that social isolation negatively impacts human psychology (Qiu et al., 2020). General conclusion reached at the end of this study is that expectation levels of individuals regarding adaptation after Covid-19 period are indecisive, although display a slight incline towards positivity.

When the results are examined in terms of age, it is seen that the expectation levels of 50 and above are significantly more positive compared to other age groups. However, no significant difference was observed in terms of educational status, income level, staying home and working during the pandemic.

Another finding of the study is that expectation levels of women are significantly higher compared to men. This may be due to the fact that the number of female participants were higher than that of male participants, and it should be tested in another sample group. No significant difference was obtained in terms of other demographic data in the study. However, there are studies that have investigated the effects of factors such as low-income level, staying with family during the pandemic, being unemployed during the pandemic etc. (Duan & Zhu, 2020). Testing the study with different groups in terms of different factors such as being a health-care worker or having caught the disease will impact the results. A one-dimensional, valid and reliable inventory consisting of 18 items aimed at measuring expectations of individuals regarding adaptation after Covid-19 was also obtained within the scope of this study. It is our hope that both the results and the scale obtained as a result of this study will contribute to the lacking data literature in our country and provide data for international comparisons. The research in question was carried out before the post-Covid-19 normalization process began. Results of repeated measurement in time may provide valuable data in terms of determining how much and how fast the individuals respond to the post-pandemic period.

Studies conducted all over the world during the pandemic report that individuals that have been subjected to the pandemic and especially social isolation display symptoms such as panic disorder, anxiety and depression (Ho et al., 2020; Qiu et al., 2020). Post-Covid-19 adaptation processes of individuals can be tracked through a study such as this one, thus determining the expectations of individuals for change and adaptation. Such an effort is thought to be valuable in tracking the possible responses the individuals may have regarding adaptation in future pandemics and developing appropriate policies.

The study contains data that were obtained through a sample group dominated by female participants. It is important that the data obtained amidst the limitations caused by the pandemic and the lockdown should be tested with different groups and the results should be discussed. The participant themselves had not caught Covid-19 at the time. Post-pandemic adaptation levels of individuals who have caught the disease should be investigated separately.

Revealing differences regarding expectations about post-Covid-19 adaptation via repeated measurements in time will make great contributions to the literature. Data that were obtained while the normalization process was about the begin and the lockdown was still in effect provide a valuable opportunity for comparison in that regard. Also, it is possible for experts that work on psychological support during the pandemic to benefit from the findings of this study in the programs they will prepare.

Sample Items

1. I think that I will be able to freely go outside once the days of Covid-19 are over.

8. I think that I will feel uneasy in crowded settings after Covid-19.

11. I think that I will keep maintaining the social distance even when I have guests over after Covid-19

18.Boarding a plane/getting on a long-distance bus will not be a problem for me.

Ethic

All procedures in this study involving human participants were carried out in accordance with the ethical

standards.

Author Contributions

This article was written with the joint contributions of two authors.

Conflict of Interest

The authors declare that they have no conflict of interest.

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Women's Opinions on Emotional Violence in Intimate Relationships and Methods of Coping

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Abstract

The aim of this research is to determine women's views on emotional violence and coping methods in intimate relationships. The study group of the research consists of 15 people who live in Konya and have been exposed to emotional violence in their intimate relationships. In the research, semi-structured interview technique was used as the data collection method. The collected data were analyzed using the content analysis technique. Then, the themes of perceptions of emotional violence in intimate relationships, the reasons for the emotional violence of the partners, the effects of being exposed to emotional violence, the reactions given to the partner in the face of emotional violence, the ways of coping with emotional violence and the needs to combat emotional violence, and categories related to these themes were created. As a result of the research, the findings were discussed and suggestions were developed for the findings.

Key Words

Emotional violence • Woman • Methods of coping

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Violence and violent actions are among the increasing problems in today's world. Violence is any individual or group behavior that causes physical and mental harm, injury and disability (Mavili, 2014). Intimate partner violence begins in adolescence and early adulthood, mostly in marriage or cohabitation. Intimate partner violence, which is seen as physical-sexual or emotional abuse and controlling behaviors by one partner to the other partner, is generally directed at women by men (World Health Organization [WHO], 2010).

Intimate partner violence against women is an important but often neglected public health problem (Umubyeyi et al., 2014). Women who are exposed to violence are at risk of death, serious injury, medical chronic health problems, and mental health problems in many ways, both physically and emotionally (Wisner et al., 1999). The factors that cause violence to be not stopped are a greater threat than the existence of violence. In addition to socio-cultural factors, the inadequacy of opportunities is also among the factors that feed violence. It is of great importance to raise awareness about the dynamics that feed violence and the role of these dynamics on the continuation of violence (Kandemirci & Kağnıcı, 2014). Violence is often used to resolve a male identity crisis fueled by poverty or the idea of not being able to control women. The risk of violence is highest in the masses where violence is adopted as a socially sanctioned norm (Jewkes, 2002). Attributions regarding gender roles also have an impact on the continuation of violence against women. It is inevitable that the meaning attributed to masculinity and femininity is felt in opposite ways such as power and weakness, holding power and obeying the power, and that masculinity is seen as the opposite of femininity (Öztürk, 2014), and so women continue to be exposed to violence from their fathers, spouses or boyfriends.

Although different types of violence are experienced between individuals in intimate relationships, most of the research has focused on physical violence (Coker et al., 2000; FitzPatrick et al., 2020; Molina, 2020). For a more complete understanding of the experiences of violence in intimate relationships, it is necessary to consider the emotional and sexual violence as well as physical violence (Jackson, 1999). In a study by Foshee (1996), it was reported that mild, moderate and severe partner violence is maintained in equal amounts in both genders, but women are more exposed to psychological abuse, injury and sexual dating violence than men, and also, in a study conducted with female university students, the rate of exposure to emotional violence was stated as 34.8% (Dodaj et al., 2020). In a study on abuse in intimate relationships with Portuguese young adults, it was noted that 53.8% of individuals were subjected to psychological aggression and they were the victims of psychological violence most frequently in intimate relationships (Paiva & Figueiredo, 2004).

When we look at the literature, it is seen that the concept of emotional violence in intimate relationships is also expressed with concepts such as psychological violence, verbal violence and relational aggression (Yumuşak, 2013). Emotional violence is defined as deeds such as criticizing, humiliating and insulting the individual in the circle of friends (Kirtani et al., 2019); humiliation, blaming and manipulations (Saltzman et al., 2002); jealousy, threats, punishment by ignoring, disapproving, rejecting and cheating (Pérez-Marco et al., 2020). In many studies, it is observed that emotional violence is experienced at a higher rate than physical violence in intimate relationships (Dodaj et al., 2020; Goodman et al., 2003; Kurt et al., 2018). As can be understood from this information, emotional violence experienced in intimate relationships can be characterized as statements or behaviors, directed by one

partner, that negatively affect the self-perception of the other partner, hurt emotionally, and damage the social dignity.

Individuals who are victims of interpersonal violence resort to various strategies to reduce or eliminate threats to their physical safety and emotional well-being. However, little is known about the relationship between women's coping strategies and mental health (Kocot & Goodman, 2003). Foster et al. (2015) describe coping as an individual's efforts to manage a problem. The ability to cope with violence in intimate relationships varies depending on the context of the relationship, conditions and availability of resources. Lazarus and Folkman (1984) classified coping strategies under two headings as problem-focused coping and emotion-focused coping. While problem-focused coping includes planning, taking direct action, seeking help, reviewing alternative activities, and forcing oneself (Carver et al., 1989); emotion-focused coping includes the individual's active identification, evaluation and expression of her/his emotions (Baker & Berenbaum, 2007). While the aim in problem-focused coping is stated as managing or changing the problem, the aim in emotion-focused coping is stated as regulating the individual's emotional response (Meléndez et al., 2012).

The purpose of this research is to reveal women's views on emotional violence in intimate relationships and ways of coping. When the literature is examined, no study has been found that specifically addresses the perceptions of emotional violence experienced by women in intimate relationships and how they deal with this violence. Revealing women's perceptions of emotional violence in intimate relationships can provide a better understanding of women's awareness. In addition, knowing the ways women resort to cope with the emotional violence they are exposed to in intimate relationships will also contribute to understanding whether women can use effective coping situations. With this study, it is aimed to present new information to the literature by revealing the thoughts of female individuals about emotional violence in intimate relationships and what kind of ways they resort to cope with emotional violence. In order to achieve this aim, answers to the following questions were sought:

1. What does emotional violence mean to you?

2. What do you think are the reasons for the emotional violence between partners?

3. What are the effects of emotional violence in your intimate relationship on you?

4. Can you tell us about your reactions to your partner in the face of emotional violence?

5. What have you done to cope with emotional violence?

6. What do you need in order to effectively combat the emotional violence you experience?

Method

Research Model

Qualitative research technique was used in this study. In the qualitative research method, techniques such as document analysis, observation and interview are used, aiming to reveal the underlying causes of social reality and individuals' behaviors (Gürbüz & Şahin, 2016). In researches in which the qualitative method is used, there is a goal of reaching a deep understanding about the subject studied. In this respect, the researcher gives importance to the

subjective perspective of the individuals participating in the research while following the truth by acting like an explorer (Karataş, 2015).

Research Pattern

In this study, phenomenology design was used to examine women's views on emotional violence and coping methods in intimate relationships. With the phenomenology design, individuals are studied to understand their personal experiences, to discover the relationship of individuals with a certain event or process and their participation in these situations (Smith et al., 2009).

Study group

In this study, criterion sampling method, one of the purposeful sampling methods, was used. This sampling method was chosen, as it increases the meticulousness of the study and the reliability of the data and results in terms of providing deeper and more detailed information about women's views on emotional violence and coping in intimate relationships (Yıldırım & Şimşek, 2005) and in terms of better matching the research objectives (Campbell et al., 2020). A certain criterion was determined to select suitable participants for purposeful sampling. The selection criterion for the study group was determined as female individuals who have experienced emotional violence in their intimate relationships and who want to voluntarily participate in this research. The research group consisted of a total of 15 women living in the central districts of Konya.

Data Collection Tools

In the study, semi-structured interview technique was used as the data collection method and a semi-structured interview form consisting of open-ended questions was developed by scanning the literature on the subject of emotional violence. In order to ensure the validity of the interview form, the relevant form was given to three faculty members in the field of Psychological Counseling and Guidance, and the form was revised in line with the opinions of the faculty members. Afterwards, pilot applications were made and the interview forms were made ready for application by making corrections according to all these results.

Data Collection Process

The applications were performed in accordance with the interview technique and the note-taking method, which is one of the two basic methods followed in recording the data obtained through the interview, was used (Yıldırım & Şimşek, 2005). Before starting the interview, the participants were informed that the process would proceed in line with the purpose of the research, the principle of voluntariness and confidentiality. Written interview forms were used during the interviews and open-ended questions were asked to the participants. Individual interviews, in which participants' answers to open-ended questions were noted, took approximately 20-25 minutes.

Analysis and Interpretation of Data

The obtained data were analyzed by content analysis technique. The purpose of content analysis is to make sense of the data obtained during the research process and to create realistic results (Bengtsson, 2016). For this purpose, the collected data were first conceptualized and then arranged logically according to the concepts formed, and themes

that explained the data were determined. In this study, considering the relevant literature, themes and categories were created in line with the opinions obtained from the female participants. Afterwards, quotations from the participant's views on the sub-categories that make up the themes are included.

Results

In this study, women's views on emotional violence in intimate relationships and ways of coping were analyzed and 6 themes were created in line with these views. These themes are perceptions of emotional violence, the reasons for emotional violence by partners, the effects of exposure to emotional violence, the reactions given to partner in the face of emotional violence, the ways of coping with emotional violence, and the needs to combat emotional violence. These 6 themes were then categorized and opinions on each category were included. Themes, the categories related to the themes, the number of individuals expressing their opinions on the categories and sample participant views are presented in detail by tabulating.

Perceptions of Emotional Violence Theme

The theme of women's perception of emotional violence consists of 6 categories. These categories are; being insulted, ignoring, suppression, offending, humiliation and shouting. Of the 15 women participating in the research, 7 of them expressed their opinions in the category of being insulted, 6 of them in ignoring, 5 of them in suppression, 3 of them in offending, 2 of them in being insulted and 1 of them in shouting. Sample participant views on these categories are shown in Table 1.

Table 1

Categories and Sample Opinions on Perceptions of Emotional Violence

Categories	N	%	Sample Participant Opinions
Being insulted	7	46.6	"When someone is verbally insulted in front of another person…"
Ignoring	6	40	"Ignoring the individual, despising that person…"
Suppression	5	33.3	"Compulsory sanctions, forcing the person to actions that s/he does not want to do, under pressure …"
Offending	3	20	"Withdrawing love and attention, not paying attention."
Humiliation	2	13.3	"An individual's humiliating her/his partner."
Shouting	1	6.6	"Screaming loudly, trying to intimidate."

Reasons for Emotional Violence by Partners Theme

There are 7 categories related to the reasons why emotional violence is used against each other in women's intimate relationships. These categories are feelings of inadequacy, desire to dominate, inability to communicate properly, anger control problems, history of domestic violence, physical health problems and socio-cultural differences. Of the female participants, 7 of them expressed an opinion on feelings of inadequacy, 5 of them on desire to dominate, 5 of them on inability to communicate, 5 of them on anger control problems, 4 of them on history of domestic violence, 2 of them on physical health problems, and 1 of them on socio- cultural differences. Sample participant opinions regarding these categories are presented in Table 2.

Table 2

Categories and Sample Opinions on Reasons for Emotional Violence

Categories	N	%	Sample Participant Opinions
Feelings of inadequacy	7	46.6	"If the individual sees himself as inferior to his partner, he applies emotional violence to his partner in order to satisfy himself and to get rid of his complex."
Desire to dominate	5	33.3	"They always want everything in the way they like, they do it because of the feeling of domination. That's the reason in the first place anyway…"
Inability to communicate properly	5	33.3	"Not being able to express myself and my problems also creates a problem. Even if I explain it well, he does lend his ears…"
Anger control problems	5	33.3	"My husband is actually a good person at heart, but his inability to control his anger is a problem…"
History of domestic violence	4	26.6	"Probably because of growing up as an abused, battered, deprived, and ignored children whose need for love was not satisfied enough."
Physical health problems	2	13.3	"His toxic goiter disease; we would be terrified when his eyes popped up and he walked towards us…"
Socio-cultural differences	1	6.6	"Not being in equal conditions and families, not being able to receive equal education, and violence in the family may be the reasons"

Effects of Exposure to Emotional Violence Theme

5 categories were formed from the opinions expressed by women on the effects of exposure to emotional violence in intimate relationships, and these are depressive symptoms, feelings of inadequacy, difficulty in emotion regulation, social isolation and physical health problems. Ten of the participants presented an opinion on the category of depressive symptoms, 6 of them on feelings of inadequacy, 4 of them on difficulty in emotion regulation, 3 of them on social isolation and 2 of them on physical health problems. Sample participant views of these categories are given in Table 3.

Table 3

Categories and Sample Opinions on the Theme of the Effects of Exposure to Emotional Violence

Categories	N	%	Sample Participant Opinions
Depressive symptoms	10	66.6	"Humiliation, feelings of worthlessness, emotional exhaustion…"
Feelings of inadequacy	6	40	"I felt sad, helpless and humiliated, incompletely despised."
Difficulty in emotion regulation	4	26.6	"Nervous discharge, crying, I used to tremble, shiver and cry…"
Social isolation	3	20	"I was withdrawn, I felt lonely…"
Physical health problems	2	13.3	"I have headaches and stomachaches after crying fits…"

Reactions Given to the Partner in the Face of Emotional Violence Theme

7 different categories emerged from the opinions expressed by women regarding their reactions to emotional violence in intimate relationships. These categories are; shouting, submission, sulking, seeking justice, crying, trying to calm down. Of the 15 women who participated in the study, 7 of them expressed their views on shouting, 6 of them on submission, 5 of them on sulking, 4 of them on seeking justice, 4 of them on crying and 2 of them on trying to calm down. Sample participant opinions regarding these categories are given in Table 4.

Table 4

Categories and Sample Opinions Regarding the Reactions Given to the Partner in the Face of Emotional Violence

Categories	N	%	Sample Participant Opinions
Shouting	7	46.6	"Unfortunately, I react by shouting and responding to what is done with the same game."
Submission	6	40	"I did not react, I bowed in silence…"
Sulking	5	33.3	"I also got angry with my husband and shouted, I cried until my anger subsided, then I got offended for a long time and did not speak."
Seeking justice	4	26.6	"I also raised my voice, tried to express myself, I am seeking my rights."
Crying	4	26.6	"First I beat him with my words and then I cried."
Trying to calm down	2	13.3	"I acquiesced, I tried to calm down…"

Methods of Coping with Emotional Violence Theme

Eight different categories emerged regarding the theme of women's methods of coping with emotional violence in intimate relationships. These categories are keeping silent, ending the relationship, crying, trying to calm down, self-expression, self-improvement, seeking expert help and seeking social support. Of the participants, 3 of them expressed an opinion on the category of keeping silent, 3 of them on ending the relationship, 3 of them on crying, 2 of them on trying to calm down, 2 of them on self-expression, 2 of them on self-improvement, 1 pf them on seeking expert help, and 1 of them on seeking social support. Sample participant views regarding these categories are shown in Table 5.

Table 5

Categories and Sample Opinions on the Theme of Coping Methods with Emotional Violence

Categories	N	%	Sample Participant Opinions
Keeping silent	3	20	"I kept silent out of fear. I didn't make a sound when he was angry, I tried to talk when he calmed down, but he was always right, he would shout again, he would not apologize."
Ending the relationship	3	20	"I left the house and then got divorced."
Crying	3	20	"I cried from anger, I cried until my anger subsided…"
Trying to calm down	2	13.3	"I suggested to myself that everything would be fine, I tried to calm down"
Self-expression	2	13.3	"I talked about how I felt, I wrote on papers and left them, I expressed my feelings…"
Self-improvement	2	13.3	"I devoted myself to my work and my lessons. Working has been my greatest therapy."
Seeking expert help	1	6.6	"I started getting help from a family counselor…"
Seeking social support	1	6.6	"I shared it with my family and friends, I talked to them, they always supported me, they told me to be patient, everything would be alright one day…"

Theme of Needs to Combat Emotional Violence

There were 6 different categories related to the theme of women's needs to combat emotional violence in intimate relationships. These categories are meeting psychological needs, developing effective communication skills, developing emotion regulation skills, self-confidence, social support, getting expert help and financial power. 5 of the individuals stated that they needed to meet their psychological needs, 4 of them needed developing effective communication skills, 4 of them needed developing emotion regulation skills, 3 of them stated that they need self-confidence, 3 of them needed social support, 2 of them needed getting expert help, and 1 of them felt she needed financial power. Sample participant views regarding these categories are shown in Table 6.

Table 6

Categories and Sample Opinions on the Theme of Needs to Combat Emotional Violence

Categories	N	%	Sample Participant Opinions
Meeting psychological needs	5	33.3	"I need to love and be loved. Because I am an emotional person and I want my emotional void to be filled."
Developing effective communication skills	4	26.6	"Trying to understand the other party, acting by thinking about the reasons, plus and minuses, acting by anticipating what the other person will be angry about, what he will react to, what he will get angry with,..."
Developing emotion regulation skills	4	26.6	"We should not act impulsively and think without action, we should think about the result. Doesn't everything start with the first spark anyway? If we show the compassion we show others to ourselves and our family, if we can make love feel in our most gentle and sweetest way, power of love gains, not the power of violence."
Self-confidence	3	20	"I need self-confidence and standing on my own legs. If I don't allow it, no one can use violence against me. So I have to be strong, have self-confidence and have confidence in myself."
Social support	3	20	"I need family support, I need to talk to someone about the current situation and get better."
Getting expert help	2	13.3	"I need to talk to an expert; no matter what I do I can't find a solution on my own…"
Financial power	1	6.6	"I need to be strengthened in all aspects, both financially and spiritually…"

Discussion and Conclusion

Although individuals meet many psychological needs such as love and belonging in intimate relationships, they can also direct violent actions towards their partners. Many studies show that emotional violence is experienced at a higher level than physical and sexual violence (Doyle, 2020; Dönmez et al., 2012; Merrill et al., 2020; Paiva & Figueiredo, 2004; Thompson et al., 2006). Although some of the violence is perpetrated by women, mostly men resort to violence and violence against women is still among the top problems that cannot be overcome in today's world (Akkaş & Uyanık, 2016; Schwartz, 2005). In order to prevent violence against women in intimate relationships, it is important to reveal women's thoughts about emotional violence and what methods they use to deal with this violence. In this study, women's perceptions of emotional violence in intimate relationships, the causes of emotional violence, the effects of exposure to emotional violence, reactions to emotional violence, ways of coping with emotional violence and the needs to combat emotional violence effectively were examined.

It is seen that the perceptions of being insulted, ignoring, suppression, offending, humiliation and shouting about the categories obtained from women's views on emotional violence overlap with behaviors involving emotional violence in the literature (Doyle 2020; Domenech Del Rio & Sirvent Garcia Del Valle, 2017; Eskici & Saatçioğlu

Tınkır, 2019; Follingstad and Edmundson, 2010; Pérez-Marco et al., 2020; Tenkorang et al., 2017). In a study on experiences of intimate partner violence, women reported that they were exposed to humiliation, humiliation, restriction of communication with family and friends, threats of physical harm, being banned from leaving the house, or being locked up in the house (Doyle, 2020). Regarding the emotional violence experienced in intimate relationships; behaviors such as sadistic behaviors, threats with the aim of intimidation, isolation, humiliation, verbal abuse, monitoring, and controlling personal decisions are expressed (Follingstad & Edmundson, 2010). In addition to these, behaviors such as insulting, belittling, deliberately intimidating, threatening to hurt someone they care about (Domenech Del Rio & Sirvent Garcia Del Valle, 2017), controlling, defaming, deprivation, intimidation, indifference, and guilt (Montminy, 2005) are also expressed in the scope of emotional violence. Research findings indicate that the women's perceptions of emotional violence are compatible with the literature.

When the literature is examined, it is seen that there are studies (Eskici & Saatçioğlu Tınkır, 2019; Gilbar et al., 2020; Jezl et al., 1996; Khosravi et al., 2011; Lohman et al., 2013; Molina, 2020; Semahegn & Mengistie, 2015) supporting the categories (feelings of inadequacy, desire to dominate, inability to communicate properly, anger control problems, history of domestic violence, physical health problems and socio-cultural differences) obtained from the answers given by women regarding the reasons for emotional violence by their partners in intimate relationships. In a study on early maladaptive schemas and intimate partner violence with women, it was revealed that verbal and psychological abuse in married life was associated with schema domains of guilt and shame, emotional deprivation and insecurity (Khosravi et al., 2011). In a study on intimate partner violence, it was revealed that the risk of perpetrating psychological violence increases as the dominance feature and exposure to violence in childhood increase (Gilbar et al., 2020). In another study, it was observed that as self-esteem decreases, psychological violence perpetrated in a dating relationship increases (Jezl et al., 1996). A different study stated that being exposed to psychological violence from parent to child during adolescence is an important predictor of intimate partner violence in adulthood (Lohman et al., 2013). Molina (2020) stated that the psychological violence experienced in the family origin in childhood affects the victimization of partner psychological violence. In addition, it was reported that inadequacy in interpersonal problem-solving skills, inability to empathize, and inadequacies in communication skills (Eskici & Saatçioğlu Tınkır, 2019) and variables such as history of domestic violence, place of residence, and educational status (Semahegn & Mengistie, 2015) are related to emotional violence. Based on this information, it is understood that the categories created regarding the reasons for the emotional violence between the partners are supported.

According to the research findings, the categories obtained from the opinions of women on the effects of exposure to emotional violence in intimate relationships are depressive symptoms, feelings of inadequacy, difficulty in emotion regulation, social isolation and physical health problems. These categories are consistent with the findings in the literature (Cankardaş Nalbantçılar, 2018; Coker et al., 2000; Domenech Del Rio and Sirvent Garcia Del Valle, 2017; Kurtulmuş, 2018; Matheson et al., 2015). Coker et al. (2000) noted that women who experienced emotional violence were significantly more likely to report poor physical and mental health condition. In a study conducted with women who were exposed to intimate partner violence, it was revealed that psychological harassment, intimidation and verbal abuse leads to deterioration in self-esteem, self-efficacy and general mental well-being

(Matheson et al., 2015). In a study on psychological violence between spouses, women stated that they experienced emotions such as sadness, inadequacy and anger and could not stay calm (Kurtulmuş, 2018). In another study, it was revealed that as the experience of psychological violence in intimate relationships increased, depression, post-traumatic stress disorder and loss of general control increased (Cankardaş Nalbantçılar, 2018). In addition to this information a study, (Domenech Del Rio & Sirvent Garcia Del Valle, 2017) revealing that women exposed to controlling behaviors were significantly more likely to report sadness, crying for no reason, mood swings, irritability, and persistent fatigue, supports the findings of this research.

It is seen that the reactions of the women participating in the research towards their partners who perpetrate emotional violence in intimate relationships are in the form of shouting, submission, sulking, seeking justice, crying, and trying to calm down. Looking at the literature, there are studies supporting these findings (Özer, 2019; Semahegn & Mengistie, 2015; Waldrop & Resick, 2004; Watson et al., 2001). Semahegn and Mengistie (2015) stated that the majority of women remained silent in the face of emotional violence. In a study conducted with women who were victims of violence in Antalya, it was determined that the participants behaved towards accepting violence, responding to violence and sharing violence. It was revealed that they engage in behaviors such as being patient and silent, not reacting, and crying in relation to accepting violence; shouting and leaving home in relation to responding to violence; and sharing with their parents, relatives and mental health specialists in relation to sharing the violence they have experienced (Özer, 2019). In another study on the responses to violence in dating relationships, it was reported that individuals reacted by responding, taking offensive actions, seeking informal help, threatening to leave, and crying (Watson et al., 2001). It is seen that this information is in parallel with the categories obtained from the opinions of women regarding their reactions to their partners. When we look at the findings obtained from the research, the reactions of women towards their partners who perpetrate emotional violence are mostly in the direction of accepting violence.

According to the data obtained from the study, it is understood that women resort to ways such as keeping silent, ending the relationship, crying, trying to calm down, self-expression, self-improvement, seeking expert help and seeking social support in coping with emotional violence in intimate relationships. When the literature is examined, it is seen that there are similar findings (Goodman et al., 2003; Kurtulmuş, 2018; Sayem et al., 2015; Zink et al., 2006). It was revealed that women seek help from their parents, siblings, and their partners' parents, get help from social services at the point of self-development, and resort to coping methods such as applying to the court to file a divorce case by getting legal support. (Sayem et al., 2015). In a study that also included women who experienced psychological violence at a rate of 98.5% in intimate relationships, it was reported that women use strategies such as ending the relationship, refusing to do what the partner said and resisting, leaving the house, trying to be quiet, trying not to cry, talking to family members, preparing an escape plan, seeing a mental health professional-nurse or doctor, and seeking legal help (Goodman et al., 2003). In a study on coping with violence in intimate relationships with women aged 55 and over, women stated that while they struggle with violence, they reevaluate themselves, their spouses and their relationships, refocus their energies on certain roles, set limits for their spouses, and reach out to friends, family and community organizations for help (Zink et al., 2006). In another study, it was stated that the individual who was subjected to psychological violence accepted this situation after a while, felt more helpless after

accepting it, couples became intolerant towards each other as time progressed, and women generally started to seek professional help (Kurtulmuş, 2018). Considering the information obtained from the research findings, it is understood that women resort to both emotion-focused and problem-focused ways of coping with emotional violence in intimate relationships.

According to the research findings, the needs of women to effectively combat emotional violence in intimate relationships emerged as meeting psychological needs, developing effective communication skills, developing emotion regulation skills, self-confidence, social support, getting expert help and financial power. Looking at the literature, it is seen that there are findings parallel to the research findings (Beşpınar et al., 2020; Horn et al., 2016; Kurtulmuş 2018; Rothman et al., 2007; Waldrop & Resick, 2004). In their study, Horn et al. (2016) stated that although it is difficult to understand, a woman can still love her partner, value her relationships, despite being subjected to violence, that most of the women exposed to violence desire to live in peace with their husbands, and therefore, it is necessary to take into account the strength of women's feelings towards men when dealing with intimate partner violence. In another study, it was pointed out that some factors are restrictive in women's efforts to actively cope with violence, and these factors are related to the determination to protect the relationship and the responsiveness of potential sources of help such as family, friends, police and courts. It was stated that women who receive more positive responses from these sources have more confidence in their power to change their situation of combating violence (Waldrop & Resick, 2004). In a different study, as a result of the interviews conducted with 21 women employed in a health institution, among the victims of intimate partner violence, it was revealed that women's employment plays a positive role in combating violence, such as improving women's financial situation, increasing self-esteem, developing social commitment, and providing motivation (Rothman et al., 2007). In a study investigating the reactions of women to violence with the resources they have, it was stated that providing women with resources such as education and a job where they can earn regular income enables them to turn towards to reactions that foster their social and mental well-being in the face of violence (Beşpınar et al., 2020). In a study conducted with adults, the finding that a healthy relationship education program consisting of relationship experience, relationship quality, communication/conflict resolution skills training reduces physical and emotional abuse in intimate relationships supports the findings of this research (Antle et al., 2011). Considering the research findings, it is striking that women need support in terms of psychological, social, financial and professional help in order to effectively combat emotional violence.

In the light of the findings revealed in the study, some suggestions can be presented. In this study, women's views on emotional violence in intimate relationships and their methods of coping with emotional violence are included. In new studies, male individuals' views on emotional violence and methods of coping with emotional violence can be studied. Informative seminars can be given by field experts in order to increase awareness of emotional violence in intimate relationships and to activate social sensitivity. Informative studies can be carried out by preparing psycho-education programs on effective methods of coping with emotional violence in intimate relationships by field experts. Individuals who are exposed to emotional violence in intimate relationships can be offered psychological support through individual or group therapy. Women who are exposed to emotional violence in intimate

relationships can be supported by public institutions and non-governmental organizations for their social and financial support needs.

Ethic

The authors presented their research results honestly and without fabrication, falsification, or inappropriate data manipulation. The research is original and has not been plagiarized and has not been published in any other journal. The method regarding the research findings is explained clearly and precisely. Both authors who conducted the research took collective responsibility for the study. Authorship of research publications and contributions of individuals to study and reporting are accurately reflected. There are no sources of financing and no related conflicts of interest.

Author Contributions

This article was written with the joint contributions of two authors.

Conflict of Interest

The authors declare that have no conflict of interest.

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Relationship between Spirituality and Social Media Addiction among Adults

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Abstract

In recent years, with the rapidly developing and changing technology, it is seen that many users of all ages have entered into new searches and spent a long time of their lives in social media areas, and these applications have a great impact on people. Based on this idea, no study on adult spirituality and social media addiction was found in the literature review, and it was studied with the thought that this study would be beneficial in the literature.

In this study, it was aimed to examine the relationship between adults' spirituality and social media addiction levels. Correlation method, one of the Quantitative Research models, was used in the study. The study group of the research consists of 724 adult individuals living in the metropolis located in the west of Turkey.. "Spirituality Scale", "Social Media Addiction Scale - Adult Form" and "Personal Information Form" were used to collect data. As a result of the research, a statistically significant relationship was found between the scores of the spirituality scale and the scores of the social media addiction scale. It was observed that as the spirituality scale score increased, the social media addiction scale score decreased.

Key Words
Spirituality • Social media • Addiction • Social media addiction

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Men have been in search of the meaning of life from the moment they began to know their existence (Akman, 2020; Apak, 2018; Dursun, 2019; Kasapoğlu, 2015). A person trying to add certain meanings to his/her life can set several goals and try to shape his/her life within the framework of such meanings and purposes (Boztilki & Ardıç, 2017; Yılmaz & Okyay, 2009). Only after making sense of his/her own existence and environment can a person lead and direct his/her life to existential well-being (Gürsu & Ay, 2018). The ability to organize one's life in line with the meaning and purpose gained throughout the life can make a person feel peaceful and happy. (Aydın, 2019; Çağlar, 2019; Dursun, 2019; Gürsu & Ay, 2018). Spirituality is an important concept that exists and will continue to do so in every moment of life as an integral part of human nature (Apak, 2018; Kasapoğlu, 2017).

Spirituality, beyond the material aspects of life, is a different dimension of human existence that gives the strength and energy that allow people to have the value and belief systems that influence their life or the consciousness of existence in their lives, and that makes people feel a sense of integrity and deep commitment to the universe (Miller and Kelley, 2013; Myers et al., 2000; Peterson & Seligman, 2004; Webb et al., 2013; Zinnbauer & Pargament, 2005; Zinnbauer et al., 1999).

Joseph et al. (2017) defined spirituality as "a more general, unstructured, personalized and naturally occurring phenomenon in which a person seeks closeness and/or connection between himself and a higher power or purpose". If the concept of spirituality, which constitutes a versatile theoretical structure, is ignored, it is possible for people to experience meaninglessness, limitlessness, self-seeking and many other mental problems in life.

It is inevitable for every person to make sense of his/her life with spirituality, to provide spiritual satisfaction, to search for his originality, values, beliefs, awareness, goals (Apak, 2018). Spiritual needs are as important as the organs that make up the individual's body. A person's health depends on his well-being in all aspects including spirituality, biological, social and spiritual aspects. For this reason, meeting spiritual needs ensures that the individual reaches satisfaction and is protected from mental depressions (Hodges, 2002; Kasapoğlu, 2020; Stamino et al., 2012; Vitorino et al., 2018). Considering the effects of spirituality on human health, it is seen that it has many positive functions (Ağırbaş, 2017; Akman, 2020; Altuntaş et al., 2019; Apak, 2018; Ayten, 2014; Boztilki & Ardıç,2017; Gürsu and Ay, 2018; Hill et al., 2000; Hill & Pargament, 2003; Horozcu, 2010; İmamoğlu, 2017; Karataş, 2011; Kavas & Kavas, 2014; Tanhan, 2020; Yılmaz & Okyay, 2009).

Studies have revealed that spirituality has a positive effect on physical and mental health, as well as on subjective well-being, health-related quality of life, coping skills, recovery from psychological diseases, decrease in addiction, and suicidal behaviors (Bożek et al., 2020; Kharitonov, 2012; Miller & Thoresen, 2003; Mueller et al., 2001; Unterrainer et al., 2014). It has been determined that those who describe themselves as highly spiritual and participate in spiritual activities are positively affected in psychological aspects such as self-confidence-self-esteem-self-control, love, compassion, compassion, coping and hopelessness (Ağırbaş, 2017; Altuntaş et al., 2019; Bekelman et al., 2010; Hodges, 2002; Kasapoğlu, 2017, 2020; Tanhan & Strack, 2020). However, when the individual trying to be satisfied with his life with material concepts cannot achieve full satisfaction. That's why he /she may go into new searches (Acar, 2014; Tanhan, 2020). This situation will continue in the form of a vicious circle in human life. The individual who cannot reach satisfaction enters into possible mental depressions and this

situation causes him/her to be thrown in different directions in search. Therefore, the importance of spirituality in human life is very great.

The collapse of moral values has occurred as a result of new developments, population growth, urbanization, differentiation, globalization phenomenon and social and technological changes that have emerged all over the world (Peseschkian, 1999: 27). The collapse of spiritual values can cause the individual and society to experience spiritual crises. In this case, moving away from spiritual values has triggered situations such as detachment from roots, alienation, meaninglessness, spiritual depressions, aimlessness, consuming more than necessary, which occur in society in general and in people in particular.

Today, providing our needs in the context of all kinds of consumption habits that we are socially conditioned through various methods has become our biggest goal and also our problem. In order to meet these needs, serious demands have emerged on social media channels. With the changing world structure, the increase in technological developments and the increase in the frequency of internet use, the rate of use of social media has also increased. This situation increases the importance of the power of social media. However, it is seen that traditional mainstream psychology is insufficient to cope with these problems (Akot, 2013; Çavdarlı, 2002; Öztürk & Seyhan, 2016; Tarhan, 2016; Uysal, 2008).

Social media is the general name of social networking sites that allow individuals to communicate with each other in an online environment where they want to share their instant feelings, thoughts, observations, feelings, experiences or share any detail of their lives with others, express their opinions and allows individuals to comment on each other's shares. (Çakır et al., 2013; Paul & Dredze, 2011; Solmaz & Görkemli, 2012). Nevertheless, in the changing world structure, they are interaction platforms that many users of all ages use for different purposes such as expanding their social circle, communicating, gaining knowledge by socializing, sharing their knowledge and experience, having fun and evaluating their spare time (Barutçu & Tomaş, 2013; Hazar, 2011). According to We Are Social Digital's 2021 report, annual growth rates in internet, social media and mobile user statistics; The number of internet users increased by 7.3% (317 million), the number of social media users increased by 13.2% (490 million), and the number of mobile users increased by 1.8% (93 million). Compared to last year, the highest increase was in the number of social media users. In addition, when we look at the World Internet usage statistics, the general number of users is 4.66 billion people (59.5% of the world's population). Internet users use the Internet for an average of 7 hours a day. According to We Are Social Digital's 2021 report, the number of social media users has reached 4.20 billion. More than half of the world's population is a social media user. Almost all of the social media users log into their social media accounts via mobile devices (Bayrak, 2021).

In recent years, with the rapidly developing and changing technology, it is seen that people are in new searches and spend a long time in these areas, and social media applications have a great impact on people. Social media comes up with different names every day, from compulsory communication to entertainment, from commercial propaganda to politics, from brand promotion and orientation, from journalism to professional communication, there are many social media applications that serve for many purposes that we do not think of, and they are presented to people's attention. While individuals try to be satisfied by meeting some of their needs through social media, on the

other hand, they are in a very dangerous position (Taş & İme, 2019; Yüksel, 2019; Konuk, 2019). Especially today, as a result of the uncontrolled use of social media applications, with the violence culture coming to the fore, social media has become a big problem in the context of uncontrollable habits along with problems such as consumption more than necessary, depression, sexuality, divorce, terrorism, war, addiction (Horozcu, 2010; Hökelikli, 2016; Karataş, 2011; Mirza, 2014; Özel & Mumyakmaz, 2018; Paloutzian & Park, 2013; Tanhan, 2019; Taş & Ateş, 2020). People living in different parts of the world are directed to internal rebellions and wars through social media (Karadayı, 2019). Just as meeting the social needs of individuals in their lives is accepted as a natural situation, it may seem inevitable that friendships, relationships and commitments that start or progress thanks to social media tools replace face-to-face communication over time, in other words, people become dependent on social media tools (Akbulut, 2018; Atalar, 2019; Beşik, 2019; Beyler, 2019; Çakır, 2018; Delibaş, 2019; Kuşay, 2013; Tanhan et al., 2020; Taş, 2017; Taş & Ateş, 2020; Terzi, 2019). Nevertheless, "social media curiosity", which seems very natural at the beginning, manifests itself in a very different way with the negative consequences it brings in the future, causing harm and addiction as if it benefits people (Boyd, 2009; Christakis & Fowler, 2012; Kuss & Griffiths, 2011; Tanhan, 2020; Tanhan et al., 2020). In line with the explanations above, the relationship between adults' spirituality and social media addiction levels aroused curiosity. In this context, the aim of the research is to examine the relationship between adults' spirituality and social media addiction levels. In line with this review, sub-objectives were determined as the sub-objectives to seek answers to the questions of whether there is a significant relationship between the variables of adult spirituality and gender, marital status, duration of social media use, and variables of social media addiction and gender, marital status, duration of social media use.

Method

Study Group

The study group of the research consists of 780 volunteer adult individuals living in the metropolis located in the west of Turkey. The questionnaire of 56 people who made incomplete and incorrect markings in the questionnaire formed from the scales was cancelled. A total of 724 people, 399 women and 325 men, constitute the study group of the research. Individuals included in the study were selected on a voluntary basis.

Data Collection Tools

The data of the study were collected using the personal information form, the "Spirituality Scale" form developed by Şirin (2018), and the "Social Media Addiction Scale-Adult Form" whose validity and reliability studies were conducted. Conducted by Şahin and Yağcı (2017) and used with their permission.

Personal Information Form: In the personal information form prepared by the researcher, there are questions about gender, marital status, age, education status, income status, occupation, monthly income, does he use social media, and how many years social media has been used.

Spirituality Scale: The "Spirituality Scale" was developed by Şirin (2018). Content validity rates of the scale were determined by taking the opinions of 11 experts using the Lawshe technique. As a result of the analysis, the KVR value was determined as 0.69 and the CGI as 0.77. The Cronbach Alpha coefficient was examined for internal

consistency reliability. The Cronbach Alpha reliability coefficient of the scale was found to be α=.90. The Spirituality Scale is a 5-point Likert-type scale and consists of 3 negative 24 positive total 27 items. 24 of the scale items are positive (items 1- 2- 3- 4- 5- 6- 7- 9- 10- 11- 12- 14- 15- 16- 17- 18- 19- 20- 21- 22- 23-24 -25-27), 3 of which are negative items (items 8-13-26). The scale consists of 7 sub-dimensions.These are: spiritual coping, transcendence, spiritual experience, search for meaning, spiritual contentment, connection, harmony with nature. The 9th, 12th, 20th, 21st, and 23rd questions form the spiritual coping sub-dimension, the 19th and 22nd questions form the transcendence sub-dimension, the 3rd, 11th, 24th, 25th, 27th questions form the spiritual experience sub-dimension, the 7th, 14th, 15th, 17th questions form sub-dimension of the search for meaning, questions 6, 8, 13, 26 form the sub-dimension of spiritual satisfaction, questions 1,2, 4, 18 form the sub-dimension of connection, questions 5, 10, 16 form the sub-dimension of harmony with nature. The scale items are a five-point Likert-style scale as "(1) Not Suitable for me at All, (2) Not Suitable for Me, (3) Somewhat Appropriate for Me, (4) Fairly Suitable for Me, (5) Totally Appropriate for Me". When the scale is evaluated in terms of total score, the highest score to be obtained from the scale is 135 and the lowest score is 27. A high score from the scale indicates that the person has a high level of spirituality (Şirin, 2018: 1304).

On the Spirituality Scale; The items in the first factor named as the "Spiritual Coping" sub-dimension since the items include the statements about coping with spirituality. The second factor named as "Transcendence" since the items include items related to belief in transcendent existence. The third factor named as "Spiritual Experience" since the items include experiences and behaviors such as participating in religious and spiritual activities, living life according to spiritual acceptance, and doing spiritual exercises. The fourth factor named as "Search for Meaning" since it includes items about the search for meaning. The fifth factor named as "Spiritual Contentment" since the expressions have items such as the feeling of contentment and happiness about life. The sixth factor named as "Connection" since all the expressions gathered include the expressions of relationship with God and connection with the transcendent being. The items in the seventh factor were named "Harmony with Nature" since they mostly included expressions related to nature (Şirin, 2018: 1298).

Social Media Addiction Scale-Adult Form (SMBÖ-YF): "Social Media Addiction Scale-Adult Form" was developed by Şahin and Yağcı (2017). The scale created for adults consists of 20 items. As a result of the validity and reliability study, it was determined that it is a 5-point Likert-type scale and has 2 sub-dimensions (virtual tolerance and virtual communication). Virtual tolerance sub-dimension is associated with items 1-11, and virtual communication sub-dimension is associated with items 12-20. Items 5 and 11 are reverse scored. The scale form consists of 41 positive and 5 negative items, "(1) Not suitable for me at all", "(2) Not suitable for me", "(3) Undecided", "(4) Suitable for me", "(5) A five-point rating was used as "Very suitable for me". The highest score that can be obtained from the scale is 100 and the lowest score is 20. A high score is considered to mean that the individual perceives himself as a "social media addict". The fit index values of the scale were χ2/sd=3.05, RMSA=0.059, SRMR=0.060, NFI=0.59, CFI=0.96, GFI=0.90; AGFI=0.88). The factor loadings of the scale were found to be between 0.61 and 0.87. The Cronbach Alpha internal consistency coefficient was 0.94 for the overall scale, 0.92 for virtual tolerance, and 0.91 for virtual communication, which is one of the sub-dimensions. The test-

retest reliability coefficients of the scale were 0.93 for the overall scale; virtual tolerance from sub-dimensions; 0.91 and virtual communication; It is set as 0.90.

Data Analysis

In order to determine whether there is a significant relationship between the spirituality and social media addiction levels of adults, the frequency and percentage distributions of the demographic characteristics of the 724 people in the sample were extracted, then the minimum and maximum scores of the Spirituality Scale and Social Media Addiction Scale scores, $\bar{X}$, ss, Shx, reliability coefficient. , skewness and kurtosis values were calculated. When the normal distribution assumption was met in the comparison of the means between groups, Independent Groups t-Test, One-Way Analysis of Variance (ANOVA) and one-way MANOVA were used. In cases where variance-covariance equality is not provided in the MANOVA test, the MANOVA-Pillai's Trace Test; Wilks Lambda test was performed when provided. When a significant difference was found between groups after one-way analysis of variance (ANOVA), post-hoc complementary analysis techniques (Scheffe) were used to determine between which groups the differences occurred. In cases where the normality assumption was not met, Mann White U and Kruskal Wallis tests, which are non-parametric difference tests, were applied.

Pearson Product-Moment Correlation Coefficient analysis was used to examine whether there was a statistically significant relationship between the variables, and multiple regression analysis was used to determine the predictive level of Spirituality Scale scores on Social Media Addiction Scale scores.

Statistical analyzes of the data were made in the SPSS 21.0 program, significance was tested at a minimum $p<.05$ level, and the findings were presented in tables for the purposes of the research.

Results

The Pearson Product Moments Correlation coefficient was calculated in order to determine whether there is a significant relationship between the spirituality and social media addiction levels of the adults who make up the study group of the research. Accordingly, the results of Pearson Product Moment Correlation analysis performed to determine the relationship between Spirituality Scale scores and Social Media Addiction Scale scores are given in Table 1.

Table 1

Results of Pearson Product Moment Correlation Analysis performed to determine the relationship between Spirituality Scale scores and Social Media Addiction Scale scores

Variables (n=724)	Coping	Transcendence	Spiritual life	Search for meaning	Spiritual pleasure	Connection	Harmony with Nature	Spiritual Total
Virtual tolerance	-.138**	-.134**	-0.05	-0.029	-.249**	-.086*	.078*	-.134**
Virtual communication	-.111**	-.101**	-0.018	-0.009	-.102**	-0.047	.085*	-0.061
Total score	-.152**	-.151**	-0.046	-0.034	-.236**	-.090*	.104**	-.130**

*p<.05; **p<.01

As can be seen in the table, according to the results of Pearson Product Moment Correlation Analysis performed to determine the relationship between the variables, only the scores of the virtual tolerance sub-dimension from the Social Media Addiction Scale and the spiritual coping sub-dimension scores (r=-0.14) from the Spirituality Scale were found to be negative; moral satisfaction sub-dimension scores (r=-0.25) were in the negative direction; connection sub-dimension scores (r=-0.09) were in the negative direction; A statistically significant correlation was found between the scores of the harmony with nature sub-dimension (r=0.08) in the positive direction and finally between the Spirituality Scale total scores (r=-0.13) in the negative direction (p<.05).

There was a negative correlation between the scores of the virtual communication sub-dimension and the spiritual coping sub-dimension scores of the Spirituality Scale (r=-0.11); transcendence sub-dimension scores (r=-0.15) were in the negative direction; A statistically significant correlation was found between the scores of the spiritual contentment sub-dimension (r=-0.10) in the negative direction and finally between the harmony with nature sub-dimension scores (r=0.09) in the positive direction (p<.05).

Social Media Addiction Scale total scores were negatively correlated with the spiritual coping sub-dimension scores (r=-0.15) of the Spirituality Scale; transcendence sub-dimension scores (r=-0.13) were in the negative direction; moral satisfaction sub-dimension scores (r=-0.24) were in the negative direction; connection sub-dimension scores (r=-0.09) were in the negative direction; A statistically significant correlation was found between the scores of the harmony with nature sub-dimension (r=0.10) in the positive direction and finally between the total scores of the Spirituality Scale (r=-0.13) in the negative direction (p<.05). No statistically significant relationship was found between other variables (p>0.05).

Table 2

The results of the independent groups t-test conducted to determine whether the scores of the Spirituality Scale differ according to the gender variable

Spirituality	Genus	n	$\bar{x}$	ss	Sh_x	T Test		
						t	sd	p
Coping	Woman	399	4.52	0.54	0.03	3.74	722	**0.000**
	Man	325	4.36	0.61	0.03			
Transcendence	Woman	399	4.77	0.41	0.02	4.25	722	**0.000**
	Man	325	4.62	0.56	0.03			
Spiritual life	Woman	399	3.96	0.76	0.04	3.26	722	**0.001**
	Man	325	3.76	0.86	0.05			
Search for meaning	Woman	399	4.47	0.49	0.02	0.34	722	0.736
	Man	325	4.45	0.55	0.03			
Spiritual pleasure	Woman	399	3.84	0.77	0.04	0.83	722	0.405
	Man	325	3.79	0.83	0.05			
Connection	Woman	399	4.70	0.41	0.02	3.69	722	**0.000**
	Man	325	4.58	0.49	0.03			
Harmony with nature	Woman	399	3.26	0.79	0.04	-0.72	722	0.474
	Man	325	3.30	0.83	0.05			
Total Score	Woman	399	4.21	0.40	0.02	3.14	722	**0.002**
	Man	325	4.11	0.46	0.03			

As can be seen in the table, according to the results of the independent groups t test conducted to determine whether the Spirituality Scale scores differ significantly according to the gender variable, the spiritual coping sub-dimension, transcendence sub-dimension, spiritual experience sub-dimension, connection sub-dimension the total scores obtained from the scale were determined there is a statistically significant difference in favor of female participants. It (p<.05).

As can be seen in the table 3, independent groups t-test was conducted to determine whether the Spirituality Scale scores differed significantly according to the marital status variable. According to the results, it is seen that the spiritual coping sub-dimension, the spiritual experience sub-dimension, the search for meaning sub-dimension, the spiritual satisfaction sub-dimension, the connection sub-dimension and the total scores obtained from the scale differ statistically in favor of the married participants (p<.05).

It was determined that the sub-dimension scores of transcendence and harmony with nature did not differ significantly according to the marital status variable (p>.05).

Table 3

The results of the independent groups t-test conducted to determine whether the scores of the Spirituality Scale differ according to the marital status variable

Spirituality	marital status	n	x̄	ss	Sh_x	t test		
						t	sd	p
Coping	Single	220	4.36	0.60	0.04	-2.66	722	**0.008**
	Married	504	4.48	0.56	0.03			
Transcendence	Single	220	4.69	0.47	0.03	-0.26	722	0.797
	Married	504	4.70	0.50	0.02			
Spiritual life	Single	220	3.69	0.85	0.06	-3.94	722	**0.000**
	Married	504	3.95	0.78	0.03			
Search for meaning	Single	220	4.40	0.53	0.04	-2.11	722	**0.035**
	Married	504	4.49	0.51	0.02			
Spiritual pleasure	Single	220	3.68	0.82	0.06	-3.03	722	**0.003**
	Married	504	3.87	0.78	0.03			
Connection	Single	220	4.58	0.49	0.03	-2.75	722	**0.006**
	Married	504	4.68	0.44	0.02			
Harmony with Nature	Single	220	3.33	0,84	0.06	1.09	722	0.275
	Married	504	3.26	0.79	0.04			
Total Score	Single	220	4.08	0.44	0.03			
	Married	504	4.20	0.42	0.02	-3.46	722	**0.001**

Table 4

The results of the Kruskal Wallis-H Test, which was conducted to determine whether the scores of the Spirituality Scale differ according to the variable of duration of social media use

Group	Variables	N	x^2	sd	p
Social media usage time	Coping	724	12.45	5	0.029
	Transcendence	724	7.59	5	0.181
	Spiritual life	724	7.24	5	0.203
	Search for meaning	724	3.55	5	0.616
	Spiritual pleasure	724	1.68	5	0.891
	Connection	724	9.65	5	0.086
	Harmony with nature	724	4.88	5	0.430
	Total Point	724	7.45	5	0.189

As can be seen in the table 4, according to the results of the Kruskal Wallis-H test performed to determine whether the Spirituality Scale scores differ significantly according to the variable of duration of social media use, it is seen that only the scores of the spiritual coping sub-dimension differ significantly according to the duration of use variable (= 12,45;p<. 05). According to the results of the Mann Whitney –U test, which was performed to determine between which groups this significant difference occurred, the group with only 1-6 months of use and the group with 8-10 years in favor of the group that used less (U= 418.5; z=- 2.40; p<.05)) were found to differ statistically significantly (p<.01).

Table 5

The results of the independent groups t test conducted to determine whether the Social Media Addiction Scale scores differ according to the gender variable

Social Media Addiction	Genus	n	$\bar{x}$	ss	Sh_x	t test		
						t	sd	p
Virtual tolerance	Woman	399	2.47	0.74	0.04	1.866	722	0.062
	Man	325	2.37	0.74	0.04			
Virtual communication	Woman	399	0.61	0.21	0.01	-0.521	722	0.602
	Man	325	0.62	0.23	0.01			
Total score	Woman	399	2.35	0.65	0.03			
	Man	325	2.31	0.71	0.04	0.719	722	0.473

As can be seen in the table 5, it was determined that the scores obtained from the scale did not differ significantly according to the gender variable, according to the results of the independent groups t-test performed to determine whether the Social Media Addiction Scale scores differed significantly according to the gender variable (p>.05).

Table 6

Independent groups t-test results, which were conducted to determine whether the Social Media Addiction Scale scores differ according to the marital status variable

Social Media Addiction	marital status	n	$\bar{x}$	ss	Sh_x	t test		
						t	sd	p
Virtual tolerance	Single	220	2.57	0.74	0.05	3.46	722	0.001
	Married	504	2.36	0.73	0.03			
Virtual communication	Single	220	0.67	0.21	0.01	5.10	722	0.000
	Married	504	0.58	0.22	0.01			
Total score	Single	220	2.48	0.69	0.05			
	Married	504	2.27	0.67	0.03	3.86	722	0.000

As can be seen in the table 6, it was determined that the scores obtained from the scale differed significantly in favor of single participants, according to the results of the independent groups t-test performed to determine whether the Social Media Addiction Scale scores differed significantly according to the marital status variable (p<.05).

Table 7

The results of the Kruskal Wallis-H Test, which was conducted to determine whether the Social Media Addiction Scale Scores differ according to the variable of duration of social media use

Group	Variables	N	x^2	sd	p
	Virtual tolerance	724	15.92	5	0.007
Social media usage time	Virtual communication	724	22.33	5	0.000
	Total score	724	22.70	5	0.000

As can be seen in the table, according to the results of the Kruskal Wallis-H test performed to determine whether the Social Media Addiction Scale scores differ significantly according to the variable of duration of use of social media, it is seen that the scores obtained from the scale differ significantly according to the variable of duration of use (p<.05). According to the results of the Mann Whitney-U test, which was conducted to determine between which groups this significant difference occurred, the virtual tolerance sub-dimension scores were in favor of the group who did not use social media and those who used it for 8-10 years (z=3.38; p<.05). There is a significant difference between the group that does not use social media and those who use it for 15 years or more, in favor of the group that uses it (z=2.97; p<.05).

The virtual communication sub-dimension scores were in favor of the group that did not use social media and the group that used it for 4-7 years (z=3.14; p<.05), in favor of the group that used social media for 8-10 years (z=3,14; p<.05). 3.85; p<.05) and again, there is a significant difference between the group that does not use social media and those who use it for 15 years or more, in favor of the group that uses it (z=3.68; p<.05).

Discussion and Conclusion

Spirituality is a very important concept that exists and will continue to exist at every moment of life as an integral part of human nature (Apak, 2018; Kasapoğlu, 2017). In a life where spirituality is lacking, it causes gaps in one's life. This situation can push people to different ways for adding new meanings to their lives and to be satisfied. One of these ways is social media. It is seen that adult individuals use social media uncontrollably in order to make sense of life and gain goals, to fill the gaps in their lives or for many different reasons, and this situation turns into social media addiction. Therefore, we can say that spirituality and social media addiction are related to each other. No study has been found in the literature on adults' spirituality and social media addiction, and this study has been studied with the thought that it will be beneficial in the literature.

As a result of the findings obtained in the research; According to the results of the multiple regression analysis conducted to determine the predictive level of the Spirituality Scale scores on the Social Media Addiction Scale total scores, the Spirituality Scale sub-dimensions together show a low level and significant relationship with the social media addiction total scores. It is seen that the Spirituality Scale sub-dimension scores explain 9% of the total variance in social media addiction scores.

According to the results of the Pearson product moment correlation analysis conducted to determine the relationship between Spirituality Scale Scores and Social Media Addiction Scale scores in line with the findings obtained regarding the main question of the purpose of the research, "Is there a significant relationship between adults' spirituality and social media addiction levels?" A negative relationship was found between the spirituality and social media addiction levels of the adults participating in the study, and it was observed that while one increased, the other decreased. When the literature related to the study is searched, there are results that support our study findings. Baydarman (2019) concluded in his study that the social media addiction levels of theology faculty students are low.

Considering the study conducted by Karslı (2019), when the inner religious awareness, religious value, religious motivation and religious consciousness of young adults aged 18-37 increase, internet addiction decreases and spirituality/religion, which is of vital importance in addiction treatments, provides meaning, commitment, hope, happiness and awareness. It has been concluded that it contributes positively to addiction treatment by improving other positive emotions and reducing negative emotions. In this context, it was concluded that adults with high levels of spirituality have low levels of social media addiction. Şentürk (2017), in his study, found that as social media addiction increases in individuals with social media addiction, passive-aggressive, addicted, shy, antisocial, obsessive-compulsive, narcissistic, paranoid, histrionic, borderline personality traits increase. Dursun (2019) examined the relationship between the spirituality scale and the meaning of life scale of married and single participants and it was determined that there was a positive significant relationship between them. In other words, as a result of these studies, it was determined that the quality of life, optimism, meaning in life, quality of life and many other positive emotions increased with the increase in spirituality.

In this section, the findings related to the sub-objectives of the research are discussed in order.

In line with the findings of the research regarding the question **"Is there a significant relationship between the spirituality levels of adults and the gender variable?"**, it was determined that the spiritual coping sub-dimension, transcendence sub-dimension, spiritual experience sub-dimension, connection sub-dimension and the total scores obtained from the scale differed significantly in favor of female participants. It was determined that the sub-dimension scores of seeking meaning, spiritual satisfaction and harmony with nature did not differ significantly according to the gender variable. Similar to the research findings, as a result of the study conducted by Dursun (2019) between married and single participants, it was determined that female participants had higher values than men in the sub-dimensions of spiritual coping, transcendence, spiritual life and connection, which are sub-dimensions of the spirituality scale according to the gender variable. The reason for this difference is thought to be due to the different personality traits of men and women.

In another study, Yalçın (2015) found that female participants had higher depression values than males. In terms of personality traits, women are more emotional, anxious, more dependent and more anxious than men. It is thought that they are more easily and more affected by the problems and troubles they encounter. Religious and spiritual rituals (praying, worshiping, meditation, etc.) provide relief from anxiety and anxiety in individuals. This causes women to attach to religion or spiritual values more easily and at a higher rate. When some studies on religious and

spiritual life in the literature are examined, the data obtained show differences. Some of these are: Ayten et al. (2012), Baynal (2015) and Şeftalici (2017), while achieving results in favor of women; Toprak (2018), Uysal (1995, 2006), Yıldız (2006) achieved results in favor of men. In some researches; Arvas (2018), Aydın (2019), Kılıç (2019), Turkish (2021) did not find a significant difference in terms of gender.

In line with the findings of the research regarding the question **"Is there a significant relationship between adults' spirituality levels and marital status variable?** when the Spirituality Scale scores of the people participating in the study differed significantly according to the marital status variable; It was determined that the spiritual coping sub-dimension, the spiritual experience sub-dimension, the search for meaning sub-dimension, the spiritual satisfaction sub-dimension, the connection sub-dimension and the total scores obtained from the scale differed significantly in favor of the married participants. It was determined that the sub-dimension scores of transcendence and harmony with nature did not differ significantly according to the marital status variable.

Considering the religious and spiritual studies in the literature, similar to the research findings, Baynal (2015), Karakaş and Koç (2014), Koç (2008), Uysal (2006) and Yıldız (2006) studies show that when married individuals are compared with single individuals according to the marital status variable, married individuals are more religious than single individuals. In some studies, unlike our study findings; Dursun (2019), Tekin (2018) and Yılmaz and Okyay (2009) concluded that the relationship between spirituality and marital status variable is meaningless.

In line with the findings of the research regarding the question "**Is there a significant relationship between the level of spirituality of adults and the variable of how many years have used social media?",** When we look at the variables of the spirituality levels of adults and the duration of social media use, 18 of them are 1-6 months, 72 of them are 1-3 years, 233 of them are 4-7 years, 291 of them are 8-10 years, 75 of them use social media more than 15 years ,35 of them do not use social media. It was determined that the scores of the Spirituality Scale differed significantly according to the duration of use of social media variable, only the scores of the spiritual coping sub-dimension were significantly different according to the variable of duration of use. It was determined that this significant difference was statistically significant between the group with only 1-6 months of use and the group with 8-10 years of use, in favor of the group using less. In this case, it is concluded that as the duration of social media use decreases, spirituality increases. Some of the results that support the research findings are as follows: Solmaz et al., (2013) found that 97.6% of 500 participants in his research use social media, while 2.4% do not use social media. Based on the findings of his research, Oran (2020) concluded that there is a relationship between the time spent by the participants on social media and their interpersonal communication, and that as the time spent on social media increases, face-to-face communication with people decreases. In the study conducted by Sırakaya and Seferoğlu (2013), no significant difference was found in terms of being affected by the negative results of the internet, using the internet for social benefit and social relaxation, excessive use of the internet and problematic internet use, according to how many years the pre-service teachers have been using the internet.

In line with the findings of the research regarding the question "**Is there a significant relationship between adults' social media addiction levels and gender variable**?", it was determined that the Social Media Addiction Scale scores of the people participating in the study did not differ significantly according to the gender variable.

There are results that support the findings of this study conducted in the literature research. Some of those; Pawlak (2002), Sırakaya and Seferoğlu (2013), Turel and Serenko (2012) did not find a significant difference between social media addiction and gender in their studies with social media users. Wu et al., (2013), in their study, did not find a significant difference between the social media addiction of smartphone users aged between 18-40 and gender. Akbaba (2019), Beşik (2019), Beyler (2019), Kaya (2018), Macit (2019), Sağar (2019), Şentürk (2017) and Tutgun Ünal, (2015) found that when evaluating social media addiction and gender variable of individuals participating in their studies, there was no significant difference. These findings are in parallel with our research results.

Different results were obtained from the findings of the study conducted in the literature research. Kaya (2019), Mayda et al. (2015) found that there was a significant difference between the social media addiction of the participants and the gender variable, and in the findings obtained, the social media addiction level of men was higher than women. Çil (2020), in her study, concluded that there is a significant difference in terms of social media addiction and gender, and that the social media addiction scores of male individuals are higher than female individuals.

In terms of social media addiction and gender variable of the participants in the studies, Akbulut (2018), Şeker (2018), Ünlü (2018) found that women's scores were higher than men in virtual tolerance and virtual communication sub-dimension, which is social media sub-dimension. In the study by Dalaylı (2018), in which the social media addictions of individuals over middle age were examined, it was concluded that women spend more time on social media platforms than men and use them to an addictive degree. Bekman (2020), Çakır (2018), Terzi (2019), Yüksel (2019), Türker (2021) determined that the social media addiction level of the participants in their research was evaluated in terms of the level of social media addiction and gender variable, that the level of social media addiction of women was higher than that of men. In this case, the reason for the high level of social media addiction of women may be that the internet and social media platforms have become easily accessible with the introduction of smart phones and also, they are frequently used by women. Considering that internet addiction is related to the frequency and duration of internet use, it can be argued that the ratio of internet addicted men and women is getting closer to each other and contradictory findings stem from this. However, even if the usage purposes are common, the time allocated to internet activities used for the same purpose may be different. For example, although both men and women use the Internet for informational purposes from time to time, the time they devote to these activities or the extent of all activities in their lives may differ from one gender to the other.

In line with the findings of the research regarding the question **"Is there a significant relationship between adults' social media addiction levels and marital status variable?"**, it has been determined that the scores obtained at a significant level between the people participating in the study in terms of their social media addiction levels and marital status variable differ statistically in favor of single participants. There are results that support the findings of the study conducted in the literature research. Some of those; Çakır (2018), Çil (2020), Kaya (2018), Konuk (2019), Sağar (2019) and Şentürk (2017) found that there was a significant difference in social media addiction between the participants classified according to social media addiction in terms of marital status and showed that single individuals' dependency levels were higher. Andreassen et al. (2014) stated in their studies that

between individuals with and without a relationship, individuals who do not have a relationship tend to use social media more than individuals who have a relationship. Türker (2021) concluded in his study that social media addiction scores are higher for single individuals than for married individuals. In this case, it can be said that single individuals do not have marital responsibilities compared to married individuals and due to this, they have more free time and turn to social media for the purpose of making use of this time, increasing their addiction to social media.

According to the results of the study conducted by Taş and İme (2019), it was determined that the depression and internet addiction mean scores of divorced individuals were statistically significantly higher than those of married individuals. This situation was interpreted as the divorced individuals had a more stressful process after the divorce, became lonely and preferred virtual communication ways as a result of loneliness. Different results were found from the findings of the study conducted in the literature search. Beşik (2019), Beyler (2019), Oran (2020) and Tutgun Ünal (2015) stated in their research that there was no significant difference between the social media addiction of the participants and the marital status variable. In the findings of Şeker (2018), it was concluded that the level of social media addiction showed a significant difference according to marital status and that the level of social media addiction of married participants was higher than that of single participants.

In line with the findings of the research regarding the question **"Is there a significant relationship between the social media addiction levels of adults and the variable of how many years social media has been used?"** when the social media addiction levels and the duration of social media usage of the participants in the study are examined, 18 of them are 1-6 months, 72 of them are 1-3 years, 233 of them are 4-7 years, 8-10 years, 75 of them are social media more than 15 years use and 35 of them do not use social media. According to the variable of duration of social media use of Social Media Addiction Scale scores, virtual tolerance sub-dimension scores were in favor of the group who did not use social media and those who used it for 8-10 years, and in favor of the group who did not use social media and those who used it for 15 years or more. Again, it has been determined that there is a significant difference between the group that does not use social media and the group that uses it for 15 years or more, in favor of the group that uses it. In this case, it can be said that social media addiction increases as the duration of social media use increases.

In the literature, there are results that support the research findings. Some of those; In the research of Köroğlu and Tutgun Ünal (2013), it was concluded that pre-service teachers who use social networks for 3-5 years spend more time on social media than those who use less years. Tutgun Ünal (2015), in his study, as a result of examining the relationship between social media addiction and duration of social media use of the participants, found that those who use social media for more than 4 years are more dependent on social media than those who use social media for less than 1 year and for 1-3 years. It has been stated that social media addictions increase as the duration of the study increases. Şentürk (2017), in his research, classified the participants according to social media addiction, when evaluated in terms of the time they spent on the internet, the time they spent on social media and the number of logins, it was concluded that there was a significant difference. In this case, it has been stated that as the time spent on the internet, social media, and the number of accesses to social media increase, social media addiction is more common and increases progressively. In Kaya (2018)'s study on the relationship between social media addiction and

internet use, it was concluded that as the frequency of internet use increases, social media addiction also increases and there is a significant relationship between them. Akbulut (2018) examined the relationship between social media addiction and body image, social anxiety and self-esteem in adults in his study, and it was found that there was a positive and significant relationship between social media use disorder sub-dimensions, virtual communication sub-dimension's self-esteem and body image scores. It has been concluded that individuals who are close to problematic social media use at the level of addiction to virtual communication also have low self-esteem and body dissatisfaction.

Suggestions

Below are some suggestions for experts and researchers working in the field. The findings of this study are limited to adults living in the metropolitan area in the west of Turkey in 2019-2020. Today, the prevalence of the use of social media in human life (via smart phone and easily accessible internet) can be seen very clearly. The tendency of people in this direction is increasing day by day. For this reason, more comprehensive studies can be conducted with a larger universe and sample for the Turkey generalization of the effects of social media on spirituality, life goals and well-being of experts working in the field, rather than just the metropolis. In addition, as some researchers suggest, the Online Voice Photo (OSF) method, which is innovative and does not guide the participants very little or not at all, can be used by more participants and at different education levels.

When the literature is examined, it is seen that the researches on spirituality are mostly done in the field of health. Since spirituality exists in life with its multidimensional structure, studies can be conducted between disciplines that examine life from different dimensions. For example, integrative studies can be carried out at the point of personal and spiritual development of individuals, meeting their needs and finding answers to their problems in fields such as theology, education, health, consultancy, and economy. In addition, when experts working in the field think that individuals with high spirituality can be more energetic and beneficial, new training, program and application studies can be carried out for the employees of private and public institutions and organizations by making use of the research results. Considering that spirituality is related to the meaning and purpose of life, well-being, it can be used within the scope of counseling and guidance so that individuals can achieve success in their personal, social, educational and professional development. In order to increase the awareness of individuals who are in search of identity or trying to shape their future in their spiritual lives, at the point of getting to know themselves and determining their life goals, practical training, consultancy, guidance and program development studies can be carried out by making use of the findings of the research.

Ethic

This research was conducted in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and ethical standards.

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This article was written with the joint contributions of two authors.

Conflict of Interest

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The Mediator Role of Forgiveness between The Interpersonal Relationships and The Level of Cognitive Distortions in Young Adults

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Abstract

The aim of this research is to examine the mediating role of forgiveness in the relationship between interpersonal relationships and cognitive distortions in young adults' addiction using the structural equation modeling (SEM) technique. This research is designed in relational scanning type. The sample of the study between the years 2019-2020 living in Istanbul, which is a multi-stage sampling method with the universe in different socio-economic levels of qualifications will be represented, 331 women (73.8%), 117 were male (26.2%) of 448 young adult constitutes. Research data; was collected using The Personal Information Form, Interpersonal Relationship Dimensions Scale, the Cognitive Distortions Scale, and the Heartland Forgiveness Scale. The data of the research were analyzed using SPSS and AMOS package programs. To examine the study's, an independent samples t-Test, ANOVA (One-Way Analysis of Variance), Pearson product-moment correlation and the structural equation modeling (SEM) have been used for analyzing the data. According to the current research results, forgiveness has a partial mediating role in the relationship between interpersonal relationships and cognitive distortions. When the model goodness of fit indexes are compared with the acceptable and good fit indexes, it is seen that the model is compatible with the established Structural Equation Model data and the tested model is verified.

Keywords

Interpersonal relationships • Cognitive distortions • Forgiveness • Path analysis

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Individuals as social beings, interact with others as needed in social life. When the individual interacts with others, he both influences and is affected by the dimensions of emotion, thought and behavior as well as the dimension of communication (Colakoğlu, 2012; Leary, 2004). Interpersonal relations, which include social relations between two or more people, are experienced in different degrees of closeness and sharing between individuals. In this context, it can be said that interpersonal relations include all kinds of connections, relationships and intimacy that will enable individuals to interact with each other. In addition, the individual transforms himself and rains in value with the people he interacts with (Köknel, 2005). The factors that are effective in interpersonal relations, which have a decisive role in human life, are shaped by the individual himself, other individuals with whom he has a relationship, and environmental factors. The determining factors of the individual in the initiation, continuation and termination of interpersonal relations; direct factors are personality traits, self-concept, autonomy, perfectionism, sensitivity to interpersonal rejection, emotional stability, safe behavior, social skills and social competence, cognitive skills (Alberti & Emmons, 2002; Nichols & Schwartz, 1998; Safran, 1990; Tangney et al., 2004). Elements of interpersonal attractiveness such as similarity, personality traits of the other person, trust, early experiences, parental attitudes, non-verbal signs, closeness and respectability, and some characteristics related to the environment and other people are among the indirect factors that affect interpersonal relationships (Imamoğlu, 2008; Siyez, 2010).

Cognitive distortions of individuals are one of the factors that determine the maintenance of interpersonal relations. The level of cognitive distortions, expressed by Beck (2006) as thinking errors and biases that people make while processing information, has a decisive role in initiating and maintaining interpersonal relationships. Cognitive distortions explain the thoughts, feelings, and behavioral problems that an individual presents about perceiving and interpreting himself, other people, and the outside world unrealistically (Ersoy-Kart et al., 2018). Cognitive distortions occur with childhood in all individuals and are accepted as an absolute reality without being tried by the individual, but they appear more intensely in individuals with mental problems (Türkçapar, 2011). These distortions, also called cognitive errors, appear as the source of the main emotional difficulties in experiencing psychological problems (Beck, 2008; Ersoy-Kart et al., 2018; Savaşır & Batur, 2003). With the effect of distortions, the functionality of the individual, who is almost in a vicious circle, decreases and the individual begins to feel more negative emotions such as unhappiness, sadness, anger, and defeat (Beck, 2008).

Interpersonal schemas, which are formed by the combination of the individual's perceptions of himself and his environment, affect the feelings, thoughts and behaviors of the individual towards himself and other people, and his relations with other people (Hamamcı & Büyüköztürk, 2003; Safran & Segal, 2004; Savaşır et al., 2009). Cognitive distortions which are related to interpersonal relationships are rigid, irrational, absolute beliefs, thoughts, perceptions and evaluations that occur together with dysfunctional interpersonal schemas that the person has -owns (Hamamcı & Büyüköztürk, 2004). Cognitive distortions cause forming unhealthy interpersonal relationship patterns and they also cause a decrease in satisfaction from social relationships (Murat, 2019). This situation also increases the possibility of individuals having problems related to their interpersonal relationships (Sullivan & Schwebel, 1995; Quilty, 2020).

The individual develops dysfunctional emotions and behaviors towards himself, other people and the world with cognitive distortions about his relationships. Individuals may experience some conflicts due to distortions in their interactions (Akın, 2010). Because of conflicts, negative emotions such as anger and sadness occur in the individual, and he may feel resentment against the person with whom the conflict is experienced. Forgiveness, which is one of the means of coping with these negative emotions experienced in interpersonal relationships, is very effective in forgiving the resentment that has arisen about the experienced situation or event, and in maintaining the interpersonal relationships and increasing its quality (Bugay & Demir, 2010). Forgiveness is replacing the negative emotions of the victimized person naturally with positive emotions about the person who made the mistake, without ignoring the negative situation. However, it also means that the victim offers a second chance to the offender (Coleman, 1998; cited in Colak & Koç, 2016; Hebl & Enright, 1993; cited in Asıcı, 2019). Miceli and Castelfranchi (2011) emphasize that to forgive, an individual should reframe their cognitive schemas related to the situation that upsets them. In the process of forgiveness, the individual who reconstructs his cognitive schemas regarding himself or the other person reframes his basic assumptions and reality of the breaking situation with a different perception situation. Thus, the individual gains a different understanding of himself, other people and the world by getting out of the effect of cognitive distortions that cause him to interpret events and situations in a non-functional way. With forgiveness, which has an important function in maintaining the relationship in interpersonal relations, cognitive distortions of individuals, which are far from functional, turn into a functional ones.

Humans are social beings and encounter and interact with countless people throughout their lives. Since it is assumed that interpersonal relations will exist in every period of an individual's life, it is seen that it is important to find the factors that are effective in interpersonal relations to develop healthy interpersonal relations. For this reason, focusing on the subjects of interpersonal relations in studies based on the individual will contribute to the relevant studies. In related studies, it is seen that cognitive factors that are effective in interpersonal relations are emphasized, and the schemas and thoughts that people have regarding relationships are effective on interpersonal relations (Safran, 1990; Hamamcı & Büyüköztürk, 2003). Cognitive distortions are also seen as an important factor among cognitive factors. In addition, when the studies are examined, it has been revealed that some tools are effective in coping with negative emotions that are shaped together with cognitive distortions related to close relationships. According to the research findings; it has been observed that forgiveness is effective as a way of coping and increases the quality and satisfaction of interpersonal relationships (Berry & Worthington, 2001; Coyle & Enright, 1997; Fincham & Beach, 2002; McCullough, Fincham & Tsang, 2003).

Although there are various studies in the literature on the relationships between interpersonal relationships, cognitive distortions, and forgiveness variables in the studies that have been put forward until now (Akın, 2010; Hamamcı, 2002; Hamamcı & Büyüköztürk, 2003), there has been no study examining the relationships between the three variables together. The concepts of interpersonal relationships and forgiveness have been studied in the related literature together with different variables. The studies have focused on the predictive role of forgiveness in interpersonal relationships (Kaygas, 2017). In the studies on the relationships between cognitive distortions and interpersonal relations variables, it has been observed that there is a significant relationship between the variables (Civan, 2013). Besides, the studies have shown that the concept of forgiveness, which is also effective in cognitive

distortions, significantly predicts the level of cognitive distortions that are important in interpersonal relationships. It is observed that there is no research in which interpersonal relationships, cognitive distortions and forgiveness variables are examined together. For this reason, the study aims to examine the mediating role of forgiveness in the relationship between interpersonal relationships and cognitive distortions in young adults.

Method

Research Model

The relationship between interpersonal relationships, cognitive distortions and forgiveness levels of young adults was analyzed by "Structural Equation Modeling". In the study, the direct or indirect effects of cognitive distortions on interpersonal relations are examined. In addition, some evaluations were made to see whether forgiveness is a statistically significant mediator variable in which direction and at what level the mediation effects were also a part of the study.

Study Group

The study group of the research consists of 448 young adult individuals living in Istanbul from 2019-2020. There were 331 (73.9%) girls and 117 (26.1%) boys. Research data were collected using the most appropriate sampling method. When the income levels of the participants are examined, there are 36 (8.0%) people in the low-income group, 357 (79.7%)people in the middle-income group, and 55 (12.3%)people in the high-income group. Considering the marital status of the people, it is seen that 364 (81.3%) people are married and 84 (18.8%) people are single.

Data Collection Methods

The Scale of Interpersonal Relationship Dimensions (SIRD) Scale of Interpersonal Relationships Dimensions Imamoğlu & Aydın (2009), consists of 54 items. It was aimed to measure four relationship dimension prototypes regarding interpersonal relationships by collecting different items in the scale. The items in this scale were created based on the answers given by the individuals participating in the research when asked about the main factors in initiating and maintaining relationships with other people, statements in the literature, and expert opinions. On the scale, there are 15 items related to approval dependence, 9 items related to empathy, and 14 items related to trust in others, among interpersonal relationship dimensions. There are two reverse points in the dependency sub-dimension, which is one of the sub-dimensions of the scale. The higher the score, the higher the approval dependency. In the empathy sub-dimension, which is the second sub-dimension of the scale, all items are evaluated positively. In the sub-dimension of trusting others, which has 11 reverse items, as the score increases, there is a decrease in trust in others. In the sub-dimension of emotional awareness, which is the last sub-dimension of the scale, 10 items have reverse items and as the score increases, emotional awareness decreases. In the Scale of Interpersonal Relationships Dimensions, which is a Likert-type scale, the participants are asked to evaluate and choose the most appropriate answer for the items (1 = completely describes me; 4 = does not describe me at all). As a result of the answers given, certain points are obtained for the interpersonal relationship dimensions. The Cronbach Alpha internal consistency coefficients of the sub-dimensions ranged from 78 to 85; test-retest values also vary between 62 and 96. In the study,

the Cronbach's alpha internal consistency coefficients of reliability in others, empathy and emotional awareness, which are the sub-dimensions of the SDIR, were determined as .78, .75, and .74.

The Interpersonal Cognitive Distortions Scale (ICDS) The Interpersonal Cognitive Distortions Scale created by Hamamcı (2002), evaluates the cognitive distortions that people display in their relationships. There are 19 items on the scale that contain statements about cognitive distortions related to interpersonal relationships. The items in the scale were created based on the answers given by the individuals participating in the research to the form containing open-ended statements, statements in the literature, and expert opinions. On the scale, there are 8 items measuring avoidance of intimacy, 8 items measuring unrealistic relationship expectation, and 3 items measuring unrealistic relationship estimation (mind-reading). Participants are asked to evaluate and choose the most appropriate answer for the items in the ICDS, which is a five-point Likert-type scale (1 = I completely agree; 5 = I do not agree at all). On the scale the highest score is 95 and the lowest score is 19. Also, people's scores reveal their cognitive distortions regarding interpersonal relationships. Internal consistency and test-retest methods were used to measure the reliability of the scale. Internal consistency coefficient for the whole scale. is 67. The internal consistency coefficients of the sub-dimensions of the scale are; for the proximity avoidance sub-dimension. 73; for the unrealistic relationship expectation sub-dimension. 66; for mind-reading sub-dimension. It was found to be 74. Test-retest correlation coefficient; .74 for the whole scale, .70 for the first sub-dimension; It was calculated as .76 for the second sub-dimension and .74 for the third sub-dimension. In the research, the Cronbach alpha internal consistency coefficient of the Interpersonal Cognitive Distortions Scale was found to be .85.

The Heartland Forgiveness Scale. The Heartland Forgiveness Scale developed by Thompson et al. (2005), was developed to measure individuals' tendency to forgive. The scale consists of 18 items. It is a 7-point Likert-type scale. It has three sub-dimensions: forgiving oneself, forgiving the situation, and forgiving others, and the highest total score on the scale is 126, while the lowest total score is 18. The lowest score in the sub-dimension scores is 6 and the highest score is 42. It was observed that there was a significant relationship between the scales used to ensure criterion validity, and forgiveness was also found to be negatively associated with rumination, hostility and revenge. In the study conducted to ensure the reliability of the scale, the test-retest coefficient was calculated as .83 for self-forgiveness, .72 for the forgiving the others, .73 for situational forgiveness sub-dimension, and .77 for the total score. Cronbach α coefficients were also reported as .75, .78, .79, and .86 for the total score, respectively (cited by Bugay & Demir, 2010). Bugay and Demir (2010) carried out the translation and adaptation studies of the scale into Turkish culture. Internal consistency coefficient for the whole scale in the Turkish form. 81 for the self-forgiveness subscale, one of the sub-dimensions of the scale. 64 for the forgiveness of others subscale. 79 and for the forgive the situation subscale. It was found to be 76. As a result of confirmatory factor analysis, the goodness of fit index (GFI) was .92; the comparative fit index (CFI).90; The root means a square error of approximation (RMSEA)=.06 and constructs validity of the scale was sufficient. Criterion-dependent validity was calculated to determine the criterion validity and all dimensions of the forgiveness scale were combined with the life satisfaction scale (r=.205, p=.00 for self-forgiveness dimension, r=.145, p=.00 for the forgiveness of others dimension; r = .381, p=.00, and r = .324 p=.00 for general forgiveness) were positively correlated. Rumination scale of the scale (r = -.353, p =.00 for self-forgiveness; r = -.351, p=.00 for forgiveness of situations, and r = -.333 p =.00 for total forgiveness). was found to be related. It

was observed that there was no significant relationship between the forgiveness of others' dimensions and the Rumination scale (r = -.085, p =.102). In the study, the Cronbach alpha internal consistency coefficient of the Heartland Forgiveness Scale was found to be .86.

Analysis of Data

SPSS Statistics and AMOS programs were used to analyze the research data. Incorrect or incomplete fillings in the data collection tools were excluded from the analysis. Within the scope of the research, descriptive statistics, independent Groups t-Test, One-Way Analysis of Variance (ANOVA), Scheffe Post-Hoc test and Pearson Correlation Analysis were used to analyze data on interpersonal relationships, cognitive distortions and forgiveness scores of young adults. Whether the forgiveness variable has a mediating role in the relationship between interpersonal relations and cognitive distortion variables and the structural relationships between the variables were revealed by the Structural Equation Model (SEM) technique, path analysis. While the AMOS program was used for path analysis, the SPSS program was used to prepare research data for path analysis and to test whether the necessary assumptions were met.

Structural equation model used in the analysis of data in the research; It is a model that includes multiple analyzes such as confirmatory factor analysis, path analysis, multi-group applications (Cokluk et al., 2016; Kline, 2019). The model created with the observed variables is also tested with the path analysis, which is a regression-based analysis in SEM (Cokluk et al., 2016). Testing the direct and indirect effects between causality, which has an important context in the path analysis, and the test of the direct and indirect effects between the variables related to the model created has the confirmatory feature (Cokluk et al., 2016). It is analyzed with the regression equation and the resulting path coefficients determine which variables to include in the equation. Thus, while explaining the change on the predicted variable, path coefficients are used in the selection of the variables that will enter the model. In addition to determining the effect of the independent variables on the dependent variable, it is possible to reveal the mediating variable that is effective between the variables thanks to the path analysis (Cokluk et al., 2016).

In this study, the method suggested by Baron and Kenny (1986) was followed to determine whether the mediation of forgiveness is significant in the relationship between interpersonal relationships and cognitive distortions in young adults: According to Baron and Kenny, for a variable to be a mediator; (a) there should be a significant relationship between the dependent and independent variable, (b) there should be a meaningful relationship between the mediating variable and the independent variable, (c) there should be a meaningful relationship between the mediating variable and the dependent variable, and (d) there should be a significant relationship between the mediating variable and the independent variable When it enters the model simultaneously, the significant relationship between the dependent and independent variable should cease to be significant (fully mediative) or the previous level of significance should decrease (partial mediation).

Finding

In this section, in line with the aims of the present research; The results of the Pearson Product-Moment Correlation, a measure of the strength of a linear association between two variables and attempts to draw a line of best fit through the data of two variables, was used and the structural equation modeling, carried out to examine the mediating role of forgiveness between interpersonal relationships and cognitive distortions, are presented in the accompanying tables.

Table 1.

Correlation Table among Variables, Arithmetic Means and Table of Internal Consistency Coefficients of Variable

Variables	N	X	1	2	3	4	5
1.Cognitive distortion	448	52.22	1	.334*	.334*	.310*	.197*
2.Trust others	448	43.04	.334*	1	.326*	.147*	.070
3. Empaty	448	19.27	.334*	.326*	1	.073	-.090
4.Emotion awareness	448	42.64	.310*	.147*	.073	1	.052
5. Forgiveness	448	76.62	.197*	.070	-.090	.052	1

*P<,001

In Table 1, there is the number of participants, arithmetic averages, and correlation coefficients showing the relations of the variables with each other regarding the variables used in the research. Since the relations between the variables related to the model to be tested within the scope of the research are significant, it is concluded that the results are at a sufficient level for the model to be tested. Therefore, finding the relationship between the variables, which is one of the antecedents of the model, shows that the model is testable (Baron & Kenny, 1986).

The following models were tested to conduct a detailed and comprehensive analysis for the research:

Model 1: Is there a significant relationship between interpersonal relationships and cognitive distortions?

Model 2: Does forgiveness have a mediating role between interpersonal relationships and cognitive distortions?

Figure 1

Structural Model of the Relationship Between Interpersonal Relationships and Cognitive Distortions 1
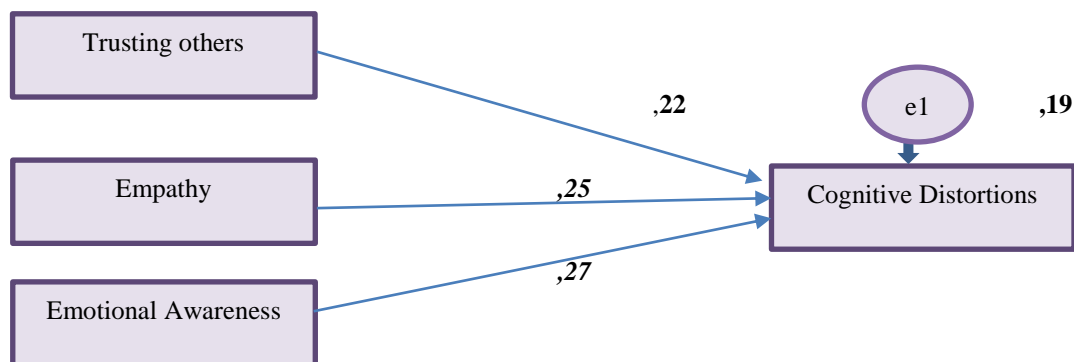
In Figure 1, it is seen that there is a significant relationship between each of the sub-dimensions of trust in others, empathy and awareness of emotion variables and the cognitive distortions variable (r1=.22; r2=.25; r3=.27; p<, 001). The cognitive distortion variable of trusting others, empathy and awareness of emotion is explained by 19%. Following these results, the process of testing the mediating role of the forgiveness variable in the relationship between interpersonal relations and cognitive distortions was started.

Figure 2

Structural Model 2 Examining the Mediator Role Effect of Forgiveness on the Relationship Between Interpersonal Relationships and Cognitive Distortions
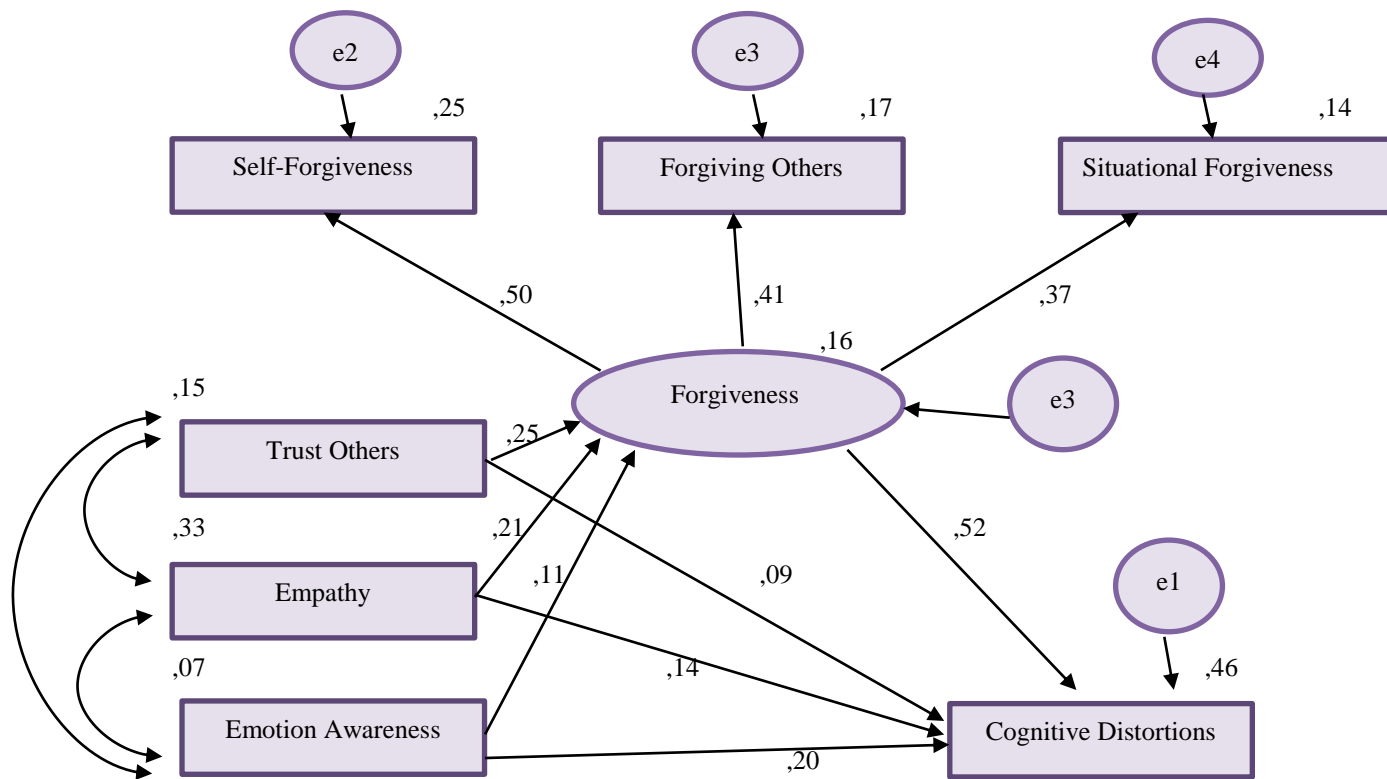

Figure 2 shows the mediating role of the forgiveness variable in the relationship between interpersonal relationships and cognitive distortions. The relationship between the predictor and the predicted variable should either completely or partially decrease with the inclusion of the mediator variable in the model to understand whether a variable has a mediating effect. Model 2, which is the aim of the study, shows that the relationship between interpersonal relationships and cognitive distortions in model 1 has decreased significantly. While it was (r1=.22; r2=.25; r3=.27) in the previous model, this relationship was found at (r1=.09; r2=.14; r3=.20) in the new model.

Table 2

The goodness of Fit Indices for Model 2

Indices	Model values	Acceptable Limits
$χ^2/sd$	3,232	≤5 acceptable fit, ≤3 perfect fit<0
RMSEA	.071	≤ .10 poor fit, ≤ .08 good fit, ≤ .05 perfect fit
GFI	.986	.85-.89 acceptable good fit , ≥ .90 good fit
AGFI	.944	.85-.89 acceptable fit, ≥ .90 good fit
CFI	.949	≥ .90 acceptable fit, ≥ .95 good fit, ≥ .97 perfect fit
IFI	.952	≥ .90 acceptable fit, ≥ .95 good fit, ≥ .97 perfect fit

Whether the fit values are among the values accepted in the literature or not has been analyzed and the findings have been evaluated to understand if the fit values of the model tested are at the desired levels, In Table 2, it is seen that the values are either between acceptable or excellent values (χ2/sd=3,232; RMSEA=,071; GFI=,986; AGFI=,944; CFI= .949; IFI=.952). According to these results, the tested model is among the required goodness-of-fit values.

Discussion, Conclusion and Recommendations

In the study, it was found that the structural equation model was compatible with reasonable values. In the structural equation model, in which cognitive distortions are described as the predicted (dependent) variable, interpersonal relations as the predictor (independent) variable, and forgiveness as the mediator variable, the relationships between the variables seem to have some direct and indirect effects. It is seen that interpersonal relations have a moderate and significant direct effect on the cognitive distortions variable, the level of this relationship decreases with the inclusion of the variable of forgiveness in the model, and forgiveness has a partial mediating role in the relationship between interpersonal relationships and cognitive distortions since the relationship maintains its significance. It can be said that the variable of forgiveness explains some of the relationships between interpersonal relationships and cognitive distortions.

It was concluded that there was a significant relationship between the variables of interpersonal relations and cognitive distortions in the model created and that as the dimensions of interpersonal relationships increased, cognitive distortions decreased. According to the related literature, people with cognitive distortions about interpersonal relationships misinterpret what other individuals say (Akın, 2010); The sensitivity of individuals with interpersonal sensitivity and their cognitive distortions about the self are closely related (Koichi et al., 2018); individuals are suitable for conflict in their relationships (Hamamcı & Büyüköztürk, 2003); high school students with cognitive distortions related to high levels of interpersonal relationships tend to exhibit more aggressive reactions (Uğur & Murat, 2014); that there is a significant and negative relationship between the cognitive distortions of individuals with depression and their interpersonal functionality (Schwartzman et al., 2012); research findings show

that cognitive distortions related to relationships are an important predictor of loneliness (Hamamcı & Duy, 2007). When these studies in the literature and the findings of the current study are examined, it can be concluded that interpersonal relationships have a predictive effect on the level of cognitive distortions.

According to the findings related to the created model, it was observed that there is a statistically significant relationship between interpersonal relationships and forgiveness. When the studies are examined; it is seen that the increase in the level of forgiveness of individuals has a positive effect on their interpersonal relationships (Gordon et al., 2009; Karremans & Van Lange, 2004; Bugay & Demir, 2010). Fincham and Beach (2002) examined the relationship between interpersonal commitment and forgiveness in a study they conducted and found a positive relationship between them. In another similar study, it was observed that with the decrease in the level of forgiveness in interpersonal relationships, satisfaction with the relationship decreased (Strelan et al., 2013). The results obtained from all these studies confirm the relationship between interpersonal relationships and forgiveness. This situation shows that there is a directly proportional relationship between forgiveness and interpersonal relationships and positively affecting each other.

It was concluded that there was a negative and significant relationship between cognitive distortions and forgiveness, which are the other variables of the study. This shows that there is an inversely proportional relationship between cognitive distortions and forgiveness, which affects each other negatively. When the relevant literature is examined; It is seen that there is a negative relationship between the cognitive distortions of individuals and their forgiveness levels (Ascioglu-Önal & Yalçın, 2017; Bugay & Demir, 2010; Navidian & Bahari, 2013). During the development of the Heartland Forgiveness Scale, the sub-dimensions of anger, anxiety and negative emotions were found to be negative; cognitive flexibility, life satisfaction, and positive emotions were found to be positively related to the sub-dimensions of forgiveness of self and others (Thompson et al., 2005). In a similar study, Gündüz (2014) revealed that individuals' self-forgiveness levels significantly predicted their cognitive distortion levels. When these studies in the literature and the findings of the current study are examined, it can be interpreted that the level of forgiveness of oneself and other individuals affects the level of cognitive distortions.

In the study, interpersonal relations, cognitive distortion, and forgiveness levels of young adults were examined as the main purpose, the relations between these variables were determined, and the mediating role of forgiveness between interpersonal relations and forgiveness was examined. According to the research findings, the relationships established between interpersonal relationships, cognitive distortions and forgiveness variables were found to be significant. In the study, it was observed that the relationship between interpersonal relations and cognitive distortions decreased significantly when the variable of forgiveness was included in the relationship between interpersonal relationships and cognitive distortions. Therefore, it was determined that forgiveness was a partial mediator in this model. It supports this finding; The concept of forgiveness and relationship quality and the role of attributions (Taysi, 2007), attachment styles (Alpay, 2009), well-being (Gismero-González et al., 2020), resilience (Capan & Arıcoğlu, 2014), and rumination (Oral, 2016), it is seen that forgiveness is examined together with some variables that affect interpersonal relations and cognitive distortions. In the studies reviewed, significant relationships

were found between interpersonal relationships, cognitive distortions, and forgiveness. Therefore, it is observed that the studies in the literature support the findings of the research.

Civan (2013), in his study examining the relationship between university students' cognitive distortions in their interpersonal relationships and their level of forgiveness of others, determined that there is a low level, negative significant relationship between cognitive distortion total scores and forgiveness of others scores. In another study, Erok (2013) revealed that the prevalence of marital conflict has a highly positive and significant relationship with avoidance of intimacy, unrealistic relationship expectation, and mind-reading, which are cognitive distortions related to relationships. Kılıç (2019), on the other hand, in his study examining the mediating effect of forgiveness between university students' self-understanding and irrational beliefs, revealed that forgiving others and forgiving the situation are a partial mediator, while self-forgiveness has a full mediator effect. When we examine the literature, it is seen that interpersonal relations and cognitive distortions are handled with different mediating variables.

According to the results of the research, it is seen that the high level of forgiveness of young adults will have a significant effect on both interpersonal relationships and less cognitive distortions. In addition, it is seen that some of the relationships between individuals' interpersonal relationships and cognitive distortions are explained by forgiveness. This situation reveals the existence of other mediating variables in the relationship between interpersonal relationships and cognitive distortions. In the related literature; No study was found in which all the relationships between interpersonal relationships, cognitive distortion and forgiveness variables were examined together. This research is the first to reveal the mediating role of forgiveness in the relationship between interpersonal relationships and cognitive distortions in young adults. Therefore, it is thought that it will be important to support these results of the research with new studies to be conducted.

According to the results obtained from the research, the following suggestions can be made for mental health professionals and future research: Based on the findings, psycho-educational programs can be developed to change these cognitive distortions of young adults and groups counseling sessions can be conducted with young adults. In addition, with the help of individual psychological counseling, therapeutic environments can be created that will enable the individual to develop an awareness of cognitive distortions; at the same time, cognitive, behavioral homework or exercises can be given to the individual. Relationship development programs can be created for individuals to cope with the problems they encounter in their interpersonal relationships by helping them to evaluate their level of forgiveness and predictors of self, others, and the situation. Studies on forgiveness in our country are not at the desired level. Similar studies can be organized for both young adults and individuals in other life stages. Investigating which other variables have a mediating effect on the relationship between interpersonal relationships and cognitive distortions will make significant contributions to the relevant literature. With the study, it was seen that there are very few studies examining how interpersonal relationships, cognitive distortions and forgiveness variables change according to demographic variables, and current studies indicate very different results from each other. Therefore, addressing various demographic variables in studies examining these variables will make significant contributions to the relevant literature. Finally, the study group of the research was limited to young adults living in Istanbul only. The study group can be expanded by making further studies to cover different provinces and regions.

Ethic

It has complied with ethical principles in this study. Ethics committee approval was obtained from İstanbul Sabahattin Zaim University Ethics Committee (İstanbul Sabahattin Zaim Üniversitesi Etik Kurulu) for this study on 30.09.2020 with the decision numbered 20292139-050.01.04.

Author Contributions

This article was written with the joint contributions of two authors.

Conflict of Interest

The authors declare that they have no conflict of interest.

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