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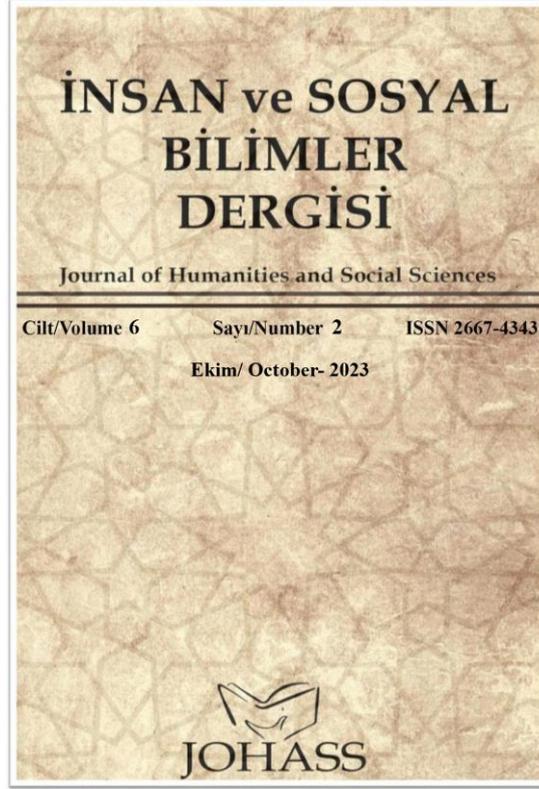
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**Teacher Opinions on the Problems Encountered in Teaching History
Subjects in Social Studies Courses**

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Teacher Opinions on the Problems Encountered in Teaching History Subjects in Social Studies Courses

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Abstract

The first impression of history acquired by students who encounter history subjects for the first time in the "Culture and Heritage" learning area of the social studies course in schools is a critical point for their view of history for the rest of their educational life. The aim of the research, which is designed with this motivation, is to reveal the problems experienced in the teaching of history subjects in primary social studies courses from the perspective of teachers. The study group of the study consists of 27 social studies teachers working in 21 different secondary schools in Adana, Gaziantep, Şanlıurfa, Hatay and Trabzon provinces of Turkey. The study is designed in the case study pattern from qualitative research methods. In the study, the semi-structured interview form developed by the researcher was used as a data collection tool through Google Forms. The data obtained in the study were subjected to descriptive analysis; QDA Miner 5 qualitative data analysis program was used for this. According to the findings of the research, social studies teachers face problems such as the fact that the curriculum is very intense, the course hours are insufficient, the students do not show interest in the course, the history subjects are boring and irrelevant to the present, the students cannot perceive abstract subjects and concepts and the physical facilities of the schools are insufficient. In the solution of such problems, teachers and students, as well as especially the program makers who develop the curriculum, have a great responsibility.

Keywords: Social studies, education, history teaching, problems in history teaching, teacher opinions

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Introduction

History; It helps us to understand our present identity by revealing political, cultural, economic, scientific and social changes together with cause and effect. In other words, history teaches from the past. Historians have different ideas about why history teaching is important. Some historians believe that the most important reason for teaching history is to make young people proud of their nation's past. For others, it is much more important to "understand the nature of the discipline of history," which includes understanding what we know about the past, how we know it, and why we make different interpretations of the same events (Duraisingh, 2008). From a broad perspective, the purpose of history teaching is to enable students to learn about history, to help them understand the importance of history, and to make them aware of the impact of historical events on the present. But the problems teachers face in teaching history can make it difficult for them to achieve these goals. That's why it's important to lay out how teachers teach history and what kind of problems they have when teaching. Teaching history with the wrong strategies can cause students to develop a negative attitude towards a history lesson or to shuffle the pages of a history book just to succeed in an exam. Such a situation can also eliminate the sense of curiosity in students about history, which should always be kept alive. However, students' interest and curiosity about history is one of the factors that can determine the direction of future history teaching.

To teach students how to handle history, the teachers themselves must first know this. For this reason, teachers need to have a deep knowledge of what history is and how historical inquiry can be managed. Teacher educators also face many challenges in teaching prospective teachers educational approaches that will increase students' historical thinking skills. In this respect, identifying the problems experienced in history teaching may pave the way for updating teacher training programs as it will reveal the nature of teacher education programs in this regard (Hover and Yeager, 2004).

Teaching history subjects helps students understand past events and societies. Students are introduced to history subjects for the first time in social studies classes. According to MEB (2018), one of the specific aims of the social studies course curriculum is: "To ensure that students understand the basic elements and processes that make up Turkish culture and history and accept that the cultural heritage that creates national consciousness should be protected and developed." For this purpose, history subjects are taught in social studies courses through the "Culture and Heritage" learning area. This learning area: "Aims to create

a national consciousness that will ensure the protection and development of culture, based on the basic elements that make up Turkish culture (MEB, 2018). Teaching these subjects, which are included in the content of the social studies course, in a correctly constructed system by purifying them from their problems in the light of the aims of social studies teaching, will pave the way for students to grow up as responsible citizens who have a national consciousness and protect their cultural heritage.

On the other hand, teaching history with the wrong methods and strategies in social studies classes, where students are introduced to history subjects for the first time, may cause students to have wrong understandings about the past. This can influence students' future decisions and thoughts. An incorrectly constructed history teaching can cause students to develop prejudice and discrimination against certain groups or societies. Teaching history from just one perspective, or presenting only the perspective of a group of people, can prevent students from developing a broad worldview. History helps people learn from mistakes they have made in the past. However, problems arising from both the teacher and the learner can cause students to turn into unconscious citizens who repeat the same mistakes without being aware of the mistakes of the past and may lead to an increase in future social problems. Because history is a very important part of the cultural heritage of a country or society.

In the study by Oliveira (2008) in which he consulted the opinions of history teachers in California, teachers generally expressed the problems experienced in history teaching under 3 headings. The first of these is that history courses have a lower status than other courses in schools and are not seen as important as other courses. It is thought that history lessons are taking a backseat as students focus more on reading skills or mathematics lessons. According to teachers, this situation is a factor that makes it difficult for students to be interested in and respect history, and is also the premise of the students' limited skills and prior knowledge, which is seen as the second main problem. According to teachers, students are not interested enough in history and do not read books about history. The third problem arises from the high demands of the history curriculum. Although teachers know the importance of reading, writing and analysis skills in history teaching, many things required by the curriculum, limited time and limitations in students' readiness make teaching these skills difficult.

The difficulty students have in grasping historical significance is a fundamental problem in history teaching. One thing that many history teachers must accept is the belief that some students have that the past has nothing to do with their current lives. This problem becomes more evident as the subject told in history goes back in time, that is, as it moves

away from the present. To solve this, students need to believe that they cannot escape the evidence and past influences surrounding their lives; They need to be convinced that the past has an important role in acquiring the legal rights and responsibilities they have in today's society, which are directly related to past events (Hunt, 2000).

When the relevant literature is examined, there are many researches that deal with the problems in history teaching. According to Yıldız (2003), the insufficient course hours in order to convey the subjects and achievements of the course to the students, the problems arising from the teaching methods and the problems arising from the quality of the textbooks are the main problems of history teaching. In another research that focuses on the subject, the most basic problems in history teaching are; problems arising from the curriculum, problems arising from teachers, problems arising from textbooks and problems arising from the educational environment (Hali, 2014). In textbooks, anachronism errors are made especially for the reasons such as the fact that the authors of the books use the language of the period when describing historical events and that they attribute the interpretations, concepts and perspectives of themselves and the present to historical figures (Öztürk, 2011). Some student-related problems can also make history teaching difficult. As a matter of fact, Akbaba et al. (2014) concluded in their research that although the attitudes of the students towards history lessons were positive, they did not have enough information and the interest in the course was low. In Göksu (2020)'s study, in which he consulted the opinions of social studies teachers in the teaching of history subjects, teachers stated that students had prejudices towards history lessons and therefore did not show enough interest in history lessons. Ata and Keçe (2014), in their study with social studies teachers, stated that students' priority in social studies lessons is to pass the exam, and teachers teach lessons with the concern of being able to complete their busy curriculum on time.

Determining the source of these problems in teaching history subjects may enable us to revise and improve our history teaching with the right strategies and methods. Situations such as renewed curriculum, changing social structure and therefore changing student profile, extraordinary situations such as pandemics or natural disasters, and disruptions in the education process may have had different reflections on history teaching and may have led to new problems. For this reason, it is considered important to determine what problems social studies teachers, who laid the foundation of historical awareness in primary school students, encounter in teaching history subjects.

In this context, the aim of the study is to reveal the current problems in teaching history subjects from the perspective of social studies teachers teaching history subjects in schools and to take a closer look at new problems that we may not be aware of. In line with this main purpose, the following questions constitute the sub-problems of the research:

1. According to the opinions of social studies teachers, what are the problems arising from the planning of the teaching process in teaching history subjects?
2. According to the opinions of social studies teachers, what are the problems experienced during the implementation of the teaching process in teaching history subjects?
3. According to the opinions of social studies teachers, what are the roles of teachers and students in the process of teaching history subjects? The questions constitute the sub-problems of the research.

The difference of this study from similar studies in terms of subject is that the more specific problem of history teaching in social studies teaching is included with the teacher's opinion. It is hoped that this study will contribute to the field.

Method

Model

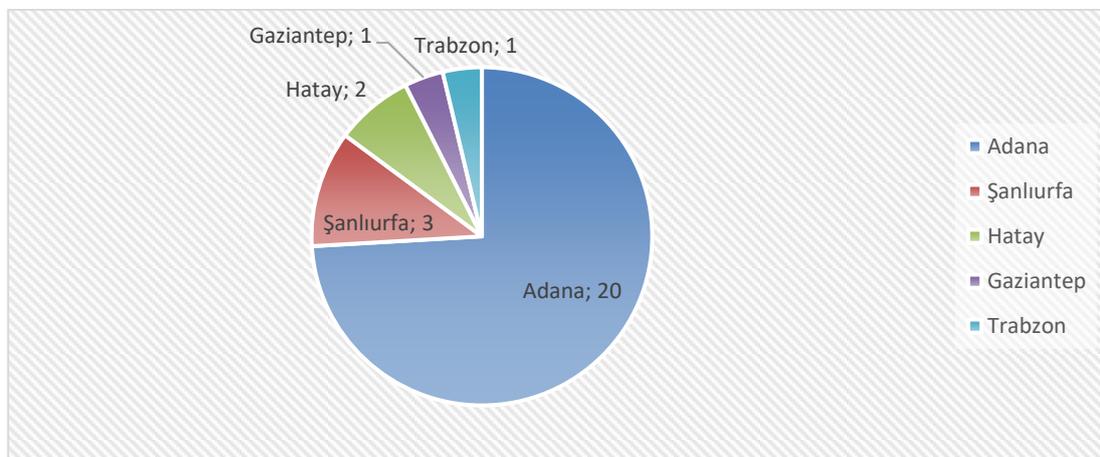
The study was designed in a case study pattern, one of the qualitative research methods. Case studies; It is an in-depth investigation of one or several situations. To put it differently, in case studies, factors related to a situation are investigated from a holistic perspective (Yıldırım and Şimşek, 2016). In the study, the case study design was preferred because it was desired to consult the opinions of social studies teachers about the problems experienced in teaching history subjects.

Study Group

The study group consists of 27 social studies teachers working in 21 different secondary schools in Adana, Gaziantep, Şanlıurfa, Hatay and Trabzon provinces of Turkey. The descriptive statistics for the working group are as follows.

Figure 1

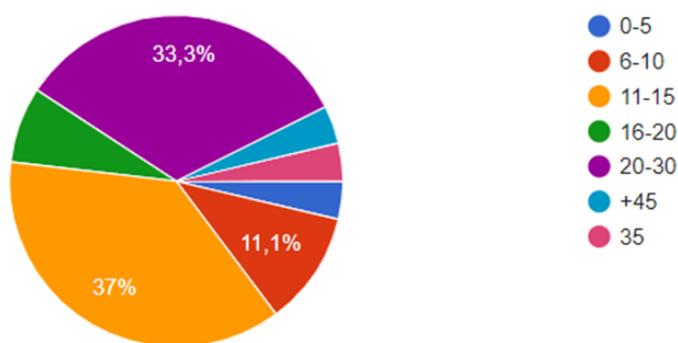
Distribution of The Study Group according to the Provinces Where They Continue Their Professions



As can be seen in Figure 1, 20 out of the 27 social studies teachers in the study group work in Adana, 3 in Şanlıurfa, 2 in Hatay, 1 in Gaziantep and 1 in Trabzon.

Figure 2

Study Group's Tenure in the Profession

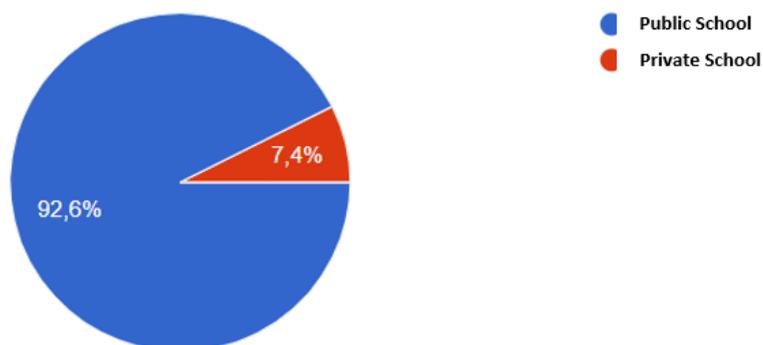


When Figure 1 is examined, 37% of the social studies teachers who constitute the study group of the research are in the 11-15th grades in the profession. 33% have been

teaching for more than 20 years. It can be said that the majority of social studies teachers whose opinions were consulted within the scope of the research are experienced teachers.

Figure 3

Status of the Schools Where the Study Group Works



When Figure 2 is examined, it is seen that 92.6% of the 27 social studies teachers whose opinions were consulted within the scope of the study worked in a public secondary school and 7.4% in a private institution.

Data Collection Tools

In the study, a semi-structured interview form developed by the researcher was used as a data collection tool to reveal the problems experienced by social studies teachers in teaching history subjects in their courses. Direct quotations were included in the study to increase the validity and reliability of the data collection tool. For the content validity of the interview form, the opinions of a field expert and a social studies teacher were consulted. The interview form, prepared in line with expert opinions, took its final form with 8 questions. The questions in the interview form consisting of 8 questions and the research sub-problems they are related to are given in Table 1.

Table 1

Research Sub-Problems and Related Items in the Interview Form

Research Sub-Problems	Related Items in the Interview Form
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According to the social studies teachers, what are the problems arising from the planning of the teaching process in the teaching of history subjects?

According to the opinions of social studies teachers, what are the problems experienced during the implementation of the teaching process in teaching history subjects?

According to the opinions of social studies teachers, what are the roles of teachers and students in the process of teaching history subjects?

2. Which subjects do you think are more important in history teaching? Why?

3. Which history topics do your students have difficulty in learning? In your opinion, what are the reasons why your students have difficulty in learning these subjects?

8. How do you think the curriculum affects the teaching of history subjects?

1. What problems do you encounter when teaching history subjects? What do you think can be done to solve these problems?

4. What materials do you use when teaching history subjects? How effective do you think these materials are?

5. What strategies, methods and techniques do you use when teaching history subjects? What would you like to say about the effectiveness of the methods you use?

6. What do you think about the role of teachers in teaching history?

7. What do you think about the role of students in teaching history?

As can be seen in Table 1, items 2, 3 and 8 in the 8-question semi-structured interview form address the first sub-problem of the research; 1, 4 and 5 address the second sub-problem of the research; 6 and 7 are related to the third sub-problem of the research.

Collection of Data and Analysis

Before the interviews, an application was made to the Cukurova University Ethics Committee and a document showing the ethical appropriateness of the research (decision no. 12 dated 05.09.2023) was obtained. During the data collection process in the study; First, the items in the developed semi-structured interview form were transferred to Google Forms. Since the busy schedule of the social studies teachers who made up the study group limited the opportunity for face-to-face meetings, the data collection process was progressed through Google Forms. After recording the responses of the entire study group, the data obtained was subjected to descriptive analysis in the QDA Miner 5 qualitative data analysis program. As a result of the descriptive analysis, the data grouped under 3 different themes: "planning of the teaching process", "implementation of the teaching process" and "roles in the teaching process".

Compliance with Ethical Standards

The Ethics Committee of Çukurova University was applied for a document showing the ethical suitability of the study. The document showing that the study was ethically appropriate (decision dated 28.08.2023 and numbered E-74009925-604.01.02-788688) was received.

Findings

Data obtained from the opinions of social studies teachers in the study presented respectively under the subheadings of “planning the teaching process”, “implementation of the teaching process” and “roles in the teaching process”.

Findings Regarding “Planning the Teaching Process”

Table 2

Teacher Opinions on Planning the Teaching Process

Theme	Category	Codes	Frequency
PLANNING THE TEACHING PROCESS	Program design	Intensive curriculum	13
		Lack of chronological integrity	7
		Rote based system	7
		Inadequate curriculum	5
		Few course hours	5
		Curriculum without alternatives	3
		Exam-oriented system	2
		Lack of quality of textbooks	2
		Non-transparent curriculum	1
	Student centered	1	
	Difficult topics	Ottoman history	10
		Ancient history	4
		History of the Turkish Republic	4
		Treaties	2
		Political history	1
		Central Asian Turkish history	1
		Economic history	1
		Examples of failure	1
	Important topics	History of Turkish Revolution	13
		Holistic history	7
		National culture	6
		Pre-Islamic Turkish history	2
		Social life	1
		Ottoman Empire	1
		Teaching of concepts	1
	Linked to today	1	
	Course content	Abstract topics and concepts	18
Irrelevant to daily life		10	
Boring		5	
Similar topics and concepts		2	

Table 2 contains categories and codes related to the problems experienced by social studies teachers in connection with the planning of the teaching process in the teaching of

history subjects. Under the category of curriculum design, teachers mostly talked about problems such as "intensive curriculum (13)", "lack of chronological integrity (7)", "rote based system (7)", "inadequate curriculum (5)" and "few course hours (5)". Regarding such problems, T17: "The elaboration of some subjects above the learning levels of the students, the disconnects in the transitions between the subjects, the lack of attention to chronology, the prejudice that the students are verbal and difficult against the course they brought from previous years and the thought that I can not do it cause difficulties in teaching. Tailoring topics to student levels; solutions such as not drowning students with details such as history and name, and adding simple and instructive-entertaining activities to books can be produced." Some of the other problems mentioned by teachers are that our education system is exam-oriented, textbooks are considered insufficient, changes made to the program are not transparent, and teachers' involvement in the process is inadequate and student-centered. The views expressed here, especially about the lack of alternatives to the curriculum, are remarkable and basically stem from the fact that Syrian students cannot be integrated into the teaching process. T23 on this subject: "Syrian students cannot find anything of themselves because they are not included in their historical program. Therefore, the lessons do not interest them."

Social studies teachers stated that they had difficulty in teaching subjects such as "Ottoman history (10)", "ancient history (4)", " history of the Turkish Republic (4)". In addition to these subjects, there are problems in the teaching of subjects such as treaties (2), political history (1), Central Asian Turkish history (1), economic history (1) and failure examples (1). T22: "My students have difficulty in learning Ottoman history due to reasons such as having rote knowledge and being unfamiliar with old concepts." while T17's opinion is as follows: "Students think that they should memorize this information especially on subjects containing a lot of information, such as the reforms made during the Ottoman Empire, the activities during the sultans' period, the developments in Europe, the congress items in the preparation period of the National Struggle and the ancient civilizations, and they think that they should memorize this information in the preliminary they are being judgmental." T13: "Students often don't want to learn about the periods in our history when we failed. When it comes to these issues, students are unhappy." underlines a different point.

Teachers stated that they considered subjects such as "History of Turkish Revolution (13)", "National Culture (6)", "Pre-Islamic Turkish History (2)" to be the most important in relation to history. 7 social studies teachers stated that history is holistic and therefore all

subjects are important. T12: "Actually, all subjects are important to me, but since today's system is exam-oriented, a curriculum for exams is usually applied. For this reason, the history of the Revolution is predominantly the subjects."

Teachers also reported that they had various problems with the content of the history lesson or the way it was perceived by the students. Codes such as "abstract topics and concepts (18)", "irrelevant to daily life (10)", "boring (5)", "similar topics and concepts (2)" come to the fore at this point. T14 said: "History subjects seem abstract, heavy and boring to students. They also say that history is in the past and is unnecessary. It may be a good idea to use films and documentaries as a solution to this problem, but the best thing would be to take it to historical places if possible. We need to ensure that students establish a good chronological relationship and do not see events in history as independent events." T19 said: "It is a problem to confuse historical subjects because they are similar (wars, treaties). By using concept maps and diagrams that are prepared appropriately for the classroom environment, it is possible to reduce students' confusion of topics."

Findings Regarding “Implementation of the Teaching Process”

Table 3

Teacher Opinions Regarding the Implementation of the Teaching Process

Theme	Category	Codes	Frequency
IMPLEMENTATION OF THE TEACHING PROCESS	Strategy, Methods and Techniques	Narration	18
		Question and answer	16
		Drama	9
		Game	6
		Discussion	5
		Storytelling	4
		Research	3
		Trip	3
		Presentation	2
		Embodiment	2
		Brain storming	1
		Case study	1
		From near to far	1
		Individual study	1
		Invention	1
	Station	1	
	Materials	Map	14
		Presentation	14
		Smart board	11

	Textbook	6
	Documentary	5
	Movie	4
	Video	4
	Sourcebooks	4
	Eba activities	3
	Picture	3
	Animation	3
	Social studies websites	2
	Photograph	1
	Gain tests	1
	Tutorial songs	1
	Social media	1
	Literary works	1
	Atlas	1
Extracurricular factors	Social media	2
	Physical facilities	2

Table 3 shows the way social studies teachers follow in implementing the teaching process in teaching history subjects. Accordingly, the strategies, methods and techniques that teachers use most when teaching history subjects are: "narration (18)", "question-answer (16)", "drama (9)", "game (6)", "discussion (5)" and "storytelling (4)". T4: "I apply narrative, question-answer and discussion methods according to the characteristics of the subject. Sometimes, in appropriate places, I can show short clips from films so that the student can understand the lifestyle and traditions of that period. "Sometimes I give drama assignments to students who want to show their theater talent." While T21 stated: "I use methods and techniques such as question-answer, explanation and discussion, but so far the effect I expected has not been achieved. "Permanent learning can be achieved if historical site visits are made." is of the opinion. Teachers stated that they mostly used materials such as "map (14)", "presentation (14)", "smart board (11)", "textbook (6)" and "documentary (5)" in their lessons. Commenting on the subject, T12 said: "We usually use maps and smart boards. I think both of them are preferred because they make our job easier rather than their efficiency. "Visuals and presentations are useful for concretization." says. T17 said: "Maps, slides, questions and answers, videos, educational songs, games, activities. It increases interest in the lesson. However, some issues still remain abstract." He emphasizes that even the different materials used in lessons are not effective in solving the problems related to abstract subjects and concepts. Although extracurricular factors, which are one of the points that teachers cannot control very much in the implementation part of the teaching process, are not mentioned much, codes such as "social media (2)" and "physical facilities (2)" have

emerged. T8: “It may seem interesting, but false and inaccurate information provided by publications with unknown sources on social media causes confusion among students.” While drawing attention to social media, T18 said: “Frankly, I cannot use a lot of materials in lessons, the resources do not allow it. Internet in schools etc. "The lack of resources makes our job difficult." With his statement, he emphasizes the inadequacy of the physical capacities of schools.

Findings Regarding “Roles in the Teaching Process”

Table 4

Teacher Opinions about Roles in the Teaching Process

Theme	Category	Codes	Frequency
ROLES IN THE TEACHING PROCESS	Role of teachers	Interesting	14
		Guiding	10
		Productive	3
		Active	2
		Dynamic	2
		Equipped	2
		Objective	1
	Student profile	Motivation	15
		Readiness	10
		Lack of skills	4
		Passive	4
		Curious	3
		Prejudiced	2
		Lack of self-confidence	1
Lack of knowledge	1		

Table 4 contains codes for how social studies teachers evaluate their own roles in the teaching process and the student profile. In this direction, teachers think that a teacher should be more "interesting (14)" and "guiding (10)" in the teaching process. T4: "The teacher is directly involved in the teaching process. Since it is the teacher who directs and directs the lesson, it either makes them love or hate." while T6 expresses the opinion as follows: "The teacher is the determining factor in the learning of history in terms of gathering the students' interests or managing their existing curiosity." Although there are not many of them, codes such as "productive (3)", "active (2)", "dynamic (2)", "equipped (2)" and "objective (1)" have also appeared in this section. T8: "I find it important that the teacher is equipped with the field

and that the student answers the questions in a way that can show the sources." emphasizes teacher competence.

According to teachers, students experience a serious lack of "motivation (15)" in the teaching process and are not at a sufficient level of "readiness (10)". T24 said: "The most important element in every lesson and activity is the student. If the student is not willing, thinks about other things in the lesson and does not show interest in the lesson, you will not succeed. There is irresponsible behavior in many of today's students. A small number of students have an academic success goal and effort in this direction." while pointing out the low motivation of the students, T3 said: "The readiness levels of the students and their interest in the course have dropped a lot, especially with the pandemic and the earthquake. This should be raised." and emphasized the external factors that affect student motivation, especially in the recent period. Apart from motivation and readiness, negative codes such as "lack of skills (4)", "passive (4)", "prejudiced (2)", "lack of self-confidence (1)" and "lack of knowledge (1)" appear to be the only positive codes in this section. T17: "If there are prejudices that students have acquired before the course, it is difficult to break. If the student does not repeat regularly, does not pay attention, does not interest in what is said, it is forgotten and not permanent by staying in the lesson. I think the main character is the student," he said, noting the difficulty of breaking students' prejudices against history subjects. T12 said: "If the students cannot be active in this process, they will disappear in a deflated state, tightly in the process. They definitely need to be activated and participate in the flow. As the interest and curiosity of the student increases, the enthusiasm in the teacher will also be strengthened." and mentioned the positive effect of the active student on the teacher.

Discussion and Results

As a result of this study, which aims to reveal the problems faced by social studies teachers in the teaching of history subjects and to offer possible solutions for the solution of these problems, it has been revealed that there are various problems in the planning of the teaching process and the implementation of this process. The teachers whose opinions were consulted in the research mentioned that the class hours were very low, especially in contrast to the intensive curriculum. In addition, teachers mentioned problems such as the fact that the system is based on memorization, the lack of chronological integrity between the subjects makes it difficult for students to learn, the textbooks are inadequate and their opinions are not

consulted in the change processes related to the program. These problems mentioned by the teachers are similar to the researches in the relevant literature. Yıldız (2003) presents the main problems in history teaching; insufficient course hours, the classicism of the methods used in education, the fact that the textbooks do not comply with the standards accepted in the world and the understanding of rote education.

The fact that social studies course hours are insufficient and the importance of the course lags behind other courses is a highly debated issue in the international literature. Especially the modern debate about primary school social studies and history teaching is about whether history and social studies teaching is necessary, rather than what should be taught (Keirn, 2018). While there has been a greater focus on reading and mathematics skills, especially since 2001, with the influence of the "No Child Should Be Left Uneducated" law in the USA, there has been a serious decrease in the course time allocated for history and social studies in the primary education program. The main reason for this situation is that teachers are forced to focus on reading and linguistics in order to increase students' test scores, and as a result, the importance of history and social studies is reduced (Van Sledright, Reddy, & Walsh, 2012). Morton and Dalton (2007), who revealed this situation statistically, stated that the time allocated to social studies lessons per week in primary public schools in the USA was 3 hours in the mid-90s, and this time decreased to 2.5 hours in the mid-2000s. The significant decrease in the time allocated to the social studies course and the lowering of the importance of the course lead to the state withdrawing its investment resources from this field and not allocating sufficient funds and resources for teacher training. According to An (2016), this invisibility of social studies in primary teacher education may cause investment resources to focus on other areas and stay away from social studies. As a matter of fact, primary school social studies education is not funded as much as other fields in the USA and has not even been included in the state budget since 2012 (Perrotta, 2021).

Social studies teachers, whose opinions were consulted within the scope of the research, consider it important for their students to gain a national consciousness and learn about Turkish culture. However, teachers; He has difficulty in teaching subjects such as "Ottoman History", "Ancient History" and "History of the Turkish Republic" to his students. The main difficulty in teaching these subjects is that there is a very intense flow of information and students feel obliged to memorize this information. In parallel with the results of this research, Şimşek and Güler (2013) discuss the problems experienced in the teaching of Atatürk's Principles and the History of Turkish Revolution; insufficient course

hours, lack of resources, tools, equipment, intensity of the curriculum, students' lack of interest in the course, rote understanding of history, intensive flow of information towards official history, boring of the course and history information based on prejudice.

Göksu and Taşyürek (2023), in their study investigating the problems experienced by social studies teachers during the teaching process, stated that students experienced problems such as readiness, motivation and distraction in classes. Problems experienced by teachers in the study, such as insufficient lesson hours, difficulty in obtaining materials and inadequate physical conditions of schools, are parallel to the results obtained from this study. And also Şentürk, Coşkun Keskin, Ömer and Dursun (2021) stated that during the distance education process, social studies teachers experience problems such as indiscipline and lack of motivation caused by students, as well as problems arising from the curriculum such as insufficient class hours, insufficient information in the curriculum, and the inability to apply different methods and techniques.

Social studies teachers whose opinions were consulted in the study stated that students could not concretize history-related subjects, they thought that they would not be of any use in their daily lives, and that they found these subjects boring, and that this situation constituted a problem in teaching. In order to make the social studies curriculum more interesting for students, including different topics related to their daily lives may be a possible solution. In Perrotta (2021)'s research conducted with social studies teachers, participants; He pointed out that social studies teaching could be enriched with different subjects by including subjects such as women's history, civil rights and local history, which are not clearly included in the social studies curriculum. In addition, diversifying and enriching the teaching environment with different strategies, methods and techniques in order to concretize the subjects and make them interesting for students can be a solution. However, the same teachers whose opinions were consulted in the research stated that they mostly use lecture and question-answer methods, which we can see as classical methods, in their lessons. This may be a problem that may arise mainly from the inadequacy of teachers, but it may also be a problem arising from the inadequate physical conditions of schools and the short duration of lesson hours, making it impossible to apply different methods and techniques that can focus on the student in the classroom.

Teachers stated that they mostly used materials such as maps, presentations, smart boards, textbooks and documentaries in their lessons. Considering the problem experienced by students in concretizing abstract topics and concepts, it can be said that teachers try to

support their lessons especially with visual materials. However, they still have problems in making out-of-school learning environments part of the teaching process. Yılmaz (2010)'s research on the problems faced by history teachers in the teaching of Ancient History and Ancient Turkish History also suggests that teachers should make more use of out-of-school learning environments such as museums.

Teachers stated that students came to the classroom with various prejudices by obtaining information about history, especially from social media, of uncertain origin. Although social media tools, which have become an almost inseparable part of the lives of new generation students with the development of technology, offer various and rapid opportunities to access information, the lack of critical reading and media literacy skills of students may also cause them to be negatively affected by information pollution in social media. As a matter of fact, Okumuş (2019) sought the opinions of history teachers regarding the use of social media environments in history teaching; In addition to the positive opinions of teachers about social media such as providing information and communication opportunities without time and place limits, virtual socialization areas and rapid changes, they also conveyed their negative views such as causing information pollution and addiction. According to social studies teachers, the teacher should be more interesting and directive in order to convey the subjects related to history to the students in the best way. The fact that students find history subjects boring and need to be directed to the right resources shapes the teachers' thinking in this direction. According to the teachers, students' interest and motivation in history subjects are low and students are insufficient in terms of readiness. One of the remarkable results reached in the research is the problems arising from the inability to integrate Syrian students into the teaching process. According to teachers' opinions, especially topics related to Central Asian Turkish History do not attract the attention of Syrian students. This problem can be solved with individualized studies, but teachers need alternative activities that can be included in the curriculum. Yılmaz and Kaya (2011) describe the problems encountered in history teaching within the scope of social studies course; students' indifference to the lesson, contradictions in the curriculum, inadequacy of textbooks especially in terms of language and expression, examination-oriented system, physical inadequacies of schools and limited access to teaching materials and resources.

Despite the following years, developing technological opportunities and changing curriculum, it is seen that social studies teachers continue to have the same problems in teaching history subjects.

Recommendations

Within the scope of the research, social studies teachers mentioned that they experienced various problems in teaching history subjects. In order to solve these problems, taking into account the opinions of the teachers who are the implementers of the curriculum, a curriculum arrangement study where the course hours are increased, the flow of information is free, and the chronology is not ignored can be carried out by experts in the field. When our schools are adequately equipped in terms of physical conditions based on the principle of equal opportunity in education, most of the remaining work falls on teachers. Teachers should keep students' interest and curiosity alive by using different strategies, methods and techniques in their lessons, and should be able to raise historical awareness in their students by directing them to the right resources. Although teachers and students have a great responsibility to solve all these problems, the first step should be taken by the program makers, who can be described as the first link of the system.

Compliance with Ethical Standards

The Ethics Committee of Çukurova University was applied for a document showing the ethical suitability of the study. The document showing that the study was ethically appropriate (decision dated 28.08.2023 and numbered E-74009925-604.01.02-788688) was received.

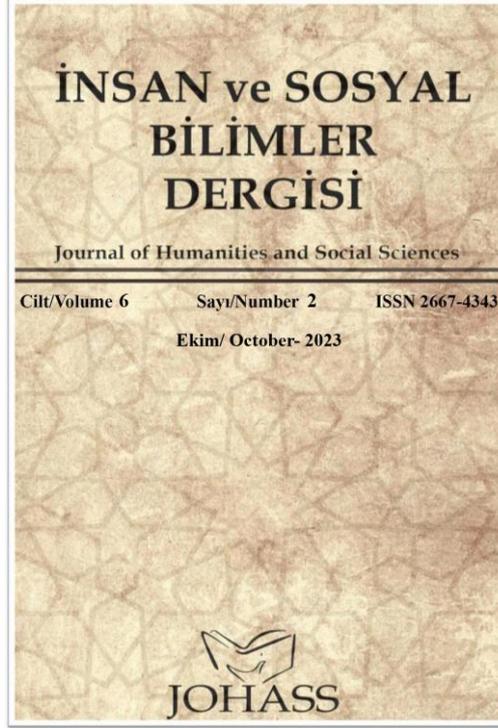
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**A Feminist Analysis of George Bernard Shaw's *Mrs. Warren's Profession*:
The Concept of the "New Woman"***

**This article is the revised and expanded version of a paper presented at the Akdeniz 9th International Conference on Social Sciences, held on 1-2 April, 2023 in Adana.*

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A Feminist Analysis of George Bernard Shaw’s *Mrs. Warren’s Profession*: The Concept of the “New Woman”*

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Abstract

Mrs. Warren’s Profession was written in 1893 by the Irish critic and dramatist George Bernard Shaw, who introduced social realism to the British stage. First performed in 1902 in London, the text is a social critique satirizing the stereotypical Victorian norms. Reflecting Shaw’s feminist ideals, the play also contributed to the development of the feminist movement. *Mrs. Warren’s Profession* introduces the “New Woman” type who rebels against the stereotyped female representations and male-centered conventions of the nineteenth century. The play mainly revolves around a controversial taboo topic, prostitution. Shaw dramatizes this profession through the two untraditional female characters. Kitty Warren is an audacious woman running a brothel to provide her daughter with better life and education standards and Vivie is a highly-educated and independent woman who expostulates her mother for her profession. *Mrs. Warren’s Profession* stresses that it is the social, economic and moral ills of the society that lead women to choose this profession. This paper, from a feminist lens, links these two non-conformist characters to navigate the ways through which the concept of the “New Woman” is represented. This paper also investigates how these characters protest against the stereotypical female roles imposed on them to gain an autonomous identity within society. Thus, this study, through these two female characters, reveals how this play dethrones the myth of the “Angel in the House,” the ideal Victorian woman, and sheds light on the modern feminism.

Keywords: *Mrs. Warren’s Profession*, The “New Woman” concept, “Angel in the House,” feminism, female representation

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Introduction

George Bernard Shaw (1856-1950), a pioneering Irish playwright, literary critic and socialist who was awarded the Nobel Prize in 1925, is known as the father of modern drama. Inspired by the Norwegian dramatist Henrik Ibsen, Shaw contributed to the Western stage with more than sixty plays including *Man and Superman* (1903), *Major Barbara* (1905) and *Pygmalion* (1913), and five novels, including *Cashel Byron's Profession* (1882-83) and *An Unsocial Socialist* (1883). "Shaw, as a nineteenth-century writer for whom social distinction, especially the position between the rich and the poor, was the greatest problem in society, was well placed to draw such an issue into his plays. Shaw created female characters with various economic and social backgrounds, from the lower and the middle, to the upper classes" (Ahmad, 2018, p. 23). Shaw followed Ibsenist ideas, which he specified in *The Quintessence of Ibsenism* (1891); he embodied social consciousness and cultural and political issues in his plays to raise the awareness of the audience and expounded his views in the prefaces to his works. In this sense, his works often bear the features of didactic plays.

Mrs. Warren's Profession is a contemporary satire, filled with unusual characters, mirroring Shaw's moral, socialist, cultural and feminist views. In his article "Mr. Bernard Shaw as a Social Critic," William Mackintire Salter defines the play as "one of the most impressive, one of the most moral plays" (1908, p. 452). In his 1897 letter to actress Ellen Terry, Shaw posed his views about the play: "It's much my best play; but it makes my blood run cold: I can hardly bear the most appalling bits of it. Ah, when I wrote that, I had some nerve" (Shaw, 1897, as cited in John, 1949, p. 193).

The play takes place in the countryside town in the south of Haslemere, in the Southern Surrey, in the Victorian England. Besides the themes of women rights, poverty, moral corruption, and social, economic and gender-based disparities, the play mainly centres on a controversial taboo topic, prostitution. Shaw dramatizes this profession via the two untraditional female characters. Kitty Warren is an audacious woman who was once a prostitute, and is now running a chain of brothels at different locations in Europe to provide her daughter with better social and academic standards. Her daughter Vivie is a Cambridge-educated and independent 22-year-old woman. Upon graduating from university with honours in Mathematics, she returns home to become acquainted with her mother, whom she barely knows. It is a shocking moment for Vivie when she finds out the secret about her mother's profession; she expostulates her for her choices in life. The play revolves around

intergenerational dialogues as well as gradually distorted relationships between these two women. Throughout the play, Mrs. Warren tries to come to terms with her daughter with the aim of justifying, for which she condemns the economic disparities and hypocrisy as well as the reasons for her choosing this life. Vivie's complex feelings and unsteady reactions towards her mother create a complicated allegory within the play from time to time.

Written in 1893, in the early period of Shaw's career, *Mrs. Warren's Profession* was first published in 1898 in the two-volume edition of *Plays Pleasant and Unpleasant*, the third play in the *Unpleasant* volume. The performance of the play created chaos among the public and in the press due to its theme. "The play was originally banned by the Lord Chamberlain in 1893" (*A Noise Within*, 2017-18, p. 16) due to its theme. In 1902, it was "first performed at The New Lyric Club, a private theatre space in London. [In 1905, the play had] its first public performance in New York. This performance was interrupted by police because the play was considered indecent" (*A Noise Within*, 2017-18, 7). The denunciations of the play were harsh and provocative; it often received critical attention from moralistic and misogynist perspectives. In "The Author's Apology," preceding the play, Bernard Shaw satirically expresses his views regarding the chaos and the repercussions after the first night of the play in London: "*Mrs. Warren's Profession* has been performed at last, after a delay of only eight years; and I have once more shared with Ibsen the triumphant amusement of startling all but the strongest-headed of the London theatre critics clean out of the practice of their profession" (Shaw, 1894, p. 5). With respect to the critics' reactions against his characters, Shaw (1894) replies:

I declare that the real secret of the cynicism and inhumanity of which shallower critics accuse me is the unexpectedness with my characters behave like human beings, instead of conforming to the romantic logic of the stage. . . Because I have thrown this logic ruthlessly overboard, I am accused of ignoring, not state logic, but, of all things, human feeling. (p. 19)

As mentioned in John Corbin's "Introduction" to Shaw's "Apology," entitled "The Tyranny of Police and Press," the play was explicitly described in the *New York Herald* as an "an insult to decency" since it "defends immorality," "glorifies debauchery," and "pictures children and parents living in calm observance of most unholy relation" (1905, p. 7). *St. James' Gazette* defined the play as "grossly unsuitable for stage treatment" and "wholly evil" (as cited in Laurence, 1970-74, p. 255). In his "Apology,"² Shaw addresses his readers not to

² Shaw's "The Author's Apology" in *Mrs. Warren's Profession* will be cited as "Apology" hereafter.

justify himself or apologize for writing on an offensive topic that created such a state of chaos, but to clarify what he really intended to show with the characters he artfully crafted.

Bernard Shaw, instead of blaming Mrs. Warren, for her occupational decision, accuses the Victorian society and its social, moral, and economic rottenness that led women to choose prostitution as a profession:

Though it is quite natural and RIGHT for Mrs Warren to choose what is, according to her lights, the least immoral alternative, it is none the less infamous of society to offer such alternatives. For the alternatives offered are not morality and immorality, but two sorts of immorality. The man who cannot see that starvation, overwork, dirt, and disease are as anti-social prostitution—that they are the vices and crimes of a nation, and not merely its misfortunes—is (to put it as politely as possible) a hopelessly Private Person (Shaw, 1894, p. 23).

In his “Apology,” Shaw emphasizes that “The only way for a woman to provide for herself decently is for her to be good to me man that can afford to be good to her” (p. 64) and in his *Everybody’s Political What’s What?* Shaw (1944) reiterates that prostitution is “an economic phenomenon produced by an underpayment of honest women so degrading” (p. 196). Thus, the social, financial and commercial inequalities in the Victorian system, prioritizing men and excluding women, hoisted some women to revolt against the system, which propelled the feminist movement and paved the way for the rise of the “New Woman.”

Method

In *Mrs. Warren’s Profession*, the Socialist playwright George Bernard Shaw delves into the economic roots of prostitution and lays the blame on the capitalist system of the Victorian society. This article, through a feminism lens, introduces a critical aspect in which two non-conformist female characters, Vivie and Kitty, represent the “New Woman” concept. By closely analysing the text, it is argued that these two characters reject the stereotypical female roles imposed on them by the male-centered society, and struggle for a self-sufficient and an autonomous way of life in order to survive and gain an identity within the Victorian community. In this aspect, this article investigates how the “New Woman” type in *Mrs. Warren’s Profession* dethrones the myth of the “Angel in the House,” the ideal Victorian woman, by both making a turning point in the late Victorian feminism and shedding light on the modern feminism.

From “Angel in the House” to the “New Woman”

Throughout history, the evolutionary progress of women within society has commonly been a struggle. The historical archives abound with women activists who protested traditional gender roles and male-dominated practices, and fought for voting rights and equality in pursuit of gaining social rights, such as equal pay and job opportunities, as well as a respectable and independent status in the social, academic, professional and political realms of society. In fact, the efforts of the feminists date back to the medieval period. Poets and writers, such as Margery Kempe and Christine de Pisan from the fourteenth century, and Aphra Behn from the seventeenth, who are considered among the early feminists, laid the groundwork for modern feminism. Behn, for example, was a middle-class woman who earned her living by her writing like a man.

In the eighteenth century, Mary Wollstonecraft’s ground-breaking work *A Vindication of the Rights of Woman: With Structures on Political and Moral Subjects* (1792) had a substantial impact on advocates for women’s rights; her arguments were ahead of her time. Subsequently, the UK women’s suffragette movement created a great change towards women’s gaining liberation and a new identity in the early twentieth century; suffragette campaigning started in Boston in the 1860s and continued up to the British campaigning in the 1920s. Despite such pioneer feminists who resisted the practices of female classification, labelling them as mother, daughter, prostitute, and mistress, women who seek independence and self-sufficiency through their work have always been seen less favourably and faced more disadvantages than their male rivals throughout history. The male has been privileged, while the female has been imprisoned according to the patriarchal codes.

With regard to female oppression and the representation of femininity, the French writer, theorist and feminist Simone de Beauvoir, in her 1949 book, *The Second Sex*, a detailed agenda of the feminist theory, suggests that “our societies are patriarchal and a woman must break the bonds in order to be herself as a human being” (1973, p. 125). As De Beauvoir also puts it:

Women’s legal status remained almost unchanged from the beginning of the fifteenth century to the nineteenth, but in the privileged classes her actual situation did improve. The Italian Renaissance was an individualistic epoch favourable for the emergence of strong personalities, regardless of sex. Women were powerful sovereigns, military fighters and leaders, artists, writers, and musicians. . . . In later centuries the same

license marked those women of rank or fortune who could escape the harsh common morality of the times. (Beauvoir, 1973, p. 136)

As inferred from Beauvoir's arguments, women's status depends on their social classes as well as the existing conditions of that period. Victorian society was the epitome of male-favouritism, limiting women socially, financially, and intellectually. Victorian values confined women to the house, the domestic space. Under the shadow of the patriarchal power, the ideal Victorian female figure is compelled to marry and take care of her husband and children; she is deprived of voting and financial rights as well as the control of their earnings and property.

The "Angel in the House" concept represents the stereotypical image of the Victorian woman; it was adapted from the British poet Coventry Patmore's narrative poem of the same name, first published in 1854. The poem depicts the ideal Victorian wife who is expected to raise her children and please her husband: "Man must be please; but him to please / Is woman's pleasure; down the gulf / Of his condoled necessities / She casts her best / she flings herself" (Patmore, 1-4). Similarly, British modernist and feminist author Virginia Woolf describes the "Angel in the House":

[as] immensely sympathetic, immensely charming, utterly selfish. . . She sacrificed herself daily. . . Above all. . . she was pure. Her purity was supposed to be her chief beauty—her blushes, her great face. In those days—the last of Queen Victoria—every house had its Angel. (Woolf, 1942, as cited in Barrett, 1979, p. 59)

Woolf also expresses how she killed her own "Angel" by saying "it was she [the Angel in the House] who used to come between me and my paper when I was writing reviews. It was she who bothered me and wasted my time and so tormented me that at last I killed her" (Woolf, 1942, as cited in Barrett, 1979, p. 59). Emerging in the late nineteenth century, which had an important influence on the twentieth century, the concept of the "New Woman" refers to liberal women looking for radical changes, equality, and recognition in society. It was the Irish writer Sarah Grand who first used this term. In her "The New Aspect of the Woman Question," Grand suggests that the "[New Woman] proclaimed for herself what was wrong with Home-is-the-Woman's-Sphere, and proscribed the remedy" (1894, p. 271).

The idea of the "Angel in the House" can be associated with a 1909 anti-suffrage postcard, St. Valentine's Greeting—Woman's sphere is in the HOME. The image portraying a young woman, knitting at "HOME" can be seen in Figure 1:

Figure 1

*St. Valentine's Greeting—Women's Sphere is in the HOME (1909)*³



From the feminist perspective, the “New Woman” represents the feminist ideals of the *fin-de-siècle*, as the opposite of the Victorian “Angel in the House.” American author Winnifred Cooley, in *The New Womanhood*, suggests that “[t]he new woman seeks only to be a free individual” (1940, p. 40). Cooley also elaborates on the paradox of this concept by exemplifying it with types of women from history:

[t]he term ‘new woman’ is luminous with meaning; yet it is a paradox; for the advanced woman, the woman who does things, who strives not only to be, but to act, is not new, but more numerous than ever before. She has appeared at intervals throughout all time, in the guise of an inspired warrior, a brilliant orator, or organizer, a Greek poetess, a scholar, or a queen. The new woman is only the old woman with new opportunities! Women of the past were so limited by physical burdens and suppressed by public opinion that the wonder is there are so many beacon lights. (Cooley, 1940, pp. 15-16)

With regard to Bernard Shaw’s depiction of the “New Women” on the stage, Barbara Watson, in *A Shavian Guide to the Intelligent Woman*, also puts it: “The New Women of

³ See the anti-suffrage illustration, *St. Valentine's Greeting*—“*Woman's sphere is in the HOME (1909)*.” Courtesy of Catherine H. Palczewski. I am very grateful to Catherine H. Palczewski for sending me a high-resolution copy of this image, and giving permission to use it.

Shaw's creation are all ultra-feminine feminists" (1964, pp. 178-179). Thus, contrary to the stereotypical "Angel in the House" images in the Victorian period, Kitty and her daughter Vivie Warren, although they are from different social classes in society, represent the "New Woman" type, who stand as feminist, independent and strong figures with masculine qualities. Therefore, it would be good to explore the text from a feminist perspective.

A Feminist Analysis of *Mrs. Warren's Profession*

In *Mrs. Warren's Profession*, Shaw's two female characters, Mrs. Warren and Vivie, act as the representatives of the "New Woman" concept;" they are intelligent, audacious, and wise characters. Rejecting to conform to the traditional roles of women, these characters earn their own money in a male-centered coterie and struggle to be self-sufficient within the rotten social, economic and moral values of the Victorian society.

Vivie Warren is a wise, well-educated and ambitious woman of twenty-two, who has been brought up away from her mother and in boarding schools. The narrative voice complimentarily depicts her traits: "She is an attractive specimen of the sensible, able, highly-educated young middle-class Englishwoman. Age 22. Prompt, strong, confident, self-possessed" (I, p. 31). As Alkan notes, "When compared to conventional female type who is considered weak of intelligence to understand the complexities of public affairs in Victorian period, Vivie who has graduated from Cambridge, and knows mathematics very well represents the 'New Woman' type" (2021, p. 602). Vivie comes to visit her mother whom she little knows. At first, Vivie appreciates her mother's choices, saying "My dear mother, you are a wonderful woman. . .you are stronger than all England. And are you really and truly not one wee bit doubtful. . .or. . .or. . .ashamed?" (II, p. 64) and then Mrs. Warren defends herself from a more holistic perspective encompassing all women who have to choose such ways; she confesses the rotten social and economic conditions as well as the hypocritical manners of the British society:

it's only good manners to be ashamed of it; it's expected from a woman. Women have to pretend to feel a great deal that they don't feel. . . I can't stand saying one thing when everyone knows I mean another. What's the use in such hypocrisy? If people arrange the world the way for women, there's no good pretending that it's arranged the other way. I never was a bit ashamed, really. (II, p. 65)

Mrs. Warren reveals to her daughter that it was the conditions for working women that compelled them to do this job. She scorns the traditional public attitude of pretending that

women are honored and respected. The dramatic reason for Mrs. Warren's defending herself is the hypocrisy of the society. Therefore, she thinks there is nothing for her to be ashamed of. And that she rejects to apologize for this situation.

As an independent woman striving against the patriarchal system, Kitty also questions her daughter's lack of self-respect and expresses her reproachful feelings about it:

How could you keep your self-respect in such starvation and slavery? And what's a woman worth. . . what's life worth. . . without self-respect? Why am I independent and able to give my daughter a first-rate education, when other women that had just as good opportunities are in the gutter? Because I always knew how to respect myself and control myself. (II, p. 64)

This is Kitty's response to her daughter's lack of respect for her occupation. Her response is satirical as being a prostitute is associated with the lack of self-respect in society. Thus, she indicates that her perception of self-respect is equal to her social and economical independence; so she expresses that she is more advantageous than other women because she is an independent woman.

The crisis of mother-daughter relation appears when Vivie discovers the truth about her mother's highly profitable occupation. Upon Vivie's returning home, Mrs. Warren finds herself in a compelling battle with her daughter to advocate her life choices:

Do you think I was brought up like you? able to pick and choose my own way of life? Do you think I did what I did because I liked it, or thought it right, or wouldn't rather have gone to college and been a lady if I'd had the chance? . . . Would you like to know what my circumstances were? (II, p. 60)

Mrs. Warren begs Vivie not to judge her for her decision and tries to excuse herself by telling about the circumstances she was in. She implies that she was forced to do so. She also emphasizes that she has provided her with economical support so that she could attend a college and find an opportunity to choose an occupation for herself. However, Vivie has no tolerance for her mother's excuses; her reaction is an epitome of the cleavage between them. She uncompromisingly disregards her mother's self-expressions: "[p]eople are always blaming their circumstances for what they are. I don't believe in circumstances. The people who get on in this world are the people who get up and look for the circumstances they want, and, if they can't find them, make them" (II, pp. 60-61). Vivie's "New Woman" image mirrors her insubordinate insight into the male-controlled circumstances. As one of the few

highly-educated women in Victorian society, Vivie is a powerful and self-confident female figure, eagerly entering into her career in the field of finance in London.

Even though Vivie is described as attractive, she is remarkably masculine in terms of her appearance and lifestyle. The narrator celebrates her modern style: "Plain business-like dress, but not dowdy. She wears a chatelaine at her belt, with a fountain pen and a paper knife among its pendants" (I.p. 31). The word "fountain pen" signifies her "new womanhood" as it is associated with a cultivated woman. Praed also praises her merits at face: "I declare you are the most splendidly courageous woman I ever met" (IV, p. 88). Unconventionally, she is praised by a male figure and defined as a "courageous woman." Vivie also talks about masculine activities she is planning to do in the future: "I shall set up chambers in the City, and work at actuarial calculations and conveyancing. . . I shall do some law, with one eye on the Stock Exchange all the time" (I, p. 35). In this way, she challenges to the male-dominant working conditions. Vivie's masculine way also manifests itself in her manners and lifestyle. In Act I, in a private dialogue with Praed, she affirms: "I like working and getting paid for it. When I'm tired of working, I like a comfortable chair, a cigar, a little whisky, and a novel with a good detective story in it" (I, p. 35). The image of Vivie with "cigar," "whisky" and a "detective story" represent the qualities of a masculine young woman. In this regard, J. Ellen Gainor asserts the portrayal of "New Woman" as follows: "The New Woman was noted for independence of spirit and action; [Vivie] refused to conform to the conventional, male determined code of feminine behavior. . . This personal adventurousness manifested itself externally in such unwomanly activities as cigaterre smoking" (1991, p. 15). Here, Vivie is depicted not only a modern and independent woman with masculine qualities, but also a woman who can balance her work life and social life.

Vivie is aware of the current patriarchal situation, yet she is also angry at women who yield to the male oppression, showing no pity towards them. Cognizant of her capacity in the patriarchal society, she accuses other women and their view of life. The way Vivie perceives the world is also echoed in her future plans. Since she has no intention to find a husband, she rejects the marriage proposals of Frank Gardner, a 20-year-old handsome and foppish man who wants to marry a rich woman, and George Crofts, a wealthy aristocrat and the co-owner of brothels with Mrs. Warren. Thus, Vivie prefers her individual and social independence over marriage and rejects them.

As an unconventional woman, challenging the established female roles, Vivie cries out against her mother: "Mother, you want a daughter and Frank wants a wife. I don't want a

mother, and I don't want a husband. I have spared neither Frank nor myself in sending him about his business" (IV, p. 95). Mrs. Warren also mirrors the "New Woman" image. "[She] is between 40 and 50, formerly pretty, showily dressed in a brilliant hat and a gay blouse fitting tightly over her bust and flanked by fashionable sleeves" (I, p. 37). Thus, she is quite modern in appearance.

However, when Vivie finds out that she is still running her business as a brothel proprietor, she does not accept it and declares her independence to her mother: "From now on, I go on my way in my own business and among my own friends. And you will go yours" (IV, p. 92). She blames her through empathy: "You are a conventional mother at heart. That is why I am bidding you good-bye now" (IV, p. 96). The dialogues between the mother and her daughter distort their relationships.

Gladys Margaret Crane, in her article, draws attention to Shaw's brilliantly crafting character conflicts: "The genius of Shaw is his creation of character conflict which meshes perfectly with his conflict of ideas" (1983, p. 30). With regard to generational incompatibilities between mothers and daughters, De Beauvoir (1949) comments on the mutual complex relationship between a mother and a daughter:

[t]he mother's attitude towards her grown-up daughter is most ambivalent. . . in her daughter she finds a double. The double is a dubious personage, who assassinates [her] original. . . Thus, in becoming a woman the daughter condemns her mother to death. (p. 559)

About the mother-daughter conflict, Beauvoir suggests that the relationship between a mother and a daughter is inseparable; it displays mutual complicated dynamics, which leads to an ambivalent situation. A daughter might find her double self in her mother, yet she denies taking her as a role mother.

This can be seen in Act IV when Vivie likens herself to her mother: "I am my mother's daughter. I am like you; I must have work, and must make more money than I spend. But my work is not your work, and my way not your way. We must part" (IV, p. 95). This is Vivie's justification to express why they should part. Mrs. Warren, in order to defend herself, reacts against the injustice that occurred:

Oh, the injustice of it, the injustice, the injustice! I always wanted to be a good woman. I tried honest work, and I was slave-driven until I cursed the day I ever heard of honest work. I was a good mother, and because I made my daughter a good woman

she turns me out as if I was a leper. Oh, if I only had my life to live over again! (IV, p. 96)

Mrs. Warren also questions herself as to why she did not choose to be an ordinary labourer. Such dialogues between Mrs. Warren and her daughter reveal the dilemma between their different viewpoints and life choices. Therefore, through the vivid characters and the intriguing dialogues between her two female characters, Shaw brings to light the reasons why working-class women, brought up in poverty and deprivation, choose prostitution as an occupation in the late nineteenth century.

Discussion and Results

Mrs. Warren's Profession is a prominent play in terms of encouraging women and feminist ideals, and revealing the moral, social and economic ills of the Victorian era. Introducing the "New Woman" type to the British stage via the two untraditional characters: Mrs. Warren, a former prostitute and a powerful brothel-owner, and her daughter Vivie, a highly-educated and independent young woman who chooses her independence over marriage and domestic life. The play stands out as a ground-breaking work with its witty dialogues and striking themes in satirically responding to and critiquing the cultural, social, feminist, and economical concerns of the time. In *Mrs. Warren's Profession*, Shaw touches upon a wide range of themes including "economic, social, and moral problems such as women's rights, poverty, laboring class education, marriage, religion, political issues, health care and class privilege in a controversial and realistic way" (Yatağan, 2016, 278). "According to the social reformer Shaw, it was one of the most important tasks of the modern dramatist to put such uncomfortable subjects in the public pillory" (Dierkes-Thrun, 2006, p. 293).

The Victorian period was an era that undervalued women in the society in which they lived. Produced in this epoch, the play is a satirical critique problematizing and challenging the system favouring male privilege and encouraging female objectification at social, cultural, and feminist levels. Inspired by the plays of Henrik Ibsen, such *A Doll's House*, *Mrs. Warren's Profession* exposes the double standards faced by women, underpinning the norms of the Victorian society and reinforcing male favouritism. However, his dramatic techniques were different from Ibsen's. "Whereas Ibsen had probed the inner lives and problems of his characters in plays suffused with a Scandinavian air of gloom, Shaw turned his characters into witty spokespersons for his social and political views" (Klaus et al., 1995, p. 43).

In *Mrs. Warren's Profession*, I would argue that although Vivie and Kitty belong to different social classes and maintain a different life-style, both of them represent the "New Woman" type from different angles, challenging the Victorian gender norms and traditions. Vivie is an educated and a self-respected woman working outside the home; she refuses to accept marriage proposals from Frank and Crofts or take care of her mother. In that sense, Vivie acts as an indomitable woman and a quasi-suffragist. Likewise, Mrs. Warren is portrayed as a single and independent mother who has undergone many hardships to become a prosperous businesswoman even though she feels motherly protection towards her daughter and sticking to some certain traditions, such as suggesting some suitors for her. Thus, Mrs. Warren courageously conducts her profession, and strives to survive in the society she lives in. Therefore, these two women can be considered Shaw's most untraditional female characters since they abandon their family duties, earn their lives by working and reject to become "domestic angels" in the "Victorian houses."

Shaw stands out as a proponent of the newly-emerging feminist ideals and the individual, social and economic liberation of women, which predate the modern feminist and suffragette practices. For Shaw, one of the most crucial problems of the nineteenth century was "the position between the rich and the poor" (Ahmad, 2018, p. 23). In fact, what Shaw criticizes is the capitalist system that favours wealthy men, and suggests that "rich men without conviction are more dangerous in modern society than poor women without chastity" (Klaus et al, 1995, p. 646). Dorothy A. Hadfield draws attention to how Shaw perfectly focuses on women's issues, and notes that "perhaps no one wrote more for and about women than George Bernard Shaw, whose advanced views on the 'woman question' earned him significant notice as an ardent champion of early feminism" (Hadfield, 2010, p. 112). Therefore, analysing the text and exploring Shaw's two female characters from the feminist perspective would paradigmatically open up alternative paths for contemporary criticism since the play offers the ideal reader a vast source with a wide range of possibilities of interpretation.

Mrs Warren's Profession play leads to a confrontation between the polar features, such as "conventional" and "unconventional," "new" and "old," and "educated" and "uneducated." Revolving around two female characters from different social classes, the play merges at one point: the "New Woman," who resists male-centred traditions outside the domestic and patriarchal space. In this sense, Shaw presents the concept of the "New Woman" via these two characters to the British theatre, dismissing the "Angel in the House."

What makes the play distinctive and challenging is that it draws the readers into becoming conscious about the moral and social issues. Throughout the play, it is shown that moral corruption and hypocrisy as well as economic and social inequalities provide women with limited alternatives to survive within society. *Mrs. Warren's Profession* is a play ahead of its time, passing beyond the limits of Victorian patriarchy and de-conventionalizing the female representation.

Viewed through the critical light of feminist criticism, I would argue that Shaw wisely unfolds the Victorian period by problematizing and displacing the female representation to raise a high level of awareness and consciousness among Victorian society, and illuminates the modernist period to come. In this context, Shaw's work promotes the concept of the "New Woman" not in the Victorian, but also in the Modernist canon. It performs an important function in redefining and replacing women's status in society. Blanche Lane defines the new woman as "an evolution from all previous types, and represents in her fullest growth the nineteenth century phase of womankind. . .not an abnormal excrescence of the social structure" (1896, p. 124). Even though the "New Woman" concept is mainly connected with the years 1890-1920, it can perennially be rearticulated and rediscovered in line with today's progressive developments of modern feminism. Doubtlessly, *Mrs. Warren's Profession* remains a unique work and appears to be igniting fresh debates, shedding light on the contemporary criticism for the modern and postmodern readers. In this sense, the "New Woman" type introduced by Shaw to the British stage can be anticipated as the herald of modern feminism.

Recommendations

Doubtlessly, women's statue in society is among the foremost themes in George Bernard Shaw's plays. George Bernard Shaw's *Mrs. Warren's Profession* should be read from the feminist perspective. Analysing Shaw's play in the light of contemporary feminist theories paves the way for navigating the ways through which the concept of the "New Woman" is represented through the two female characters of the play, Kitty Warren and Vivie Warren. It is argues that these two characters rebel against the stereotypical female roles imposed on them and dethrone the myth of the ideal Victorian woman, "Angel in the House." They seek for their social and financial independence to gain an identity in the Victorian society. Although the play was written more than a hundred and thirty years ago, at the time

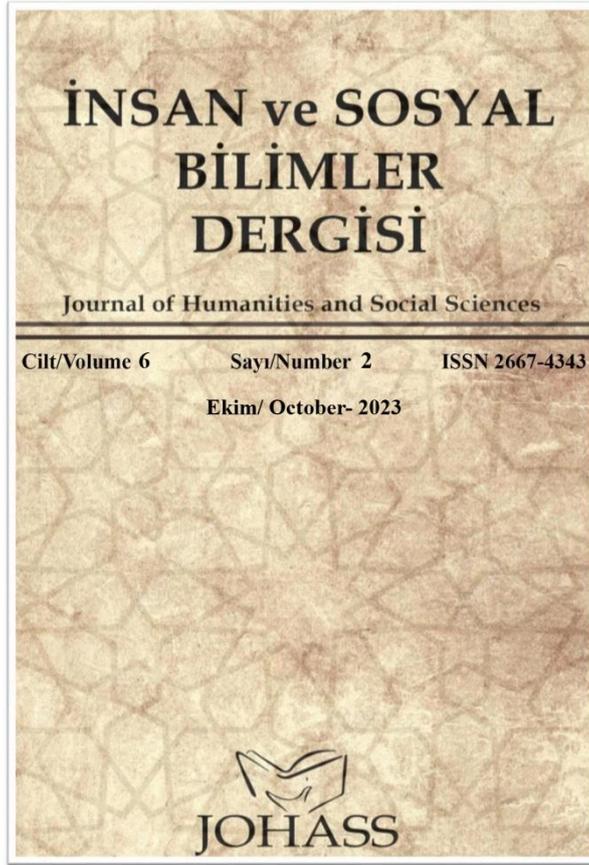
when such issues were regarded as taboo, it addresses to the controversial issues of contemporary feminism and modernism.

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**Bibliometric Profile of Doctoral Dissertations on Minstrel Literature in
Türkiye Between 2013-2023**

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Bibliometric Profile of Doctoral Dissertations on Minstrel Literature in Türkiye Between 2013-2023

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Abstract

This research aims to present the bibliometric profiles of doctoral dissertations completed in the field of Minstrel Literature in Türkiye between 2013 and 2023. The study was designed using a descriptive content analysis design, which is one of the non-interactive patterns within qualitative research approaches, in terms of its process and subject. The population of the study consists of doctoral dissertations on the topic of "Minstrel Literature" in the category of theses in the YÖK National Dissertations Center database. The year limitation has been extended to cover the years 2013-2023. As a result of the scanning, 29 theses related to the subject were identified and included in the analysis. According to the results; a significant majority of the studies were completed in 2015, and there was a noticeable decrease in the number of theses in 2016 and 2021. Atatürk University and Erciyes University have hosted the most doctoral theses in Minstrel Literature, becoming significant centers in this field. A significant portion of the doctoral theses were supervised by academicians with the title of Professor. When examining the gender distribution of researchers, it is observed that male researchers produce more theses in this field. The Department of Turkish Language and Literature is the academic department that focuses the most on doctoral theses. The length of doctoral theses is generally in the range of 400-499 pages. "Minstrel tradition," "Minstrel," and "Music" are the most commonly used and emphasized keywords in these studies. The recent decrease in dissertations intensity suggests the need for more research in this field.

Keywords: Minstrel literature, folk literature, doctoral dissertations, bibliometric profile

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Introduction

Language and culture are among the fundamental elements that distinguish nations from one another. Language serves as a living tool that elevates societies beyond mere collectives and acts as a vessel through which a nation's wealth of emotions and thoughts are poured and passed down from generation to generation. Culture, on the other hand, encompasses a nation's unique elements, stemming from its experiences, oral and written literature, language, music, aesthetics, and economic products. In this context, folk culture and folk literature are significant components for a nation. At the core of being a nation lies the sharing of common experiences in a shared space. Folk culture and folk literature encompass all the elements that reflect a society's shared experiences, emotions, and values.

Minstrel literature is one of the significant branches of folk literature, with its origins dating back to written and predominantly oral sources that extend as far as Central Asia. Initially, poets chanted religious and later magical-religious poems, and poets known as "Shamans of the Tungus, Oyun of the Yakuts, Kam of the Altay Turks, Baksı-Bakşı of the Kyrgyz, and Ozan of the Oghuz" are the earliest representatives of the Minstrel-style poetry tradition in our culture (Köprülü, 2004). In Turkish cultural history, the tradition of the minstrel is one of the oldest and most established forms of expression. This tradition has survived as the "Minstrel tradition" due to the cultural changes it underwent throughout history (Özarslan, 2001). Until the 15th century, the "Minstrel" continued to exist, but gradually, starting from the 13th century and becoming more apparent in the 16th century, the term "Minstrel" which became widespread during this century, began to refer to poets with certain characteristics (Oğuz, 1994). Minstrel literature encompasses the literary works, including poems and stories, of artists referred to as "Minstrels" who are known in cultural circles. The first sources related to Minstrel literature date back to the period known as the manuscript period, which covers the years 1072-1729. Although these compilations do not conform to today's understanding of collection, determination, and evaluation, we can find the first information about this literary genre in the works that have survived from this period (Günay, 2005).

Ashik literature, crafted by the troubadours who have been the carriers and creators of Turkish culture for the past five centuries, holds a significant place within education. The most tangible indicators of education lie within textbooks, and it is imperative that Ashik literature receives more comprehensive representation within them. These troubadours, in a sense, serve as the custodians of the cultural and moral memory of the Turkish nation. Given

that the fundamental purpose of education is cultural transmission, these troubadours can fulfill crucial functions in this context (Kılıç and Seven 2002). Research findings indicate that Ashik literature is primarily integrated into Turkish language textbooks only for the 3rd, 4th, and 7th grades of primary education. Furthermore, in the eighth grade of primary education, merely three troubadours are introduced. A closer examination of the Turkish Literature textbooks utilized during the four-year high school curriculum reveals a notable absence of substantial information concerning Ashik literature, except for the 9th and 10th grades. In general, these textbooks tend to feature the poetry of a limited selection of troubadours, such as Ashik Veysel and Karacaoğlan. Over the course of a 12-year education, students are introduced to a total of only 21 troubadours. Furthermore, the information provided about the art and lives of these troubadours is scant, if not entirely absent, beyond their sample poems. A comprehensive section on Ashik literature appears to be allocated only in the 10th grade of high school. Apart from this, informative sections regarding Ashik literature or the troubadours themselves cannot be identified (Yıllar, 2016).

In recent years, thanks to prominent figures in the field of folklore such as Ziya Gökalp, Fuad Köprülü, and Mehmet Kaplan, universities have established departments and undertaken postgraduate studies in the field of folklore and folk literature.

Doctoral theses represent a scientific approach of a specific school of thought in their own right. In addition to their structure, doctoral theses reveal the fundamental tendencies of the academic discipline under which they were prepared, both in terms of their contributions to the scientific world. In recent years, Folklore has become one of the focal points for doctoral theses, especially in the field of social sciences (Duman, 2013). In Türkiye, studies in this field have been defined as a scientific discipline starting from the early 20th century, and research has begun. Minstrel literature is one of the subjects that stand out in this field and is a subject of intensive research.

Importance of Research

Postgraduate education, which is a part of higher education, enables individuals to pursue master's or doctoral education in a specific field of science after obtaining a bachelor's degree. In the implementation of postgraduate programs, it is of great importance to develop programs tailored to needs and train instructors for higher education institutions. In this regard, universities bear significant responsibilities in terms of scientific knowledge production through postgraduate education. Examining scientific theses prepared in a

particular field can provide various information about the depth, prevalence, and overall appearance of the relevant field (Güneşer, 2022).

This study, by conducting a detailed examination of the quantity, distribution, and subject areas of doctoral dissertations on Minstrel literature in the last decade, will reveal the current state of academic research in this field and provide guidance for future studies. Additionally, the research will enhance the general knowledge base related to folklore studies, Turkish literature, and culture in Türkiye, thus serving as a valuable resource for students, researchers, and educators in this domain. Minstrel literature is an integral part of Turkish culture, and this study will not only contribute to the academic scrutiny of this tradition but also play a motivating role in inspiring further research in this field. Furthermore, this article has the potential to lead the way in showcasing the use of bibliometric analyses and text mining techniques in Turkish literature, encouraging their application in more literary research.

Simultaneously, this study will lay a foundation for future research by identifying the strengths and weaknesses of doctoral theses on Minstrel literature conducted in Turkish universities. The outcomes of this research can be utilized by decision-makers and educators in the field of education to enhance the teaching of Minstrel literature. Therefore, this study will provide significant insights to researchers, teachers, and those interested in preserving cultural heritage.

Purpose of the Research

In line with this need, this research aims to present the bibliometric profiles of doctoral dissertations completed in the field of Minstrel Literature in Türkiye between 2013 and 2023.

To achieve this aim, the following research questions were addressed: What is the distribution of doctoral dissertations in the field of Minstrel Literature by

- i. year?
- ii. universities?
- iii. institutes?
- iv. the academic titles of advisors?
- v. in the field of Minstrel Literature?
- vi. department and academic discipline?
- vii. subject?
- viii. page numbers?
- ix. in the field of Minstrel Literature?

Method

Research Model

The research employed qualitative research approaches, considering both the process and the subject matter. The study was designed using a descriptive design, which is one of the non-interactive patterns within qualitative research. This design is used to describe and depict events, phenomena, or situations. Descriptive research allows researchers to provide detailed descriptions of the subjects and analyze these descriptions (Yıldırım and Şimşek, 2005).

Collection of Data

Doctoral theses on "Minstrel Literature" in the category of theses in the National Dissertations Center of the Council of Higher Education (<https://tez.yok.gov.tr/UlusalTezMerkezi/>). In order to conduct the review, a search was made in the Council of Higher Education's dissertations scanning engine using the Turkish keyword "Aşık" on August 2023. The search area was kept broad, including all (title, subject, index, and summary). The year limit was extended to cover the years 2013-2023. As a result of the search, a total of 93 theses were reached, and similar theses were separated, with closed-access theses excluded from the scope of the study. As a result of the search, 29 theses related to the topic were identified and included in the analysis, as indicated in the figure (Annex 1).

Data Analysis

Content analysis was employed in the analysis of research data. This analysis involves subjecting materials to code-category distinctions to determine the frequency of use (Gökçe, 2006). Through this analysis, trends and outcomes of studies conducted on a common subject can be identified as well (Lin, Lin, and Tsai, 2014; Sözbilir, Kutu, and Yaşar, 2012). In the analysis of the obtained data, bibliometric analysis techniques were also partially utilized. Bibliometrics is defined as the numerical analysis of publications produced by individuals or institutions in a specific field, during a particular period, and in a particular region (Güneşer, 2022; Abdi et al., 2018). Excel software was used for analyzing the data using frequency and percentage ratios. Additionally, content analysis was performed on thesis files to identify their themes, results, and recommendations. The data were subjected to partial code-category distinctions for the purpose of determining frequency of use. The results were expressed through graphs and descriptive statistics using percentage frequency tables.

The analysis was conducted by two experts, and Miles and Huberman's (1994) formula was used for the reliability calculation of the study.

$$\text{Reliability} = \text{Agreement} / (\text{Agreement} + \text{Disagreement})$$

According to the reliability formula calculations, the reliability of the research was found to be 74%. Reliability calculations exceeding 70% indicate that the research is reliable. Based on the obtained result, it can be said that the research is reliable (see also Kirk and Miller, 1986).

Compliance with Ethical Standard

Since the research made use of data accessible from open databases and theses that were available in full text, no research permission was required. However, all sources used in the research have been appropriately cited in the references section, and ethical principles have been adhered to during the reporting process.

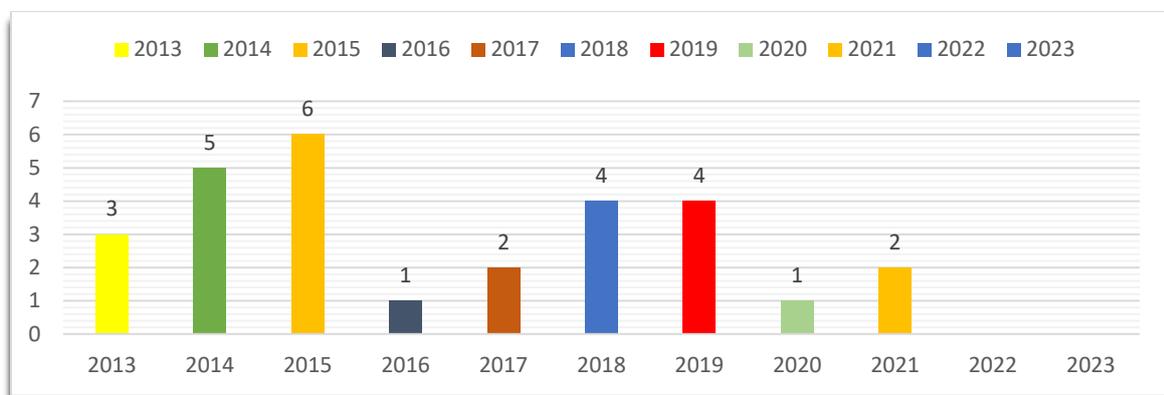
Results

Results Regarding the Publication Year Sub-Research Question

The distribution of doctoral theses completed in the field of Minstrel Literature by years is depicted in Figure 2.

Figure 2

Minstrel Literature by Years



As seen in Figure 2, when the distribution of doctoral theses published between 2013 and 2023 is examined, it is observed that the highest number of theses (f=6) was in the year

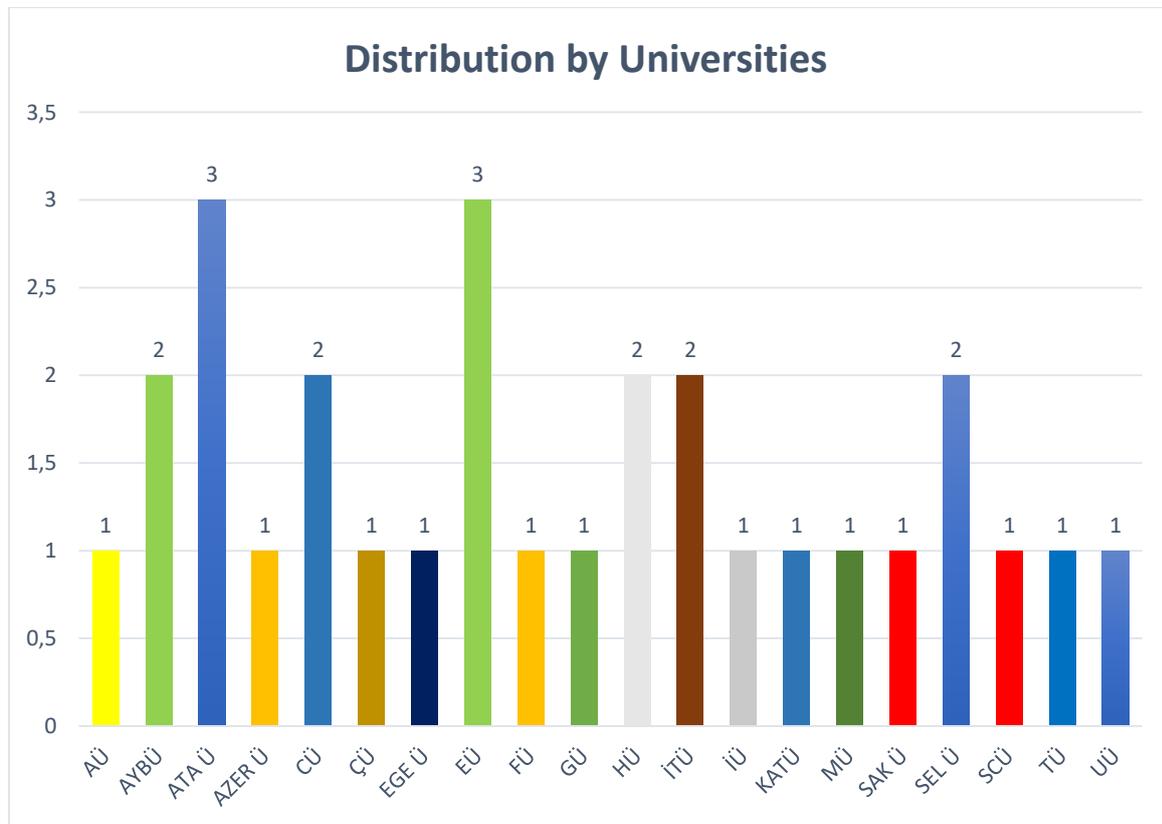
2015, while the lowest frequency occurred in the years 2016 and 2021 ($f=1$). There were no doctoral dissertations studies published in the years 2022 and 2023.

Results Regarding the Sub-Research Question of Distribution According to Universities

The distribution of doctoral theses completed in the field of Minstrel Literature by universities is presented in Figure 3.

Figure 3

Minstrel Literature by Universities



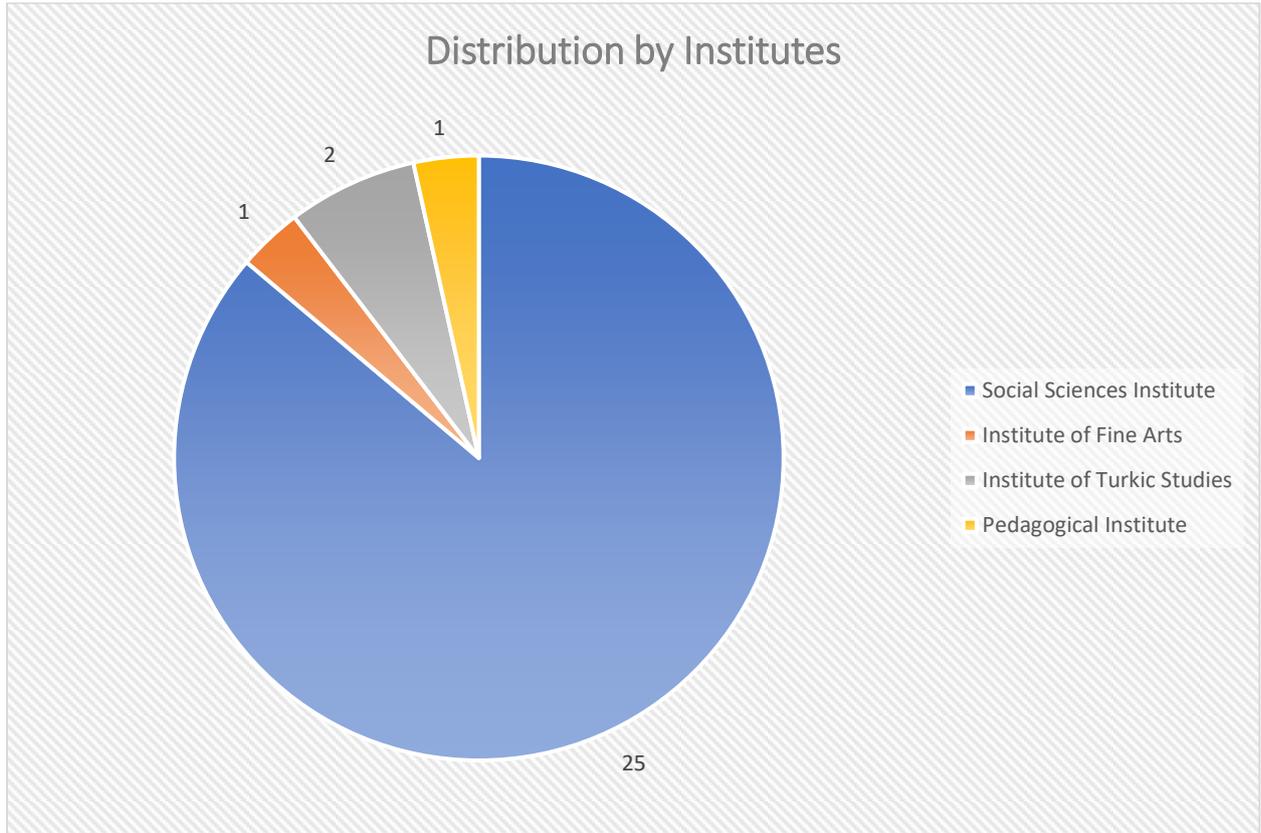
As seen in Figure 3, when examining the distribution of doctoral theses published on a university basis, it is observed that the highest number of theses ($f=3$) were conducted at Atatürk University and Erciyes University. Additionally, research in this field is relatively intense at Ankara Yıldırım Beyazıt University, Cumhuriyet University, Hacettepe University, Istanbul Technical University, and Selçuk University compared to other universities.

Results Regarding the Sub-Research Question of Distribution According to Institutes

The distribution of doctoral theses completed in the field of Minstrel Literature by institutes is presented in Figure 4.

Figure 4

Minstrel Literature by Institutes



As seen in Figure 4, when examining the distribution of doctoral theses published by institutes, it is observed that the highest number of theses ($f=25$) were conducted at the Institute of Social Sciences. Additionally, research in this field is also evident at the Institute of Turkish Studies, the Institute of Pedagogy, and the Institutes of Fine Arts.

Results Regarding the Sub-Research Question of Advisor Title Distribution

The distribution of doctoral theses completed in the field of Minstrel Literature by advisor titles is presented in Figure 5.

Figure 5

Minstrel Literature by Advisor Titles



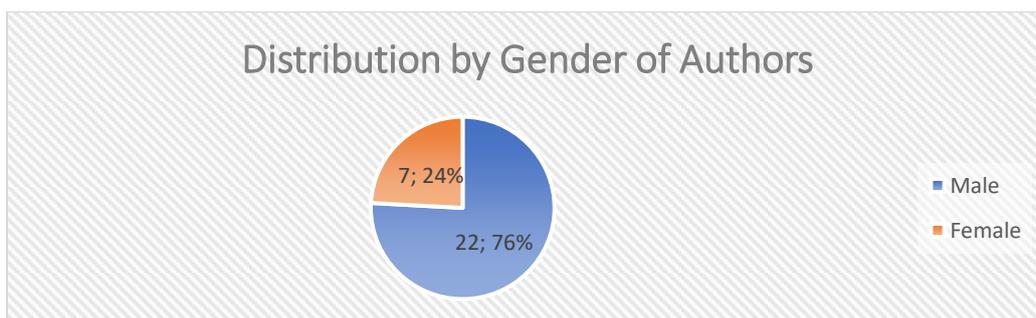
As shown in Figure 5, when examining the distribution of published doctoral theses by advisor titles, it is evident that the majority of doctoral theses (f=24) were supervised by academics holding the title of Prof. Dr. Additionally, it can be noted that advisors with the title of Assoc. Prof. Dr. (f=4) are also prominent in this field.

Results Regarding the Sub-Research Question of Authors' Gender

The distribution of doctoral theses completed in the field of Minstrel Literature by the gender of the authors is presented in Figure 6.

Figure 6

Minstrel Literature by The Gender of The Authors



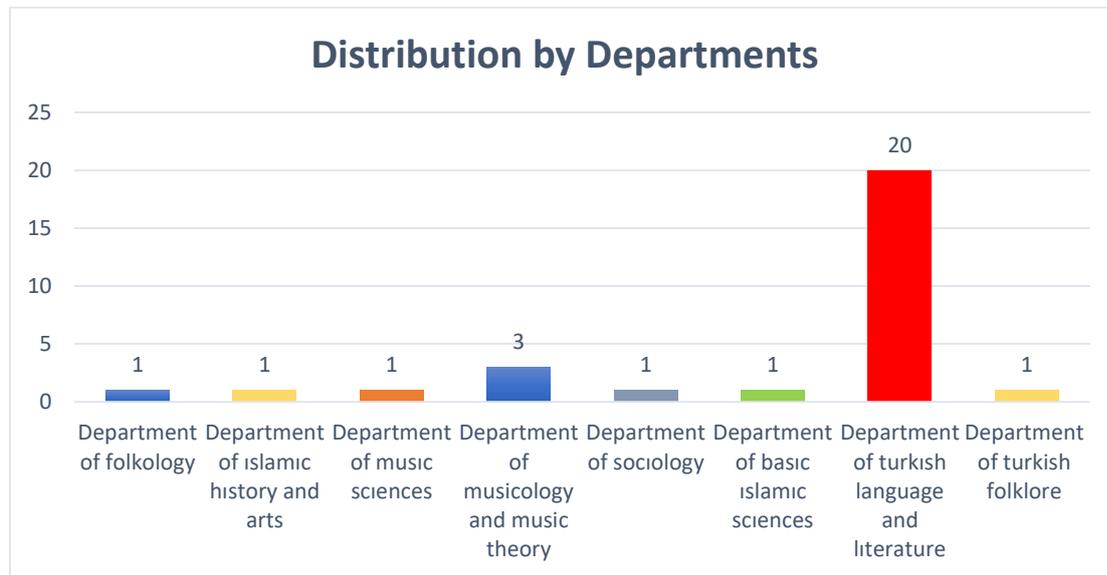
As observed in Figure 6, when examining the gender distribution of researchers who published doctoral theses, it is evident that the majority of doctoral theses (f=22) were completed by male researchers. It can be noted that female researchers (f=7) have produced a limited number of theses in this field.

Results Regarding The Sub-Research Question of Research Department

The distribution of doctoral theses completed in the field of Minstrel Literature by the context of the department is presented in Figure 7.

Figure 7

Minstrel Literature by The Context of The Department



Examination of Figure 7 reveals that when considering the distribution of published doctoral theses by academic departments, it is evident that the majority of doctoral theses have been conducted in the Department of Turkish Language and Literature (n=20). Additionally, it can be noted that there is a concentration of theses in the Department of Musicology and Music Theory (n=3) in this field.

Results of Sub-Research Questions Regarding the Distribution of Doctoral Thesis Topics

The distribution of subject matters of completed doctoral theses in the field of Minstrel Literature is presented in Table 1.

Table 1

Distribution of Subject Matters of Doctoral Theses

Subject	f	%
Minstrelsy Tradition	5	18
Minstrel Life and Works	5	18
Geography of Iran	4	14
Minstrel Literature	4	14
Translation Work	3	12
Erzurum region	2	6
Work review	2	6
Folk Poet	2	6
Tabriz lovers	1	3
Local Lovers	1	3
Total	29	100

According to Table 1, Minstrel Tradition and Minstrel's Life/Works are the most researched topics, accounting for 18% each. Geography of Iran and Minstrel Literature are significant research areas, with a rate of 14% each. Translation Studies account for 12% of the theses. Regional or work-focused studies like Erzurum Region, Work Analysis, Folk Poet, also hold a significant place.

Results of Sub-Research Questions Regarding the Distribution of Doctoral Thesis Pages

The distribution of the page numbers of doctoral theses completed in the field of Minstrel Literature is presented in Figure 8 and Figure 9.

Figure 8

The Page Numbers of Doctoral Theses

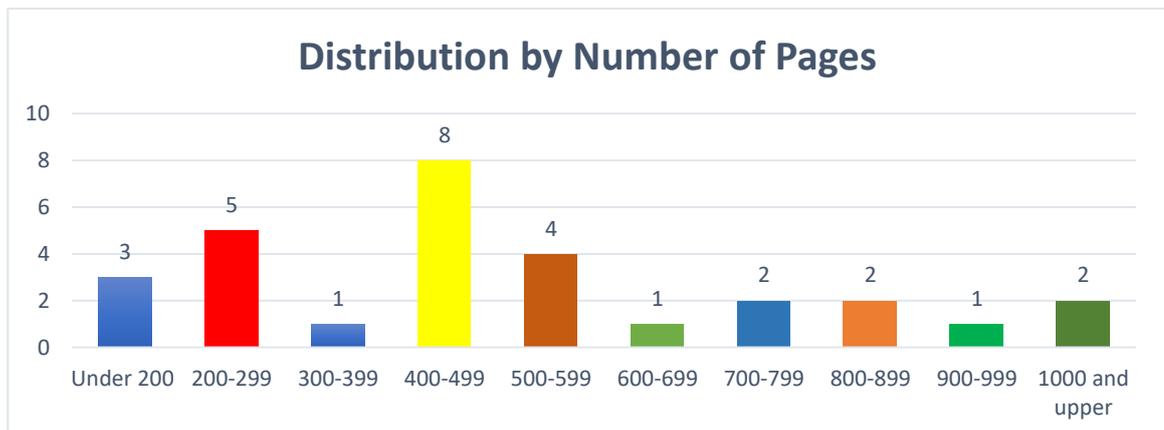
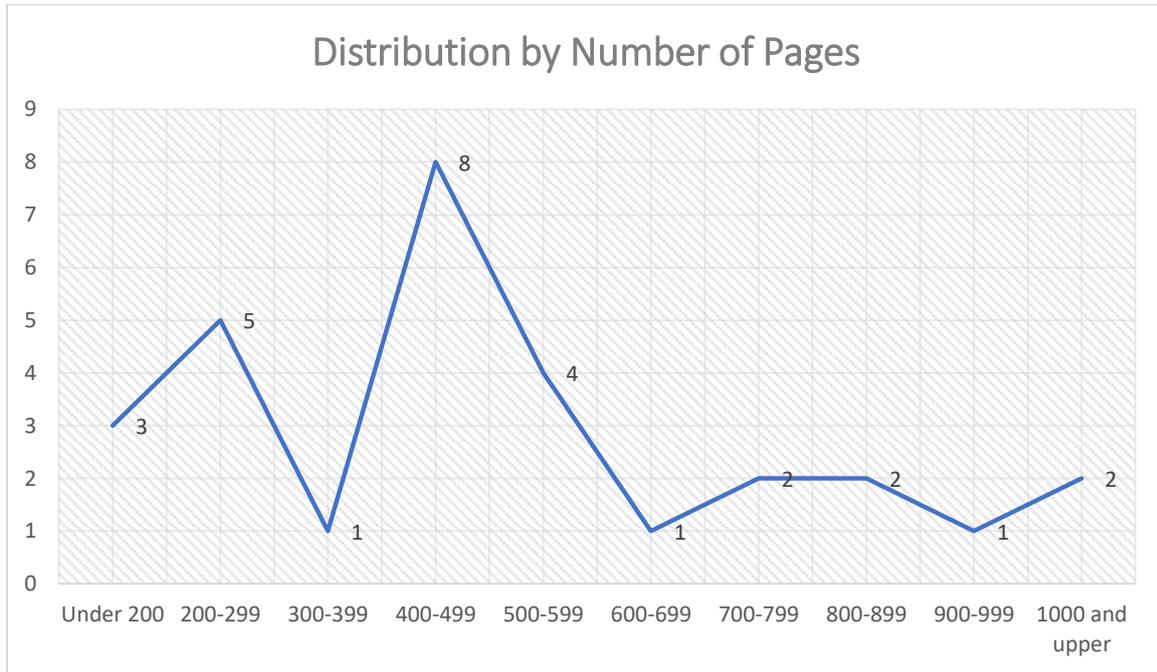


Figure 9

The Page Numbers of Doctoral Theses



According to Figure 8 and Figure 9, when looking at the distribution of the page numbers of the published doctoral theses, it is observed that most of the doctoral theses fall within the range of 400-499 pages ($f=8$). Additionally, it can be noted that the theses of 200-299 pages are also quite common ($f=5$).

Results of Sub-Research Questions Regarding the Distribution of Keywords

The density of keywords for doctoral theses completed in the field of Minstrel Literature is presented in Table 2.

Table 2

Density of Doctoral Theses According to Keywords

Keywords	f	%
Minstrel tradition	9	9.7
In love	7	7.4
Music	7	7.4
Minstrel Literature	6	6.3
Culture	6	6.3
Literature	4	4.2

Tradition	4	4.2
Socio-cultural context	3	3.1
Poet	3	3.1
Azerbaijan	3	3.1
Minstrel music	2	2.1
Total Keywords	95	

Examining Table 2, the keyword "Minstrel tradition" is the most frequently used keyword with a percentage of 9.7%, indicating that the majority of the theses in this field focus on this topic. The keywords "Minstrel" and "Music" have been used equally frequently, each at 7.4%. The keywords "Minstrel Literature" and "Culture" are seen with a similar frequency at 6.3%. The keywords "Literature" and "Tradition" have been used with a percentage of 4.2%. Other keywords have been used less frequently, and among these keywords are various topics such as "Socio-cultural context," "Minstrel," "Azerbaijan," and "Minstrel music"

Discussion and Results

Through the examination of doctoral theses in the field of Minstrel Literature, various dimensions of research in this field have been unveiled. When we look at the research years, the year 2015 stands out as the year with the highest number of completed theses, suggesting a particular intensity for that year. However, a significant drop in the number of theses is noticeable in 2016 and 2021. This decline may indicate that research intensifications in specific years are somewhat seasonal, raising questions about the sustainability of research in this field.

When examining the distribution of theses among universities, Atatürk University and Erciyes University are prominent in this field. These universities have become significant centers for Minstrel Literature and have hosted many doctoral theses in this area. However, it is also evident that research in this field is substantial at other universities like Ankara Yıldırım Beyazıt University, Cumhuriyet University, Hacettepe University, Istanbul Technical University, and Selçuk University. In this regard, more emphasis could be placed on the potential of different universities in the field of Minstrel Literature, and the establishment of specialized institutes in this field could be considered.

Regarding the distribution of doctoral theses by institutes, the Institute of Social Sciences clearly leads in this field. This institute has become a focal point for the

concentration of Minstrel Literature theses, with numerous theses completed under its auspices. Additionally, research in this field is also conducted at other institutes such as the Institute of Turkic Studies, the Institute of Pedagogy, and the Institutes of Fine Arts, demonstrating that different institutes contribute to Minstrel Literature research. When we look at the distribution by advisor titles, it is observed that academicians holding the title of Prof. Dr. are preferred to supervise doctoral theses. This reflects the effectiveness of academicians with this title in this field. Gender distribution shows that more theses are completed by male researchers. This indicates the need for increased representation and encouragement of female researchers in this field.

By examining the distribution by main disciplines, it is seen that the Department of Turkish Language and Literature hosts the most research in this field. This emphasizes the concentration of Minstrel Literature research in this department and the importance of the academic staff in this area. Additionally, the Department of Musicology and Music Theory plays a significant role in this field. Looking at the keywords, "Minstrel tradition" is the most frequently used keyword, indicating that researchers predominantly focus on this topic and intensively engage with this tradition. The keywords "Minstrel" and "Music" are equally used frequently. However, increasing the use of other keywords could highlight different subject areas. In summary;

- The majority of studies were completed in 2015, and a significant decrease in the number of theses is observed in 2016 and 2021.
- Atatürk University and Erciyes University have hosted the most Minstrel Literature doctoral theses and have become significant centers in this field.
- The Institute of Social Sciences has become an area of intense concentration for Minstrel Literature theses, with numerous theses completed in this institution.
- A significant portion of the doctoral theses were supervised by academicians holding the title of Prof. Dr., reflecting their influence in this field.
- When examining the gender distribution of researchers, it is observed that male researchers have produced more theses in this field.
- The Department of Turkish Language and Literature is the academic department that predominantly focuses on Minstrel Literature doctoral theses.
- The length of doctoral theses is generally found in the range of 400-499 pages, indicating that these theses involve in-depth examination and analysis.

- The keywords "Minstrel tradition," "Minstrel," and "Music" are the most frequently used and emphasized keywords in the field.
- The recent decrease in dissertations intensity suggests the need for more research in this field.

Compliance with Ethical Standard

Since the research made use of data accessible from open databases and theses that were available in full text, no research permission was required. However, all sources used in the research have been appropriately cited in the references section, and ethical principles have been adhered to during the reporting process.

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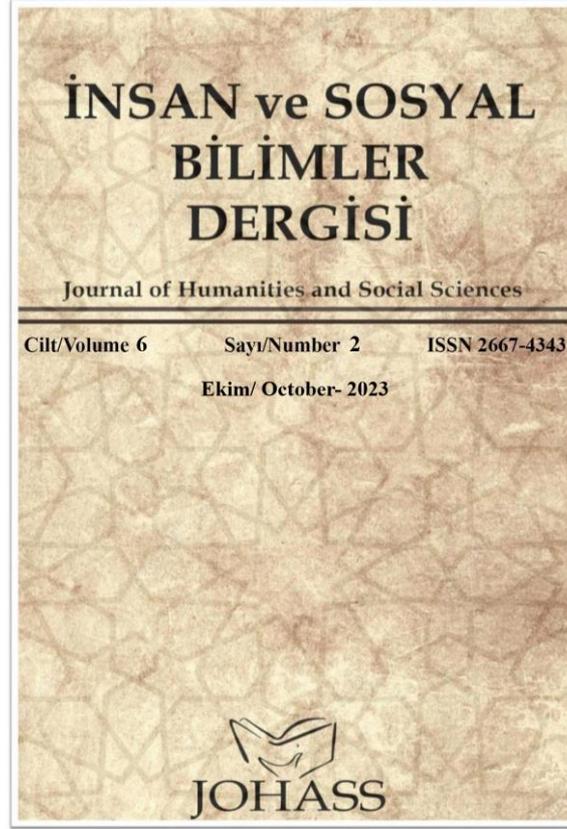
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Türkiye Örneğinde Âşıklarda Müzik	Erdem ÖZDEMİR	Yavuz KÖKTAN	2013	Sakarya University
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Âşık İsmetî Monografisi	Uğur BAŞARAN	Şeref BOYRAZ	2015	Cumhuriyet University
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Âşıklık Geleneđi Ve Kùltür Deđişmeleri	Hakan ÇELİKTEN	Nebi ÖZDEMİR	2019	Sivas Cumhuriyet University
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Leisure Activity Type and Sustainable Health Status in Late Adolescents

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Leisure Activity Type and Sustainable Health Status in Late Adolescents

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Abstract

The concept of sustainable health encompasses not solely the holistic physical welfare of individuals, but also their mental wellbeing and their harboring of optimistic outlooks for the future. Integral to this construct is the interplay between the individual and their environment. The primary objective of this study is to examine the association between sustainable health status and leisure activities among adolescents, particularly during the challenging transition period of late adolescence into adulthood. A total of 398 adolescents aged between 18-24 participated in the study. Hierarchical multiple regression analyses were employed to investigate the associations among six distinct categories of leisure activities and three dependent variables (life satisfaction, optimism, and health perception). Upon controlling for covariates, the findings demonstrated significant positive associations between outdoor and social activities and all three outcome variables. Physical activities exhibited positive correlations with health perception and life satisfaction. Moreover, significant positive associations were found between life satisfaction and volunteer activities, optimism and cultural activities, as well as health perception and home-centered activities. These findings indicate that fostering positive social interactions within recreational contexts and promoting engagement in physical activities can be pivotal in fostering sustainable health outcomes among adolescents.

Keywords: Adolescent, leisure activity, physical activity, recreation, sustainable health

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Introduction

Adolescence is a special stage that begins with puberty, where growth in body height, hormonal, sexual, social, emotional, personal, and mental changes and developments occur and is thought to end with the end of bodily growth. However, it is a personal process for each individual when this process will begin when it will end, how he will encounter adaptation problems, and how he or she will cope with them. In this process, individuals can be affected by many external factors. It can be said that the measures taken within the scope of COVID-19 have effects on adolescents as an external factor (Panchal et al., 2021; Kauhanen et al., 2023). The COVID-19 pandemic has spurred a surge in scholarly investigations pertaining to several issues, including sedentariness, illnesses associated with physical inactivity, both indoor and outdoor physical exercise, environmental aspects, and public health (Lesser & Nienhuis, 2020; Mitra et al., 2020; Sallis et al., 2020). In light of the pandemic, humanity has swiftly adapted to what is commonly referred to as the "new normal." This state of affairs has brought about a considerable transformation in our way of life, involving obligatory face coverings in public spaces, remote work arrangements, and the virtualization of the educational system. Of particular concern are the effects of these changes on the younger generation, who have been disproportionately affected. Previous studies have highlighted various health issues, such as increased screen time, sedentary lifestyles, and obesity, that are prevalent among adolescents (Guessoum et al., 2020; Pietrabissa et al., 2021; Kim et al., 2022). Officials have warned that this situation has worsened in the aftermath of the pandemic, and it has been emphasized that urgent measures need to be taken to tackle this issue (Brocq et al., 2020). Effective resolution of this problem can be achieved through collaboration among scholars working in relevant fields, as well as local and national governments, and nongovernmental organizations (NGOs). Identifying the factors that promote a sedentary lifestyle among adolescents is of critical importance to promote sustainable health and well-being among this population. For this study, we have opted to use three distinct scales to assess the sustainable health outcomes of adolescents: Health perception (HP), optimism, and life satisfaction (LS). Prior research has demonstrated that these scales can effectively capture and describe overall well-being (Knowles & Behrman, 2005; Ryu & Heo, 2018).

Prioritizing the health of individuals aged 10 to 24, who make up a substantial 24% of the global population, can result in a triple impact by benefiting their current youth, future

adulthood, and subsequent generations (Knowles & Behrman, 2005; Ryu & Heo, 2018). Evidence-based interventions highlight three key elements to address the issue of adolescent physical inactivity on a global scale. Currently, 80% of adolescents are insufficiently active, and a significant number of them spend two or more hours engaging in recreational screen time each day. The three constituents of the adolescent physical activity system that require attention are schools that create a supportive and nurturing environment for physical activity, social and digital environments that encourage engagement in physical activity, and urban environments that provide diverse opportunities for participation in physical activities.

Based on empirical research, three primary components of the adolescent physical activity system have been identified, namely, supportive schools, social and digital media, and multi-purpose urban environments (Ryu & Heo, 2018). However, while research on adolescent physical activity is expanding, there is a noticeable gap in the literature concerning "multi-purpose urban environments." It is crucial to conduct studies to facilitate greater access to such environments and promote increased physical activity engagement among adolescents. Identifying the factors that promote a sedentary lifestyle among adolescents is of critical importance to promoting sustainable health and well-being among this population. Although numerous studies have highlighted the significance of leisure activity among adolescents (Auhuber et al., 2019; Sivan et al., 2019; Allaby & Shannon, 2020), it is worth noting that most of these studies have been conducted in developed regions such as Europe and America (Blasko et al., 2014, Gronow & Southerton, 2010; Yamashita et al., 2019; Pelliccia, et al., 2019).

The investigation of the association between various forms of leisure activities and sustainable health among adolescents in developing or underdeveloped countries carries significant importance. If inequalities exist, it is important to identify their underlying causes and nature. Addressing these questions is particularly relevant to improving the health and well-being of young people in developing countries.

The aim of this research was to provide insights into the questions posed earlier. We acknowledge that cultural differences and varying educational systems may contribute to differences in physical activity behaviors among young people. Therefore, our objective was to investigate specific leisure activities, including outdoor physical activities, hobbies, indoor cultural activities, social activities, and volunteering, and to analyze the relationship with sustainability health (health perception, life satisfaction, and optimism). In this context, the hypotheses of our study are as follows.

1. There is a positive relationship between the leisure activity types preferred by individuals with dispositional optimism, life satisfaction, and health perception.
2. The strong predictors of life satisfaction, dispositional optimism, and health perception are outdoor activities and physical activities.

Method

Research Model

A correlational research model was used in accordance with the purposes of the research. Correlational research model; It is a research model that examines the relationships between variables and the level of these relationships (Kurtuluş, 2004).

Research Group

The study sample consisted of 398 adolescents residing in Ankara, the capital city of Turkey, and was selected using a convenience sampling method. The 398 participants' mean age was 19.9 years ($SD = 2.41$), with 46.7% women. In the pursuit of maximizing the representativeness and diversity of data, a total of twelve different locations in varied regions of Ankara were carefully chosen to participate in this study. In order to ensure a broad range of sociocultural and economic backgrounds, parks from differing areas were selected. The convenience sampling method was used in the study.

Data Collection Tools

Beyers et al., (2020) proposed that diverse types of stimulation (e.g. social, cognitive, and physical) are connected to well-being in adolescents (Beyens et al., 2020). In the present study, it was hypothesized that engaging in diverse leisure activities would elicit positive stimulation. In our study, the indicators of sustainable health contained health perception, dispositional optimism, and life satisfaction. The scales were selected based on their extensive utilization over time and demonstrated relevance to the adolescent population. (Gómez-López et al., 2019; Burešová et al., 2020; Chen et al., 2020; Commodari & La Rosa, 2020; Radez et al., 2021). Life satisfaction was assessed using the Satisfaction with Life Scale (SWLS) (Diener et al., 1985), which consists of five items containing statements such as "I am satisfied with my life" and "In most ways, my life is close to my ideal". Participants responded to the SWLS using a 7 point Likert-type scale, ranging from 1 (strongly disagree)

to 7 (strongly agree). Higher scores on this scale indicated higher levels of life satisfaction. The internal consistency of this measure, assessed by Cronbach's alpha, was found to be 0.832, indicating high reliability. Dispositional optimism (DO) was evaluated using the Life Orientation Test-Revised (Scheier et al., 1994), comprising 10 items that encompass statements like "Overall, I expect more good things to happen to me than bad." Participants provided responses to the Life Orientation Test-Revised (Scheier et al., 1994) using a 5 point Likert-type scale, ranging from 0 (strongly disagree) to 4 (strongly agree). The instrument consisted of three items related to dispositional optimism, three items related to pessimism (reverse-scored), and four filler items that were not included in the analysis. The pessimistic items were summed with the optimistic items to obtain a composite score. The internal consistency of the items within our study sample yielded a modest reliability coefficient (Cronbach's $\alpha = 0.763$).

To assess health perception, a modified version of the health rating question developed by Willits and Crider (1988) was employed (Willits & Crider, 1988). Each participant was asked to rate their overall health by answering the question, "In general, how would you rate your health?". The health perception measure was rated on a 5-point Likert-type scale, ranging from 1 (poor) to 5 (excellent). The single-item measure of subjective health has demonstrated good test-retest reliability. Furthermore, it has exhibited strong correlations with other health measures, thus indicating a high level of construct validity (Streiner et al., 2016).

The frequency of participation in different types of leisure activities was assessed using the modified version of Ragheb's (1980) Leisure Participation Scale, as utilized in the study conducted by Chun et al. (Ragheb, 1980; Chun et al., 2012). The scale was adapted from Ragheb (1980) 's original work and incorporated into Chun et al. (2012) 's study for the purpose of measuring leisure activity engagement.

Six leisure activities types that we used in the current study encompassed the following: (1) physical activities such as exercise and sports; (2) cultural activities and entertainment such as watching television, attending movies, concerts, ballets, and visiting museums; (3) home-centered and social activities such as socializing with friends, dining out, traveling and family time; (4) outdoor activities such as hiking, fishing, and biking; (5) volunteer activities (6) hobbies and indoor activities such as painting, playing a musical instrument and reading. Each leisure activity was assessed on a four-point scale, indicating the frequency of respondents' participation in that particular activity. The scale ranged from 1

(never) to 4 (frequently), with higher scores indicating more frequent engagement in the activity.

Statistical Analysis

The SPSS package program was used to analyze the data. In this context, Pearson correlations were utilized to examine the associations among the study variables. Hierarchical multiple regression analyses were conducted to investigate the predictive relationships between types of leisure activity (predictors) and health perception, life satisfaction, and dispositional optimism (outcome variables). Demographic variables, namely gender and income, were considered potential confounders and included as covariates. In the regression analyses, all covariates were entered in the initial step. Durbin-Watson coefficient values for the regression model, pairwise correlations (pairwise $r < 0.80$), tolerance values ($1-R^2 > 0.20$), variance magnification factor ($VIF = [1/(1) - R^2] < 10$), and the highest condition index value ($CI < 30$) were examined and it was determined that there was no autocorrelation problem between the variables.

Compliance with Ethical Standards

In this research, participants were given detailed information about the aim and content of the study and signed an informed consent form. Ethical approval for this study was obtained from Sakarya University of Applied Sciences (Decision No: E-70562473-050.99-100557) and the research was carried out within the scope of the Council of Higher Education Scientific Research and Publication Ethics Instruction.

Findings

Table 1

The Results of Correlation Analysis between Dependent and Independent Variables

Variables	1	2	3	4	5	6	7	8	9	10
1. Gender	1									
2. Income	-0.359**	1								
3. Home-centred and social activities	-0.109	0.181*	1							
4. Volunteer activities	0.049	0.069	0.171*	1						
5. Hobbies and indoor activities	-0.009	0.299**	0.231**	-0.035	1					
6. Cultural activities and entertainment	0.087	0.041	0.181*	0.251**	0.249**	1				
7. Outdoor activities	0.171*	0.069	-0.017	0.379**	0.219**	0.294**	1			
8. Physical activities	-0.032	0.169*	0.191**	0.151*	0.209**	0.029	0.161*	1		
9. Life satisfaction	0.129	0.111	0.057**	0.392**	0.109	0.271**	0.399**	0.221**	1	
10. Dispositional optimism	0.129	0.019	0.059**	0.251**	0.141	0.321**	0.379**	0.023	0.419**	1
11. Health Perception	-0.031	0.089	0.219**	0.198**	0.151*	0.226**	0.292**	0.233**	0.359**	0.279**

*p<0.05; **p <0.01

The results indicate statistically significant relationships among the following study variables: gender, income, six leisure activities, health perception, dispositional optimism, and life satisfaction, and the largest coefficient was found between life satisfaction and outdoor activities (r=0.399), which implies that engagement in more out-door activities is associated with higher life satisfaction. Life satisfaction was also significantly correlated with cultural activities (r=0.271), volunteer activities (r=0.392), and physical activities (r=0.221). Positive relationships existed between dispositional optimism and outdoor activities (r=0.379), cultural activities (r=0.321), and volunteer activities (r=0.251). Health perception was positively and significantly related to outdoor activities (r=0.292), physical activities (r=0.233), cultural activities (r=0.226), home-centered activities (r=0.219), volunteer activities (r=0.198) and hobbies and indoor activities (r=0.151; Table 1).

Table 2

Hierarchical Regression Analysis of Outcome Variables

	Life Satisfaction (LS)		Dispositional Optimism (DO)		Health Perception (HP)	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Gender	219** (0.203)	0.121 (0.186)	0.163* (0.093)	0.057 (0.092)	0.041 (0.146)	-0.008 (0.138)
Income	269* (0.109)	0.048 (0.016)	0.099 (0.051)	-0.071 (0.009)	0.199 (0.083)	0.199* (0.058)
Home-centered and social activities		-0.030 (0.070)		0.010 (0.034)		0.201** (0.053)

Volunteer activities	0.251** (0.084)			0.101 (0.040)		0.041 (0.062)
Hobbies and indoor activities	0.012 (0.080)			0.057 (0.039)		0.002 (0.060)
Cultural activities and entertainment	0.128 (0.090)			0.197* (0.044)		0.098 (0.067)
Outdoor activities	0.201* (0.102)			0.274** (0.051)		0.189* (0.073)
Physical activities	0.151* (0.080)			-0.062 (0.038)		0.194**(0.058)
F	3.358*	7.161***	1.413	4.948***	2.208	5.011***
R ²	0.054	0.271	0.021	0.211	0.036	0.211

Notes: Standardised regression coefficients reported, standard errors in parentheses. *p<0.05; **p <0.01

In Table 2, three hierarchical multiple regression analyses were performed to examine the unique contribution of leisure activities to the outcomes of LS, DO, and HP. Table 2 displays the associations between the six leisure activities and LS while controlling for income and sex. In Model 1, the variables of income and gender accounted for 5.4% of the variance in LS. ($R^2=0.054$, $p<0.05$). In Model 2, the six leisure activities were included as predictors. Physical activities ($\beta=0.151$, $p<0.05$), outdoor activities ($\beta=0.201$, $p<0.05$), and volunteer activities ($\beta=0.251$, $p<0.01$) emerged as significant predictors of LS. Model 2 explained 27.1% of the variance in LS ($R^2=0.271$, $p<0.001$), indicating a substantial contribution of the six leisure activities. Furthermore, after controlling for gender and income (as shown in Table 2), a significant relationship between two specific leisure activities and DO was observed. In Model 1, gender and income accounted for 2.1% of the variance in DO ($R^2=0.021$). However, in Model 2, after introducing the six leisure activities, cultural activities ($\beta=0.197$, $p<0.05$) and outdoor activities ($\beta=0.274$, $p<0.01$) emerged as significant predictors significantly contributing to DO. Model 2, which included the six leisure activities as predictors, explained 21.0% of the variance in DO ($R^2=0.211$, $p<0.001$). Furthermore, after controlling for gender and income (as indicated in Table 2), significant associations were found between three distinct leisure activities and HP. In Model 1, income and gender collectively accounted for 3.6% of the variance in HP ($R^2=0.036$). However, in Model 2, with the introduction of the six leisure activities, home-centered activities ($\beta=0.201$, $p<0.01$), outdoor activities ($\beta=0.189$, $p<0.05$), and physical activities ($\beta=0.194$, $p<0.01$) emerged as significant predictors significantly contributing to HP. Model 2 explained 21.1% of the variance in HP ($R^2=0.211$, $p<0.001$).

Discussion and Results

This research enhances our comprehension of the correlation between specific categories of recreational pursuits and sustainable well-being during the later stages of adolescence. In general, regular engagement in "outdoor" pursuits, along with "physical" activities, demonstrated an association with the measured sustainable health outcomes in this investigation. Participation in "outdoor activities" exhibited a contributory influence on all three health outcomes, namely health perception, optimism tendency, and life satisfaction, while physical activity emerged as a significant determinant of health perception and life satisfaction among late adolescents.

The findings of our study yield empirical support for the association between engagement in "volunteer," "outdoor," and "physical" activities and life satisfaction. Previous research has documented the notable impact of participation in "volunteer" activities on life satisfaction. Notably, extensive involvement in volunteering endeavors and the maintenance of social activities have demonstrated positive associations with life satisfaction during adolescence (Alfaro-Inzunza et al., 2019; Shenaar-Golan & Goldberg, 2019). While our study did not establish causal relationships, we propose that engagement in volunteering activities could serve as a means to uphold health status and enhance life satisfaction among adolescents.

The notion that increased engagement in "outdoor and physical" activities constitutes a behavior conducive to enhancing the sustainable health status of adolescents has gained widespread acceptance. A study by Mutz, Müller, and Göring supports this premise by indicating that involvement in outdoor activities can contribute to fostering a sense of well-being among adolescents (Mutz et al., 2019). Furthermore, the findings of Jeckson et al.'s research demonstrate that adolescents are more likely to experience heightened levels of well-being, both in terms of mental and physical health, when engaging in outdoor activities during the COVID-19 pandemic. In this context, the results of the present study provide additional support to the existing body of evidence linking participation in outdoor and physical activities with life satisfaction. Based on the existing literature and the findings of this study, we propose that increased life satisfaction can be achieved through engagement in outdoor activities with family and friends, as well as active participation in physical activities.

Participation in cultural and social activities has been identified as a potential means to foster optimism among late adolescents. Research indicates that engaging in cultural events,

such as visiting museums, can positively impact emotional well-being by eliciting feelings of optimism and hope (Wood, 2008). Moreover, individuals who maintain closer social relationships exhibit a higher likelihood of adopting an optimistic outlook on the future (Antonucci, 2023). The findings of our study align with previous research, demonstrating a consistent association between participation in cultural activities and enhanced life satisfaction and overall well-being (Gumus et al., 2017; Soenens & Vansteenkiste, 2020; Queiroz et al., 2020).

In accordance with prior investigations, the present study reinforces the notion that cultural and social activities make a noteworthy contribution to fostering an optimistic disposition among adolescents. While the significance of social connections in sustaining feelings of optimism in adolescents has been extensively evidenced, the influence of cultural activities remains relatively underexplored. Researchers have generally regarded participation in cultural activities, such as visiting exhibitions, shows, and plays, as being of lesser importance to adolescent wellbeing when compared to physical or social activities, which have received more extensive scrutiny. Nevertheless, the findings of the current study lend support to the value of engaging in cultural activities, as they contribute to the cultivation of an optimistic mindset and facilitate the enjoyment of life among adolescents.

To enhance the perception of health, this study recommends that adolescents engage in specific leisure activities encompassing outdoor, social, and physical domains. Notably, the investigation by Jackson et al. (2021) regarding social activities underscores the crucial role played by outdoor and nature-based experiences in bolstering adolescents' resilience to stressors, including the COVID-19 outbreak, while also opening up opportunities for outdoor recreation during times of crisis, thereby emphasizing the need for facilitation (Jackson et al., 2021). The findings pertaining to the significance of outdoor and physical activities in promoting better health perception align with prior research. A systematic review conducted by Mygind et al. (2019), encompassing 84 studies from 2004 to 2017, underscores the conditional support for outdoor activities and their benefits for various aspects of adolescent well-being, including physical health, self-esteem, self-efficacy, endurance, and academic and cognitive performance. Notably, correlation research has established higher levels of physical activity in natural settings compared to alternative conditions. Moreover, positive outcomes have been identified across domains such as self-concept, problem-solving, and mood, and although distinct outcome categories were examined, improvements in social skills and behavioral indicators have been demonstrated (Mygind et al., 2019).

Various categories of leisure activities have been observed to yield distinct advantages concerning the sustainable health status of adolescents. This study contributes valuable empirical evidence that can inform practitioners involved in working with adolescents or provide recommendations regarding suitable leisure activities tailored to different groups of adolescents and youth with diverse goals and objectives in maintaining leisure behavior. Such evidence can facilitate adolescents in making informed choices by selecting activities that align with their specific needs, the particular environmental context, as well as their physical and mental well-being.

Rowe and Kahn (1997) delineated three primary constituents of sustainable health, one of which pertains to social commitment. This dimension encompasses two distinct aspects: the maintenance of close interpersonal relationships and the sustained engagement in meaningful and purposeful activities. Consequently, fostering regular involvement in social and productive activities can exert a positive influence on sustainable health status. The findings of our study strongly reinforce the tenets put forth by Rowe and Kahn by establishing a robust association between frequent participation in both social and physical activities and the overall well-being of adolescents. Adolescents who augment their involvement in social activities are more likely to experience an enhanced sense of well-being. Furthermore, those who regularly engage in activities characterized by meaning and purpose, such as physical activity, are more likely to sustain well-being in the long term.

The present findings lend support to the significance of positive social interactions within recreational contexts and the promotion of physical activity as pivotal components of sustainable health. As previously mentioned, the systematic review conducted by Mygind et al. underscored the relevance of social activities in fostering social connectedness and a sense of belonging among adolescents. Moreover, physical activities have been demonstrated to hold greater importance for older individuals, particularly in the case of adolescents, as they experience notable increases in life satisfaction and perceived health over time compared to older age groups (Van Willigen, 2000). Furthermore, the study revealed a positive association between the number of hours adolescents devoted to physical activity and their reported life satisfaction.

Several studies have elucidated the association between physical activities and life satisfaction in the adolescent population (Kvasková et al., 2022; Lu et al., 2020). These investigations have underscored that as adolescents elevate their level of physical activity, they are prone to accrue additional advantages. The outcomes of the current study align with

and contribute to the existing body of literature, which posits that active engagement in both social and physical activities plays a crucial role in fostering and sustaining a state of robust health.

This study acknowledges certain limitations associated with its focus on the late adolescence period; nonetheless, it contends that outdoor and physical activities demonstrate stronger associations with the sustainable health status of adolescents. Moreover, it posits that diverse categories of leisure activities may contribute to the enhancement of sustainable health status, thereby complementing the existing body of significant evidence. The findings of our study suggest that fostering connections with family and friends through engagement in outdoor activities, alongside cultivating physical fitness through participation in physical activities, can yield favorable outcomes in promoting sustainable health. Additionally, the present investigation sheds light on the impact of cultural activities on optimism levels among adolescents, indicating that involvement in outdoor and physical activities may hold greater significance in terms of subjective well-being than mere participation in physical activities alone. In conclusion, this study highlights the varying benefits associated with different leisure activities in the context of improving the well-being of adolescents. Accordingly, late adolescents should be encouraged to select activities that uniquely align with their physical and mental health needs while catering to their individual preferences. According to the study's conclusion, late adolescents should be encouraged to select activities that uniquely align with their physical and mental health needs while catering to their individual preferences.

Compliance with Ethical Standards

In this research, participants were given detailed information about the aim and content of the study and signed an informed consent form. Ethical approval for this study was obtained from Sakarya University of Applied Sciences (Decision No: E-70562473-050.99-100557) and the research was carried out within the scope of the Council of Higher Education Scientific Research and Publication Ethics Instruction.

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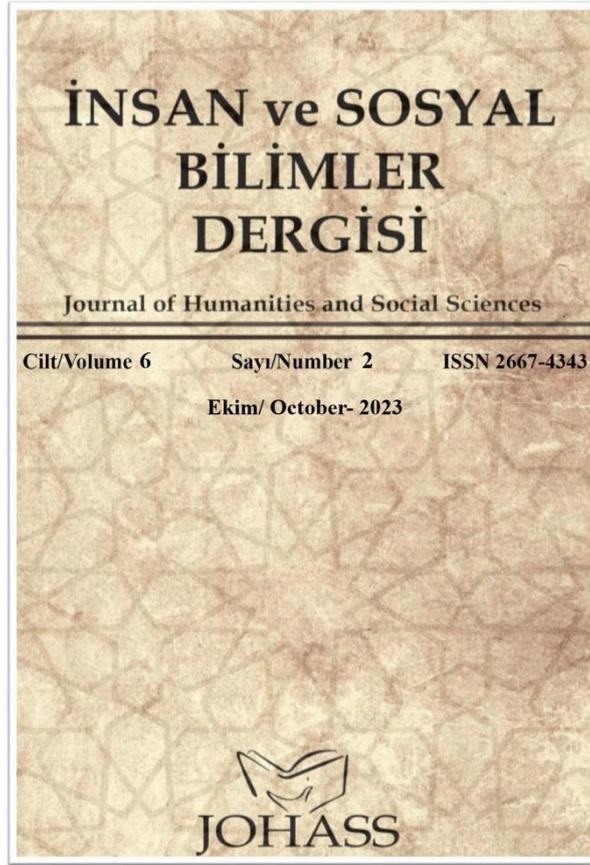
Appendix A

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**A Review of Measurement Tools Developed and Adapted Based on the
Rasch Model**

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A Review of Measurement Tools Developed and Adapted Based on the Rasch Model

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Abstract

It is often observed that the Rasch model is frequently used in determining the psychometric properties of measurement tools because the Rasch model has many advantages in the development and adaptation of measurement instruments. The aim of this study is to evaluate the theses included in the National Thesis Center, which examine the psychometric properties of measurement tools within the framework of the Rasch model, within the scope of the requirements of the Rasch model. In line with this purpose, the model of the research is a document analysis research within the scope of qualitative research. All theses containing the word Rasch in the thesis name and index were examined, and 24 theses in which the measurement tool was developed and adapted within the scope of the Rasch model were found. In order to examine these measurement tools, a coding list was created and the data was analyzed by applying categorical analysis which is one of the content analysis methods. According to the results obtained, it was revealed that in the majority of theses, information was given about unidimensionality, but in half of the theses, no information was given about the local independence assumption. There are studies that do not specify which model is used for polytomous items, and it was observed that model comparison was not performed. It was determined that item model fit was generally tested with different approaches in the theses, and item parameters were generally included. It is among the results that the Person separation index related to reliability was not reported in all studies, and sufficient information was not provided in some studies, even though Differential Item Functioning analyses were performed. In light of these results, it is seen that there is no common systematic approach in the development or adaptation of measurement tools within the framework of the Rasch model in the studies. Therefore, it is recommended that more detailed studies explaining this systematic approach should be conducted.

Keywords: Rasch model, measurement tool, scale development, scale adaptation

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Introduction

It is of utmost significance to assess the psychometric attributes, including validity and reliability, of the outcomes derived from the employed measurement tools during the measurement and evaluation process. Validity, which is one of the most important psychometric properties, is generally defined as the degree to which a measurement tool can assess the trait to be assessed without confusing it with other traits (Courville, 2004; Ebel & Frisbie, 1991; Murphy & Davidshofer, 2005) and it is meaningless to make any inferences on the results obtained from measurement tools that do not have validity (Hublely & Zumbo, 1996). Reliability is defined as the consistency between the scores of individuals taking two parallel instruments assessing the same characteristics; the consistency between the scores of the same individuals taking the same instrument at different times; the consistency between the scores of the same individuals obtained by dividing an instrument into two equivalent halves; and the internal consistency obtained depending on the covariance of the items in an instrument (Thorndike, 1982).

Different models are used in the evaluation of these psychometric properties of measurement tools and one of them is the Rasch model. In this study, the theses in which the psychometric properties of measurement instruments were studied within the scope of Rasch model were examined. When both national and international literature is examined, it is seen that the Rasch model is frequently used in determining the psychometric properties of measurement tools, because the Rasch model has many advantages in developing and adapting measurement tools. As Öztuna (2008) states the Rasch model has areas of use in different situations. These are the development of a new measurement tool, the evaluation of the psychometric properties of an existing measurement tool, the interpretation of measurement results obtained with ordinal results by converting them into interval scales, and the creation of item pools for computer adaptive tests.

In Classical Test Theory (CTT), item parameters are affected by the ability levels of individuals. When the same items are administered to individuals in different groups, different item parameters can be obtained, and therefore, it is seen that the obtained item parameters are group-dependent. However, as in all models within the scope of Item Response Theory (IRT), in the Rasch model, individuals' ability levels and item parameters are located along a common axis. Individuals' ability levels are estimated autonomously from the items in the measurement tool, and item parameters can be computed without being dependent on the ability levels of individuals within the group (Boone, 2016; DeMars, 2010; Embretson &

Reise, 2000; Engelhard, 2013; Hambleton & Swaminathan, 1985; Price, 2017; Wei *et al.*, 2014). Moreover, considering the results obtained at the ranking scale level at the equal interval level in the CTT, the total score is taken and parametric statistics are used, which may lead to biased results (Brinthaup & Kang, 2014). In the Rasch model, the results at the ordinal scale level are transformed into an equal interval logit scale and these limitations are overcome (Wright & Masters, 1982). In addition, while collecting the scores related to the responses given to the items in the CTT, the intervals between the options are considered equal and analyzed. However, it is known that the intervals between the options are not always equal (Elhan & Atakurt). These disadvantages are considered important in the preference of the Rasch model over the CTT.

The Rasch model was developed by Georg Rasch in the 1960s and started to be used to analyze the psychometric properties of dichotomous measurement instruments. It can be referred to as a 1-parameter logistic model of the IRT by researchers, and there are also researchers in the literature who advocate that it should be considered as a separate model from the IRT. While IRT uses a probabilistic distribution to determine ability levels, Rasch model uses a logistic technique. In addition, while the discrimination and chance parameters are held constant in the Rasch model, these parameters can change in the IRT. While an equation is created according to the data set in order to determine the psychometric properties in IRT, Rasch model requires the data set to fit the model (DeMars, 2010). In the two-category Rasch model, the likelihood of a correct response is represented as a logistic function of the disparity between an individual's ability and the item's difficulty, with both expressed in logit units (log-odds). In other words, it conceptualizes the raw scores obtained as the difference between item difficulty and an individual's ability and is obtained as the ratio of the probability of an individual agreeing with an item to the probability of disagreeing with it. When this probability ratio is transformed using logarithms, values from negative infinity to positive infinity are obtained and these values are called logits (Elhan & Atakurt, 2005; Hagquist *et al.*, 2009; Pallant & Tennant, 2007; Tennant & Conaghan, 2007). According to Rasch, when an individual answers an item, there is a mathematical relationship that shows the probability of answering that item correctly. He argued that an individual with a higher level of ability than others should be more likely to answer an item correctly than others; he also argued that if there are two similar items, one of which is more difficult than the other, the easier item for any individual is more likely to be answered correctly (Bond & Fox, 2015).

Georg Rasch argued that there are two main causes that affect probabilities; one is the individual's ability, θ , and the other is the difficulty parameter of the item, β , and β and θ are

additive. This means that they are in the same logit unit and range. This value is between $-\infty$ and $+\infty$, but in practice, it is evaluated between +3 and -3 (DeMars, 2010). For multi-category items, which is an extension of the Rasch model, the "Rating Scale Model (RSM)" was developed by David Andrich in 1978, and the "Partial Credit Model (PCM)" by Geofferey Masters in 1982 (Sumintono, 2017). In the RSM, the distance between thresholds is considered the same for all items. The analysis continues by estimating a single threshold for each item and adding other thresholds to this threshold value. The difficulty levels of the steps vary from item to item and the β value shows the average difficulty of a selected item according to the category thresholds. The PCM was developed for situations where partial scoring is important in the case of completing different stages in the analysis process or where the distances between response categories differ from item to item in Likert-type items. One of the important features of the model is that it is possible to score people with moderate θ (Koch & Dodd, 1989). Masters defines β parameters as "step difficulty". The reason for defining it as step difficulty is that the individual moves on to the next step after successfully completing one step. The item step difficulty parameter is also referred to as the category intersection parameter. As a result, the step difficulty parameter is defined as the amount of difficulty involved in selecting one response category from another response category. In PCM, there is one less step difficulty parameter than the number of item categories. For example, there are three step difficulty parameters for an item with four categories (Garrett, 2009). As in all Rasch models, items are assumed to have equal discrimination. Therefore, there is no item discrimination parameter in the model.

Unidimensionality, local independence and model-data fit are necessary assumptions for a Rasch model (DeMars, 2010). Unidimensionality is the presence of a single latent trait that adequately explains the common variance and the observed variables are a function of only one latent variable (de Ayala, 2009; Embretson & Reise, 2000). Meeting the unidimensionality assumption also indicates that there is no problem with local independence (Embretson & Reise, 2000; Hambleton & Swaminathan, 1985; Hambleton *et al.*, 1991; Lord, 1980; Morizot *et al.*, 2007). Local independence means that the items are unrelated to each other. Although it is stated that if the unidimensionality assumption is met, the local independence assumption will also be met, it is recommended to examine the local independence assumption (DeMars, 2010). Violation of the local independence assumption may occur when the response to one item affects the other item and the measurement tool is multidimensional. The Q3 statistic, which is expressed as a correlation coefficient for the residual values between items, is a statistic that shows the dependency between item pairs. In

order to test the local independence assumption, it is necessary to examine the relationship between all possible item pairs. Although a criterion of .20 is used in the evaluation of Yen's Q3 statistic (Christensen *et al.*, 2017), a criterion of .30 is generally considered (Riazi *et al.*, 2014; Røe *et al.*, 2014).

After testing the unidimensionality and local independence assumptions of the Rasch model, model-data fit should be tested with chi-square fit statistics. The chi-square fit statistic compares the difference between expected values and observed values between groups called class intervals, which represent different levels of ability along the trait to be measured (Tennant & Conaghan, 2007). The analysis programs used for the Rasch model usually report the fit statistics as two chi-square ratios, which are called the Infit MNSQ and Outfit MNSQ statistics (Wright & Linacre, 1994). The Infit value is sensitive to the individual's responses to items at a similar level of difficulty and provides centralized information. The Outfit value, on the other hand, is more sensitive to the unexpected responses of the individual to items that are more difficult or easier (Eckes, 2009). While Infit is more sensitive to responses to items that are close to the individual's ability level (Boone, 2016), Outfit is more sensitive to unexpected responses to items that are relatively easy or very difficult for individuals (Linacre, 2002). Infit and Outfit take values ranging from 0 to ∞ , but the value indicating perfect fit is 1.00 (Eckes, 2009). However, it is difficult to find a perfect fit between the model and the data (Brentari & Golia, 2008). These two values are evaluated together and a value between 0.50 and 1.50 indicates that model-data fit is achieved (Linacre, 2015). Concordance statistics above 1.50 indicate that individuals gave extreme answers contrary to the item, that the answers given to the item were out of the expected or that the item was caused by the fact that the item did not belong to the structure formed by the other items. A concordance statistic of 0.50 and below indicates that the item is too compatible to be true, which means that individuals gave the same answers to the items (Elhan & Atakurt, 2005; Tennant & Conaghan, 2007; Maindal *et al.*, 2009; Mallinson, 2007). Infit and Outfit values can also be standardized to have an expected value of 0 and reported as standardized Infit (ZSTD Infit) and standardized Outfit (ZSTD Outfit) (Wright & Masters, 1982). When the model and data are compatible, the mean of the Z values is expected to be close to 0 and the standard deviation to be close to 1. In the studies, Z values greater than +2 and less than -2 are considered less compatible with the model than expected. Negative Z values indicate less differentiation than expected (all easy questions answered correctly, all difficult questions answered incorrectly and similar situations), while positive values indicate more differentiation than expected (such as more random answer patterns) (Bond & Fox, 2015).

Two reliability estimates can be obtained through the Rasch model: individual reliability and item reliability. Reliability indicates the repeatability of scores or predictions rather than their accuracy. The reliability coefficients obtained reflect the characteristics of the results rather than the measurement tool itself. High individual reliability means that individuals with a high level of ability are more likely to succeed than individuals with a low level of ability. Item reliability is a measure of the extent to which the item difficulty ranking obtained from the current sample can be repeated (Linacre, 2015). As with other reliability coefficients, it is known that the closer it is to 1.00, the higher the reliability. It is used to evaluate the appropriateness of the responses to the overall measurement tool (de Ayala, 2009). As with Cronbach's alpha internal consistency coefficient, it is recommended to take .70 as a criterion for the reliability index obtained from the Rasch model (Walker *et al.*, 2012). Along with reliability estimates, separation values are also estimated for individuals and items. Like reliability coefficients, separation coefficients are an indicator of the repeatability of item and individual parameters. The individual separation coefficient is used to categorize individuals and when this coefficient takes a value less than 2.00, it is interpreted that the test items are not sensitive enough to distinguish between low and high performing individuals and that more items are needed. The item discrimination coefficient is used to verify the hierarchy of items, and when this coefficient is less than 3.00, it means that the sample is not large enough to verify the item hierarchy (Linacre, 2015).

Differential Item Functioning (DIF) is one of the factors affecting model fit in Rasch model. DIF is the matching of individuals according to their abilities in terms of the variable to be measured and then statistically determining that these individuals in different groups have different probabilities of answering the item (Camilli & Shepard, 1994; Clauser & Mazor, 1998; Roever, 2005; Zumbo, 1999). If an item shows DIF, individuals in different groups with similar θ levels will not be equally likely to give a certain response to that item (Embretson & Reise, 2000). In other words, DIF occurs when different individuals with equal θ respond differently to a certain item (Tennant & Conaghan, 2007). There are two types of DIF: uniform and non-uniform DIF. When uniform DIF exists, the difference between the item characteristic curves for the focal and reference group is uniform (Finch & French, 2007; Jodoin & Gierl, 2001; Walker, 2011). Non-uniform DIF occurs when the difference between item characteristic curves is not constant (Walker *et al.*, 2001). As a result of statistical analysis, items are labeled in categories A (insignificant/insignificant DIF), B (moderate DIF) and C (high DIF) (Zieky, 1993).

In the Rasch model, testing the psychometric properties of the measurement tool is completed after the assumptions of unidimensionality and local independence are met, followed by model-data fit, reliability, and DIF analyses as described above. In recent years, there has been an increase in the number of scale development studies in particular, and this has led to low-quality studies. For this reason, studies discussing the psychometric properties of measurement tools are also increasing. Many of these studies examine measurement tools within the scope of the CTC (Acar Gvendir & zer zkan, 2015; Őengl AvŐar & BarıŐ Pekmezci, 2022; BarıŐ Pekmezci & Ayan, 2020; m & Ko, 2013; Delice & Ergene, 2015; DoĖan 2009; ErkuŐ, 2007; Erol & Eskici, 2022; Fidan, 2021; Gl & Szbilir, 2015; Gler & Ayan, 2020; Hinkin, 1995; Slavec & Drnovsek, 2012; Soycan & Babacan, 2019; TavŐancıl *et al.*, 2014; Tosun & TaŐkesenligil, 2015; Worthington & Whittaker, 2006). In the studies conducted within the scope of IRT (KılıŐ *et al.*, 2022), scale development articles were examined and suggestions were made especially on assumptions. There are many studies on why the Rasch model should be used. In this study, the theses in the National Thesis Center, in which only the psychometric properties of measurement tools were examined within the scope of the Rasch model, were evaluated within the scope of the requirements of the Rasch model.

Method

This section includes information on the research model, documents, data collection tool, and data analysis process.

Research Model

In this study, the psychometric properties of the measurement tools were examined within the scope of the requirements of the Rasch model. To this end, the model of the research is a document review study within the scope of qualitative research. Corbin & Strauss (2015) define document review as a research model in which both printed and electronic materials are systematically analyzed to obtain empirical information about a phenomenon. Document analysis aims to reach a synthesis that will reveal certain situations or views by finding and analyzing relevant documents (Bowen, 2009; Maxwell, 1996). O'Leary (2017) also explains document review as a research model that aims to collect, examine, question and analyze various written materials as a source of primary research data. In this study, within the scope of document review, theses containing measurement tools

developed and adapted within the scope of the Rasch model were examined within the scope of the requirements of the Rasch model.

Documents

In this study, all the theses in the National Thesis Center Database of the Council of Higher Education that included the term 'Rasch' in their title and index were reviewed, and 24 theses (Appendix 1) in which the measurement tool was developed and adapted within the scope of the Rasch model were identified. In this context, no restriction was made and all theses were examined. Information about these theses is given in Table 1.

Table 1

Distribution of Thesis in Research According to Some Variables

Year	Thesis	Development / Adaptation	Scope	
1	2019	Specialist thesis	Adaptation	Department of Physical Medicine and Rehabilitation
2	2022	Doctoral thesis	Development	Department of Biostatistics
3	2018	Master thesis	Adaptation	Department of Teaching in Nursing
4	2015	Master thesis	Development	Department of Biostatistics
5	2019	Master thesis	Development	Department of Educational Sciences
6	2021	Specialist thesis	Adaptation	Department of Public Health
7	2013	Doctoral thesis	Development	Primary Education Department
8	2019	Master thesis	Development	Physiotherapy and Rehabilitation Program
9	2021	Master thesis	Adaptation	Occupational Therapy Program
10	2023	Doctoral thesis	Adaptation	Physiotherapy and Rehabilitation Program
11	2022	Specialist thesis	Adaptation	Child and Adolescent Mental Health and Diseases
12	2015	Master thesis	Adaptation	Internal Medicine Nursing
13	2020	Specialist thesis	Adaptation	Department of Public Health
14	2018	Master thesis	Development	Department of Physical Education and Sport
15	2019	Master thesis	Adaptation	Department of Nursing
16	2023	Master thesis	Development	Department of Biostatistics
17	2022	Doctoral thesis	Development	Department of Child Health and Diseases Nursing
18	2018	Master thesis	Adaptation	Department of Teaching in Nursing
19	2017	Master thesis	Adaptation	Department of Nursing
20	2022	Master thesis	Adaptation	Department of Speech and Language Therapy
21	2013	Master thesis	Adaptation	Department of Public Health
22	2019	Master thesis	Adaptation	Department of Mathematics and Science Education
23	2017	Master thesis	Adaptation	Department of Teaching in Nursing
24	2020	Master thesis	Adaptation	Department of Nutrition and Dietetics

As seen in Table 1, the theses examined are between 2013 and 2023. Sixteen of the theses are master's theses, four are specialization theses, four are doctoral theses, eight are measurement tool development studies and 16 are adaptation studies. When the fields are examined, it is seen that the measurement tools within the scope of Rasch are developed mostly in the field of health.

Data Collection Instrument

A coding list was developed to examine the measurement tools developed and adapted within the scope of the Rasch model. The coding list that has been developed consists of two main sections. The first section includes preliminary information about the theses (year, thesis type, field, sample size, number of items, number of dimensions, number of response categories, software used). The second section includes information about the requirements of the Rasch model in line with the main purpose of the study (unidimensionality and local independence assumption check, item data fit check, item parameter estimation method and item parameter reporting status, item and test information functions reporting, reliability and DIF analyses testing status). In this section, response categories of yes, no and partially were used for some categories and yes, no and partially for others. After the coding list was created, it was submitted to the opinions of three experts who are academicians in the field of measurement and evaluation. After the necessary arrangements were made, the final version of the form was decided.

Data Analysis

The data obtained within the scope of the research were analyzed by applying categorical analysis, which is one of the content analysis methods. Accordingly, the frequencies of each category were calculated. Tavşancıl & Aslan (2001) express that there are two approaches to following the category system in categorical analysis: theoretical categorization process and applied categorization process. In this study, categories were created based on the theoretical basis of the Rasch model. When the thesis review process started, there were changes in the categories created. Therefore, both deductive and inductive approaches were adopted. The findings were presented in the form of frequency/percentage tables. Two researchers coded seven theses independently of each other for the reliability of the coding on the form. The coding reliability of the data obtained from both coders was determined by the coding reliability formula ($\text{Coding reliability} = \text{Agreement} / (\text{Agreement} + \text{Disagreement})$) proposed by Miles & Huberman (1994). As a result of the coding, the agreement between the codings was found to be 92%.

Findings

Information on the sample sizes, number of items, number of dimensions, number of categories and the statistical program used in the theses are given in Table 2.

Table 2

Sample Sizes, Number of Items, Number of Dimensions, Number of Category and Software of the Studies

	Sample size	Number of items	Number of Dimensions	Number of Category	Software
1	179	10	2 Dimensions	5	RUMM 2020
2	308	21	Unidimensional	2	RUMM 2030
3	254	18	3 Dimensions	5	RUMM Version 5.3.
4	300	32	2 Dimensions	5	RUMM 2020
5	102	32	Unidimensional	2	Winsteps
6	110	9	2 Dimensions	5	Winsteps
7	502	16	2 Dimensions	2	-
8	370	44	3 Dimensions	2	RUMM 2020
9	101	25	7 Dimensions	4	-
10	100	10	Unidimensional	2	RUMM 2020
11	298	10	Unidimensional	8	RUMM 2030
12	130	22	Unidimensional	5	Winsteps
13	210	13	2 Dimensions	5	Winsteps
14	722	45	Unidimensional	2	-
15	367	33	2 Dimensions	2	SAS 9.4.
16	668	24	3 Dimensions	2	R
17	390	33	Unidimensional	2	Winsteps
18	296	16	2 Dimensions	5	RUMM Version 5.3.
19	499	39	6 Dimensions	4	RUMM Version 5.3.
20	71	24	4 Dimensions	7	Winsteps
21	150	25	4 Dimensions	5	RUMM 2020
22	250	20	4 Dimensions	3	Facets 3.65.0.
23	504	36	3 Dimensions	5	RUMM Version 5.3.
24	314	27	7 Dimensions	5	Winsteps

As seen in Table 2, the lowest sample size was 71 and the highest sample size was 722. The average sample size for 24 theses was 299.79. The number of items varied between 9 and 45, and the average number of items was 24. Seven of the measurement instruments were unidimensional, seven bi-dimensional, four three-dimensional, three four-dimensional, one six-dimensional and two seven-dimensional. Therefore, it was determined that the measurement tools were multidimensional in the majority of the studies. When the number of categories is analyzed, it is seen that the measurement tools have five-response categories in 10 studies and two-response categories in nine studies. In addition, there are measurement tools with three, four, seven and eight response categories. The programs used were RUMM, Winsteps, SAS, R and Facets, but it is seen that the RUMM program is mostly preferred. Three studies did not provide information on the program used. The results of testing the assumptions of the Rasch model are given in Table 3.

Table 3

Rasch Assumption Check

Reporting Status	Assumptions of Rasch			
	Unidimensionality assumption		Local independence assumption	
	f	%	f	%
Yes	17	%70.83	12	%50
No	7	%29.17	12	%50

As can be seen from Table 3, 17 studies provided information on the unidimensionality assumption. In 13 of these studies, Principal Component Analysis was used to meet the unidimensionality assumption. In two studies, it was stated that unidimensionality was also met since local independence was ensured. In two studies, it was stated that unidimensionality was accepted because the infit and outfit values were in the desired range, and in one study it was stated that the measurement tool had a unidimensional structure because the infit and outfit values were in the range of 0.70 and 1.30, and in the other study because they were in the range of 0.50 and 1.50. In seven studies, there was no information regarding the unidimensionality assumption. As can be remembered from Table 2, 17 of the measurement tools have a multidimensional structure. Therefore, the unidimensionality assumption should be tested separately for each dimension. However, only two of the studies specifically emphasized this information. Information on the variance explained by the items in the measurement tools was found in nine theses. In half of the theses, information on the assumption of local independence was given. The need to examine the relationship between all possible item pairs to check the assumption of local independence was tested with Yen's Q3 statistic. In six of the theses, the criterion of .30 was taken into consideration within the scope of this statistic. The assumption of local independence was interpreted by considering the criterion of .32 in four studies, .40 in one study and .50 in one study. In 12 studies, no information about local independence was given. The results of the Rasch model, item fit and item parameters are presented in Table 4.

Table 4

Utilized Rasch Models, Item Fit and Item Parameter

Utilized Rasch Models	Item Fit		Reporting Status	Item Parameter	
	f	%		f	%
Dichotomous	9	%37.5	Yes	23	%95.83
Partial Credit Model	6	%25.0	No	1	%4.16

No information	9	%37.5
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As seen in Table 4, the Dichotomous Rasch Model was used in nine of the theses and the Partial Credit Rasch Model was used in six of them. As can be recalled from Table 2, the measurement instruments had two response categories in nine of the theses; thus, the Dichotomous Rasch Model was preferred. No comparisons were made with other Rasch models that could be used for multiple response categories in any of the studies. The reason why the Partial Credit Model was used was not included in the studies comparatively. Nine studies did not provide information about the model used. Only one thesis did not provide information on item model fit. In ten theses, Infit values, which provide more central information, and Outfit values, which are more sensitive to unexpected responses, were given for all items in the measurement tool. These two values were evaluated together and it was interpreted that the items with values between 0.50 and 1.50 provided model fit. In five studies, standardized Infit and Outfit values were reported and it was stated that the items fit the model if they were in the range of ± 2.5 . In nine studies, since the chi-square values were higher than the Bonferroni corrected p value, it was stated that all items in the test fit the model. In five studies, overall goodness-of-fit statistics were given and it was stated that the mean of item fit statistic and individual fit statistic being close to 0.00 and standard deviation being close to 1.00 were the criteria for model-data fit. In only one of the theses examined, information on the estimation method was given and it was stated that the weighted likelihood estimation method was used. In 20 studies, it was determined that *b* values for items and standard errors for *b* values were calculated. In five of the instruments with multiple response categories, the threshold values of the items were given and it was checked whether the step transitions were regular. In one of these studies, it was determined that the threshold values of an item were not ordered and category merging was performed for the related item. Point Biserial values of the items were also included in two studies. Four studies did not include item parameters. Information on Item-Information Function, Test-Information Function and other maps are given in Table 5.

Table 5

Item-Information Function, Test-Information Function, Other Maps

Item-Information Function			Test-Information Function			Other Maps
Reporting	f	%	Reporting	f	%	f
Status			Status			

Yes	0	%0	Yes	1	%4.16	Person-Item Threshold Distribution	1
No	17	%70.83	No	23	%95.83	Person-Item Location Distribution	3
Partial	7	%29.17	Partial	0	%0	Person-Item Map	7

Item-Information Function is a mathematical function that describes the relationship between an individual's response to an item and his/her ability, usually logistically. Table 5 shows that seven studies included Item-Information Function for sample items rather than all items. In one study, expected and observed item characteristic curves were included, and the expected and observed probabilities were found to be compatible. Only one of the studies included the Test-Information Function. Two of the theses included Person-Item Threshold Distribution and three included Person-Item Location Distribution. Person-Item map was given in seven theses. The Person-Item map, which is also called Wright Maps, shows the distribution of item difficulties and the distribution of individuals' responses, and the left side of the graph shows the graph of individuals' ability estimates, while the right side shows the distribution of items according to their difficulties. The results related to reliability and Changing Item Function in the theses analyzed are given in Table 6.

Table 6

Reliability and Differential Item Functioning

Reliability			Differential Item Functioning				
Reporting Status	f	%		f	Reporting Status	f	%
Yes	22	%91.67	Person separation index	18	Yes	10	%41.67
No	2	%8.33	Cronbach alfa	10	No	14	%58.33
			Test retest	6			
			KR-20	3			
			Split-half	1			

As seen in Table 6, 22 of the theses tested the reliability of the results obtained from the measurement tools. Two studies did not provide information on reliability. In 18 studies, the Person separation index value used within the scope of the Rasch model was given and the criterion of 0.70 was taken into account while interpreting. In 10 studies, Cronbach's alpha value, one of the reliability estimates based on the CTQ, was reported and in three studies only Cronbach's alpha value was given. Six studies reported test-retest reliability and three studies reported KR-20 internal consistency coefficient. In one of these studies, only KR-20 was reported as a reliability estimation. In one study, split-half reliability estimation was also included. In three of the theses, findings related to item reliability, indicating the extent to

which the item difficulty ranking obtained from the current sample can be repeated within the context of the Rasch model, were also included. In addition, in four theses, information on the individual dissociation index used to separate individuals and the item dissociation index used to verify the hierarchy of items were also provided. When the Changing Item Function results were examined, it was found that 10 studies examined whether the items showed DIF or not, but in most of these studies, it was not explained that DIF determination method was used. One study reported that Mantel-Haenszel Chi-square DIF determination method was used, and three studies reported that DIF was determined by ANOVA. None of these studies commented on the size of the DIF and did not go through the item bias process. In 14 studies, DIF for items was not studied.

Discussion and Results

In this study, 24 theses in which the psychometric properties of measurement tools were examined within the scope of the Rasch model were reached and evaluated within the scope of the requirements of the Rasch model. Although all of the theses analyzed were published in the last decade, the majority of them are master's theses and unique to the field of health. However, 16 of them, the majority of studies, are adaptation studies.

When the sample sizes reached in the theses were analyzed, it was found out that the sample size was below 500 in 20 theses. Although there are researchers (de Ayala, 2009; DeMars, 2010) who state that the sample size should be at least 500 in IRT analyses, there are also different opinions on the appropriate sample size for parameter estimation (Hambleton & Swaminathan, 1985). It is stated that the Rasch model requires a smaller sample size than other IRT models and that the minimum sample size for a 20-item test can be 200 people within the scope of the Rasch model, and it was determined that the sample size was below 200 in eight of the theses examined. Unlike the findings of this study, Kılıç *et al.* (2022) state in their study in which they examined articles within the scope of IRT that more than half of the articles reached 500 for the sample size. In 17 theses, which constitute the majority, it was determined that the measurement tools were multidimensional and generally had five response and binary response categories. Although the RUMM program is generally preferred for Rasch analysis, there are also theses where program information is not provided.

When the assumptions of the Rasch model are analyzed, it is seen that most of the theses provide information on unidimensionality. However, there are also studies stating that unidimensionality is also ensured since local independence is ensured. However, it was also

observed that there were studies stating that unidimensionality was accepted because the infit and outfit values were within the desired range. Brown (2015) states that factor analysis is the most commonly used method to check the unidimensionality assumption of measurement instruments. Unlike the findings of this study, Kılıç *et al.* (2022) state that the unidimensionality assumption was not met in more than half of the articles. In this study, information on the variance explained by the items in the measurement tools was found in ten theses. Azrilah *et al.* (2013) state that the data may be unidimensional if the percentage of variance explained for the Rasch model is at least 40% and the percentage of variance in the first opposite structure is less than 15%. Therefore, the reported variance explained is considered important. Half of the theses do not provide information on the local independence assumption. The residual correlation matrix was used and the criteria that were addressed differed from each other in all of the theses where information was provided. Although the .30 criterion is generally used, .32, .40 and .50 criteria are also used, and it is interpreted that there may be dependence between item pairs with values above these values. Marais (2009) and Yen (1993) state that if the local independence assumption cannot be met, it may affect the parameter estimates based on individuals and the reliability and validity results of the results obtained from the measurement tool. Kılıç *et al.* (2022) state that only 68% of the studies examined in their study controlled for unidimensionality and 30% controlled for local independence.

Since nine of the theses were instruments with two response categories, the two-category Rasch model was used. Partial Credit Model was preferred for measurement tools with multiple response categories. However, no model comparison was made in any of the studies. There are advantages of using the Partial Credit Model. Krishnan & Idris (2018) mention this point in their study entitled Using the Partial Credit Model to Improve the Quality of an Instrument. However, despite these advantages, a model comparison will provide more detailed information. This finding is similar to Kılıç *et al.* (2022), who explain that model comparison was conducted in only one study. When the model-data fit was analyzed, it was determined that only one thesis did not provide information on item model fit. Although there are different approaches to test item-model fit in studies, Infit and Outfit values are generally interpreted. Bond & Fox (2015) state that fit statistics always take positive values and when the fit statistic values are 1.00, they indicate excellent model-data fit. Furthermore, they express that the fit statistic criterion may change according to the characteristics and purpose of the measurement tool used. However, although the theses examined were in different fields, it was determined that the range of 0.50 and 1.50 was used. Again, unlike the findings

of this study, Kılıç *et al.* (2022) state that item fit was not tested in the majority of the studies. At the same time, within the scope of this research, only one thesis provided information about the estimation method. As stated by Hambleton & Swaminathan (1985), Marginal Maximum Likelihood is the most commonly used estimation method, but Joint Maximum Likelihood, Conditional Maximum Likelihood and Bayesian Estimation method are also among the estimation methods used. It is among the results obtained that there is a lack of information about these estimation methods in the theses. In this study, it was revealed that item parameters were given in 20 theses. Sixteen of the theses had multiple response categories, but only five studies gave threshold values and checked whether the step transitions were regular. Point Biserial values of the items were also included in two studies. In parallel with the findings of this study, Kılıç *et al.* (2022) also state that item parameters were given in 79% of the studies.

It was determined that none of the theses examined in this study included all the item information functions, only sample items. In one study, expected and observed item characteristic curves were included and it was determined that the expected and observed probabilities were compatible. Apart from this, it is also among the results that comments were made on the Person-Item map in seven theses. Linacre (2008) stated that these maps, also called Wright Maps, are informative in showing the distribution of item difficulties and individuals' responses. Again, unlike the findings of this study, Kılıç *et al.* (2022) stated that almost half of the studies included item information functions and test information functions.

Nearly all of the theses examined presented results on reliability, but the Person separation index, which should be given within the scope of the Rasch model, was not included in six studies. While two of these studies did not provide any information on reliability, four of them provided reliability estimates based on the CTT. Walker *et al.* (2012) argue that .70 should be taken as a criterion for the reliability index obtained from the Rasch model as in internal consistency coefficients. The criterion of .70 was also taken into consideration in the studies. In addition, in four theses, information was also provided with the individual dissociation index used to separate individuals and the item dissociation index used to verify the hierarchy of items. When the Changing Item Function results were analyzed, 10 studies examined whether the items showed DIF, but in most of these studies, which DIF determination method was used was not explained and no information was given about the DIF size in the studies. It was also found that expert opinion on item bias was not taken. Kılıç *et al.* (2022) also explain that in the articles they examined within the scope of

IRT, Marginal Reliability value was given in almost half of the studies, and the item with DIF was removed from the measurement tool only in one study.

Although this research has some findings, it also has some limitations. In this study, only theses in the National Thesis Center in Turkey were analyzed. Although there are some studies in which measurement tools are scrutinized within the scope of CTT, there are a limited number of studies in which measurement tools are examined within the scope of IRT. Since there is no study that only evaluates within the scope of Rasch model, it is thought that this study will be informative for researchers who will develop measurement tools using Rasch model. For this reason, it is recommended to evaluate the articles in which only the measurement tools related to the Rasch model are examined. In line with the results obtained, it is unraveled that there is no common systematic in terms of developing or adapting measurement tools within the scope of Rasch model. Therefore, it is suggested that more studies explaining this systematic in detail should be conducted.

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- Akşehirli, Ö. (2022). *Gebelerde doğum şekli hakkında bilgi düzeylerinin belirlenmesine yönelik test geliştirilmesi* [Development of a test for determining the level of knowledge about the delivery method in pregnant women] [Doktora tezi, Ankara Üniversitesi] Ulusal Tez Merkezi

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Appendix 1. List of Reviewed Articles

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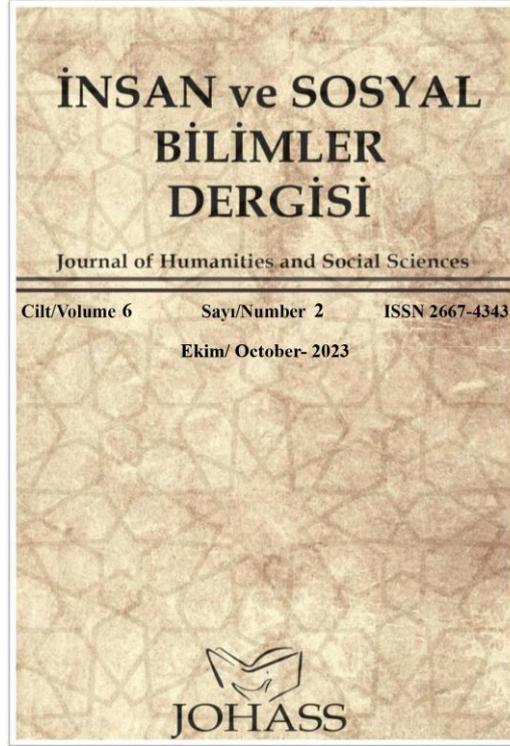
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A Literature Review on the Effect of Artificial Intelligence on Education

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A Literature Review on the Effect of Artificial Intelligence on Education

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Abstract

The science of artificial intelligence has been advancing at a great pace in recent years. Artificial intelligence, one of the most important technologies of our age, will cause a great transformation for the world. Artificial intelligence has also affected education and training, leading to significant developments in the field of learning technologies and educational technology. Interest in computer systems and artificial intelligence is increasing and the studies on them are increasing. This article examines the issue of digital transformation in education as a result of the development of artificial intelligence, and the new educational processes that will occur as a result of the interaction of humans and intelligent machines. Therefore, the aim of this study is to understand the impact of artificial intelligence on education. For this purpose, firstly, information is given about what artificial intelligence is. Then, it is discussed whether machines show human-like behaviors or not. Finally, an analysis is made on how and in what way artificial intelligence contributes to education, what the advantages and disadvantages of artificial intelligence are, and which artificial intelligence applications can be used in education. The research was conducted with a literature review from qualitative research methods. Artificial intelligence has provided students with enhanced learning experiences as it enables learning materials to be customized and personalized according to students' needs and abilities. AI in general has had a major impact on education, especially on the management, teaching and learning areas of the education sector or in the context of individual learning institutions.

Keywords: Artificial intelligence, education, future, algorithm, deep learning

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Introduction

Since the industrial revolution, there have been great advances in technology. Many demanding manpower jobs have been replaced by technology that has done so much for humanity. Artificial Intelligence (AI) is one of the technological innovations that have replaced manual work done by humans in various fields. Artificial Intelligence is a science and technology that creates intelligent machines and computer programs to perform various tasks that require human intelligence. AI uses external data such as big data to achieve excellent performance on given tasks. Once upon a time, AI was a concept only seen in science fiction and debates discussing artificial intelligence. But now it has become a part of our daily lives (Aoun, 2017).

Artificial Intelligence is having a significant impact on industries such as education, manufacturing, healthcare, supply chains, etc. Artificial Intelligence's ability to do things that humans cannot do brings many applications that increase efficiency and performance. The science of artificial intelligence has emerged with the development of artificial systems by analyzing the thinking methods of human beings. Therefore, when analyzing artificial intelligence, it is important to first understand how the human brain works.

Intelligence is the most distinctive feature of human beings. It is our unique feature that distinguishes us from other living things. Scientists are looking for an answer to the question to what extent we can realize intelligence in an artificial environment. Human intelligence works in a certain hierarchy. These layered patterns of structure allow us to understand life. The brain matches symbols and makes logical connections with each one. These connections form ideas. Acquired knowledge connects with these ideas. Being able to speak and transfer knowledge to another person are the most important characteristics of intelligence (Blaschke, 2012.).

Beyond this, intelligence is the ability to reason. We make inferences, solve problems, adapt, interact and learn. Nothing in nature is more mysterious than the human mind. Where does the mind come from? What does it work with? Scientists have been searching for answers to these questions for decades. There are two important points that dominate the scientific debate on the nature of the mind: (1) The mind is a structure that emerges from certain complex biological systems. (2) The mind is the software that controls the computer-like hardware of the brain. Basic consciousness accommodates a third hypothesis. The mind is not an occasional phenomenon in complex biological or computational systems, but a

highly pervasive and deeply embedded process in nature, like light or electricity, which is in itself extremely important (Brady, 2012).

Scientists working in the field of artificial intelligence are also neuroscientists who are successful in their fields. This is because neuroscientists have laid the foundations of artificial intelligence by discovering the neuron networks in the human brain and transferring them to the artificial neural network. As the human brain has been discovered, it has inspired various fields of artificial intelligence by establishing its connection with technology.

The human brain weighs an average of 1100-1500 grams and consists of approximately 80 billion neurons. The brain consists of two hemispheres. These hemispheres are both physically and functionally different from each other. The two hemispheres are separated by the "corpus collosum". Both hemispheres process incoming data, but because they process information differently, they think in different ways. For example, the right hemisphere of the brain focuses on the present, while the left hemisphere focuses on the past and future. Based on the similarities between the human brain and computers, there are researchers who say that in the future there will be thinking robotic machines with emotional intelligence, and there are also researchers who say that no human-made machine will ever reach the potential of the human brain (Cook and Gregory, 2018). Time will undoubtedly show us which of these two ideas is correct.

One of the important issues that scientists studying the human brain, namely neuroscientists, are working on is how learning takes place in the brain. Learning in the brain is a process that starts in the womb and continues throughout life. The human brain receives and processes information through experience and senses. The brain categorizes the data it receives and stores it in the relevant brain regions. This recorded information is transformed into appropriate outputs when needed. Artificial intelligence has been developed by taking the brain's learning model as an example. Information that is not needed and not used in the human brain can be lost over time. However, artificial intelligence, especially the information transferred by machine learning, may not be lost as in the human brain as time progresses and information transfer may gain continuity. From this point of view, it is a fact that in the coming years with artificial intelligence, models will develop in which the existing knowledge increases and is not forgotten even if time passes. However, it is important that this information data can be carried out in a healthy process. Artificial intelligence can realize lifelong learning skills by restructuring itself to learn new information, just like humans. Scientists say that the brains of humans and other living creatures are capable of lifelong

learning, and that the necessary infrastructure has been established for machines to learn lifelong in the same way.

The development and diffusion of artificial intelligence affects all segments of society, from the education system to the business world, from the economy to the sociocultural structure (Acar, 2020). It is important for states to consider artificial intelligence systems when organizing development plans and education systems. All stakeholders that make up the society are affected by artificial intelligence systems. For this reason, the study investigates the impact of artificial intelligence on education and gains importance in this direction.

While all these studies and researches in the field of artificial intelligence and education continue to increase every year, their systematic design in an information network will facilitate the work of new researchers. In this respect, this study will shed light for researchers.

Method

The aim of this study is to evaluate the impact of artificial intelligence on education. The survey method, which is one of the descriptive research methods, was used in the study (Karasar, 2012). Document analysis method was used as a research technique in the study. Firstly, the relevant sources on the subject were scanned and information was collected. The information obtained was classified and presented under related topics. The data obtained as a result of the study were analyzed using the descriptive analysis method and recommendations were made.

Findings

In this section, the definition of artificial intelligence, the systems that make up artificial intelligence, the relationship of artificial intelligence with education and the impact of artificial intelligence on education are emphasized.

The aim of this study is to evaluate the impact of artificial intelligence on education. The research was conducted by literature review, one of the qualitative research methods. Articles, theses, dissertations, professional publications and professional conference reports on artificial intelligence were identified and analyzed in the literature.

What is Artificial Intelligence?

It is said that there have been three great events in human history. The first of these events is the creation of the universe. The second is the beginning of life. And finally, the emergence of artificial intelligence. Artificial intelligence is a computer science consisting of algorithms that focus on the creation of machine people who can think and act like humans. Artificial intelligence is a term we often encounter with the rapid development of technology in our age. Artificial Intelligence is a technological wave that is changing the world. It is the ability of a machine to perform cognitive functions such as perception, reasoning, learning and interacting (Dickson, 2017).

Computer pioneer Alan Turing created the famous "Turing Test" in 1950 to measure machine intelligence. If a computer in a box could convince a human that there was another human in the box, it passed the Turing test. This was a step that accelerated the process of machine learning. The term "Artificial Intelligence", a combination of different fields of science such as mathematics, physics, chemistry, biology, psychology, linguistics and computer science, was first coined in 1956 during a conference at Dartmouth College (Lieberman, 2018).

A year later, American computer scientist Arthur Samuel introduced the concept of "machine learning". In 1965, Ukrainian mathematician Alexey Grigorevich first introduced the concept of deep learning, inspired by the human brain's Neural Networks (NN). Scientists define it as the ability of a computer-controlled device to perform tasks in a human-like manner, while human-like qualities are mental processes such as reasoning, inferring meaning, generalizing and learning from past experiences. The aim here is to create intelligent programs that can perform human-specific higher logic processes such as machine learning (Maderer, 2016).

Artificial intelligence is the transfer of human intelligence, physiological and neurological structure to machines by modeling. In summary, artificial intelligence is computer systems that think and behave like humans. Many people and organizations have been researching and working on "Artificial Intelligence", which is a field where research is carried out to ensure that machines have the ability to think and produce just like humans (Pennington, 2004).

In the literature, it is seen that the definition of "Artificial Intelligence" has changed with the development of technology. The common point of the definitions of artificial intelligence is that it is artificial systems that try to imitate the mental characteristics and skills

of humans through machines. Artificial intelligence tries to ensure that computer systems behave like humans and perform specified tasks. Experts who claim that a machine can learn just like a human being have divided artificial intelligence into two areas: machine learning and deep learning.

What is Machine Learning?

Deep learning is teaching a computer to process data based on the human brain. It is one of the sub-branches of machine learning. Deep learning is used to convert image and audio files into text. It is an algorithm with many layers of input and output. This algorithm produces meaningful results by combining the information in the previous layer in all layers. Deep learning is used in many areas such as image and language processing, handwriting recognition, classification, and time prediction (Pool and Qualter, 2012).

Artificial Intelligence and Education

Artificial intelligence is widely used in the field of education and has important applications that have a profound impact on the teaching process and classroom management. AI continuously enhances learning and influences the environment in a way that encourages student enthusiasm, initiative and creativity. Artificial Intelligence is a branch of science and technology created through intelligent machines and computer programs to perform various tasks that require human intelligence. Artificial intelligence makes people's lives easier by offering different types of applications (Seldon, 2018).

Artificial intelligence is used in various fields such as education, law, health, security, etc. and has its own advantages and disadvantages. While there are advantages that benefit both the individual and society, there are also disadvantages to the increased use of technology. Our modern world is being successfully guided by artificial intelligence and its applications and is seen as one of the important factors in shaping the future. The artificial intelligence of the future will undoubtedly be much better equipped than it is now. It is predicted to have a system with features more similar to human beings. Artificial intelligence will bring innovations in health, transportation, e-commerce and many other fields. It is certain that the upcoming innovations will have a great impact on people's lives and future generations. It has increased to the point where AI has become a viable option for many schools worldwide (Schrum and Levin, 2009).

Digital technology powered by artificial intelligence based on our thoughts, behaviors and interactions has become a very important component of our daily lives. Today, with the development of global science and technology, artificial intelligence technology has also developed at a great pace. Artificial intelligence technology is constantly updated and widely used in various fields. In the process of development, it affects more and more people. It is an indisputable fact that artificial intelligence is increasingly penetrating the educational environment and teaching process of schools.

As technology continues to embed itself in society in new and ever-changing ways, it continues to change and direct the field of education. These changes have altered the way teachers work and the way schools function. This situation shows how important it is not only to bring a new perspective to education, but also to have educators who have a good command of educational technology to make the right decisions and guide the process.

Artificial intelligence is widely used in education, especially by educational institutions in different ways. Artificial intelligence initially started as computer and computer-related technologies. Then it moved to web-based and online intelligent tutoring systems and finally, with the use of embedded computer systems, humanoid robots and web-based chatbots, along with other technologies, the tasks and functions of tutors developed independently (Tao, 2017).

The history of intelligent machines and artificial intelligence, which developed as a result of the emergence of artificial neural networks and deep learning, dates back to the 14th century. For about 25 years, artificial intelligence has been incorporated into the education sector in various ways. Educators and students in elementary, middle, high school and higher education are using AI-powered applications and intelligent robots. AI technologies also enable the use of individualized applications to meet the educational needs of each student. Because each student is unique and has various characteristics, their learning styles, abilities and demands are different from each other. It is difficult to meet these demands using standard educational practices. With investments and technological developments, artificial intelligence applications meet these demands in terms of performance and awareness.

The history of technology use in schools is quite long. From the abacus to virtual reality, educators have always tried to integrate the latest technology into their classrooms to give their students a step into the future. Slide projectors were the first type of technology that allowed teachers to project their lessons onto a board at the front of the classroom for all students to observe. Later, televisions were used in the classroom to show learning videos to

students. After television, computers were introduced and gradually became common in every classroom. Then internet access was introduced in every school, including public schools. Over the years, the scope of internet access increased. Then smart boards, video projectors and e-books began to appear in many schools. This provided access to more books, lowered costs and gave students more educational options. The first research into the systems that would become known as artificial intelligence dates back to the 1950s, and the term "artificial intelligence" is attributed to a professor named John McCarthy. The goal of AI researchers is to understand how humans think and to create programs that can approach that thinking. Therefore, the convergence between AI and education is both natural and inevitable (Webster, 2017).

New technologies can be beneficial to individual learning as they focus on making students active participants in their learning. AI technology in particular offers a range of opportunities for differentiation of instruction, which is essential for adaptive learning. Some AI systems are mechanically intelligent; some AI systems are intellectually intelligent, designed to be coherent, to learn and adapt autonomously. Each of these different types of AI tends to adapt to certain types of situations that can make them more capable of performing some types of educational tasks better than others.

The development of AI is also changing the global economy in many ways. With AI, many workloads are being done by machines. There is much debate about how the transformation brought about by AI will affect the workforce of the future. Scientists say that artificial intelligence will eliminate some professions and some new professions will emerge. There is even a group of scientists who believe that AI will eventually take away all human jobs. The spread and success of artificial intelligence in the mechanical business sector has shown the importance of the power of thinking, which has led many people to focus on professions involving thinking and feeling activities. There is a debate about what the main goals of AI are and whether its aim is to imitate or replace humans (Wells, and Lewis, 2006). In addition, although the full implications of AI on education have not yet been fully determined, researchers have noted that there are many important areas where AI is used in education. Although the use of AI in educational technology is rapidly expanding, there are a variety of ways in which it can have an impact in education, including administrative, instructional, and data analysis-based tasks. For example, AI is used in the assessment of students. AI programs have been able to accurately assess student essays after exposure to a large number of writing samples.

There are benefits as well as drawbacks to using AI in education and it is important to know them. For example, AI lacks the cultural agility of humans and the ability to understand the nuances of communication in texts. AI struggles with the concept of divergent and convergent thinking. Convergent thinking is concerned with weighing alternatives to find the one right answer, while divergent thinking involves using creativity to find many potential answers. While AI programs are quite adept at performing convergent thinking tasks and even tasks that require a mix of convergent and divergent thinking, they are not yet capable of performing completely different tasks, such as writing a novel.

Discussion and Results

The development and use of computers and computer-related technologies has been a harbinger of research and innovation. According to Günay and Şişman (2019), this situation has led to the inclusion of machines with artificial intelligence in business lines and subsequently reduced the need for physical strength and simple cognitive skills expected from humans. This has led to the development and use of artificial intelligence in different sectors. In particular, the development of personal computers and subsequent advances in processing and computing capabilities, as well as the huge impact of computer technologies, have encouraged the development and use of artificial intelligence. Artificial intelligence is widely used in the education sector, especially in educational institutions, which is the focus of this study.

Artificial intelligence in education initially took the form of computers and computer-related systems, then web-based and online education platform. Embedded systems and humanoid robots have made it possible to use chatbots to perform teacher or instructor-like functions. The use of these platforms and tools has enabled or improved the effectiveness and efficiency of teachers, resulting in richer or improved teaching quality. Similarly, AI has provided students with enhanced learning experiences as it enables learning materials to be customized and personalized according to students' needs and abilities. Overall, AI has had a major impact on education, especially in the management, teaching and learning areas of the education sector or in the context of individual learning institutions (Arslan, 2020).

The use of AI programs in the classroom can help to reduce the teacher's workload by doing work that would otherwise need to be done by the teacher. This view establishes AI as a tool to help teachers achieve the highest efficiency. It is in such AI programs, which can be

easily dropped into the classroom environment without changing the entire instruction, where the most statistically significant increases in student learning outcomes will be found, at least in the near future.

It is also said that AI programs are likely to change the role of the teacher altogether. Some AI-powered software that provides material to a student and then helps them with their questions has the potential to replace teachers. With the widespread use of artificial intelligence, some professions have lost their importance, while new professions have emerged in some areas (Telli, 2019). For example, professions such as social media expertise, IT lawyer, IT prosecutor have emerged and become popular professions. With artificial intelligence systems, many professions are changing rather than disappearing (Altun, 2019). The use of AI in educational spaces is an area that needs further study. An often cited drawback of educational AI programs is the communication barriers between AI and humans. The rapid advancement of AI technology may soon make these concerns a thing of the past. Demir (2019) states that states should consider artificial intelligence systems when organizing their development plans and education systems.

As noted by Tao (2017), "The full implications of AI development are not yet foreseeable today, but it seems likely that AI applications will continue to be the most important educational technology topic in the coming period." When used appropriately, technology can lead to improved student academic performance.

While artificial intelligence has many positive and positive effects on education, it should be kept in mind that care should be taken on issues such as ethics, security and quality. It is seen that AI has an impact on facilitating learning processes, increasing students' motivation and providing deep learning skills. Therefore, AI should be used to support children's education, but not replace it. Artificial intelligence can enable children to experience the subjects they learn with virtual reality technologies. In this way, children can learn in a more concrete and interactive way. As long as artificial intelligence systems are used for the right purposes, they will ensure positive transformations for humanity and contribute to its development. For this purpose, it is important that scientists from all disciplines contribute to these studies, including educators who contribute greatly to raising awareness of the society. As long as artificial intelligence systems are used for the right purposes, they will enable positive transformations for humanity and contribute to its development. For this purpose, scientists from all disciplinary fields, especially educators,

who make the greatest contribution to the change and awareness of society, should contribute to the studies in this field.

Recommendations

With the development of artificial intelligence technology, artificial intelligence will be increasingly used in the field of education in the future. Therefore, it is important to analyze the application of AI in education and the challenges faced by AI technology, to have a general understanding of the situation in the education system. By helping teachers and students to better face and use AI technology in the teaching and learning process, teachers' teaching quality and students' learning methods will become more diverse and personalized, as will students' learning styles.

Programs using AI are becoming increasingly common in schools around the world. As this technology becomes more accessible and affordable, school administrators will have to decide whether such programs make sense for their schools. It is therefore important for school administrators to educate themselves on the different AI programs available to them and their impact on their students' education.

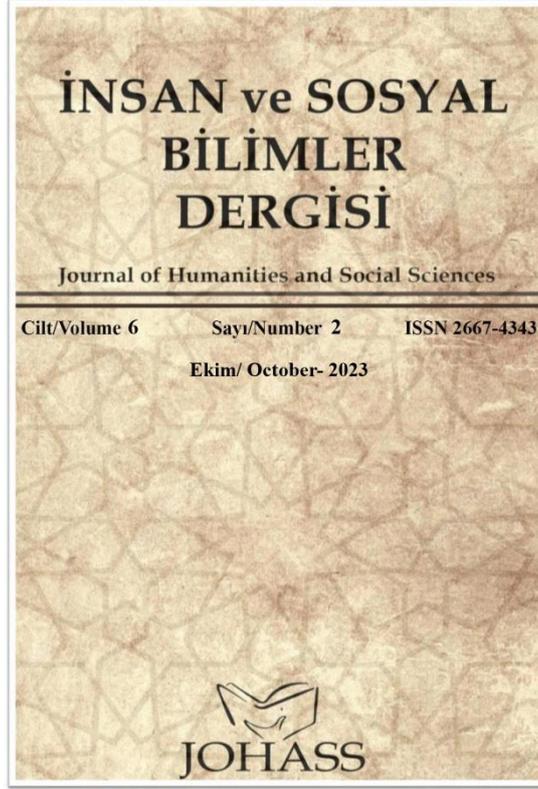
Without more studies examining AI in education from a more pedagogical perspective, it is likely that this new technology will be implemented haphazardly and potentially to the disadvantage of the students, educators and administrators who will use it.

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A Comprehensive Review of Forgiveness Interventions in Türkiye

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A Comprehensive Review of Forgiveness Interventions in Türkiye

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Abstract

With the rise in the popularity of the positive mental health perspective, the concept of forgiveness has captured the attention of numerous researchers in the psychology and mental health domains. This heightened interest has resulted in a notable surge in studies focused on identifying the variables associated with forgiveness. Beyond elucidating the connection between forgiveness and psychological well-being, there is a growing emphasis on studies that aim to enhance individuals' knowledge, skills, and positive attitudes toward forgiveness. In this study utilizing a descriptive research model, 13 theses and 7 articles featuring experimental interventions on forgiveness were scrutinized. The evaluation encompassed the composition of the research group, the primary disciplines and publication years, the study design, characteristics of the applied group intervention, the entity administering it, session numbers, utilized measurement tools, and the effectiveness of the intervention. The findings indicate that all forgiveness interventions effectively heightened participants' knowledge and skills regarding forgiveness, fostering a positive attitude toward forgiveness. In summary, forgiveness interventions are associated with increased forgiveness and a positive impact on psychological health.

Keywords: Forgiveness, intervention, psychological well-being, effectiveness, descriptive research

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Introduction

Forgiveness, an intricate and multifaceted occurrence, holds a pivotal role within the field of psychology. Emerging from the complex interplay of emotions, cognition, and interpersonal dynamics, the concept of forgiveness has attracted considerable interest across a wide array of academic domains. The significance of forgiveness goes beyond individual experiences, exerting influence on both mental and physical well-being (Friedberg, Suchday, & Srinivas, 2009; Seybold, Hill, Neumann, & Chi, 2001; Toussaint, Worthington, & Williams, 2015). Psychological inquiries delve into the cognitive and emotional mechanisms that form the foundation of forgiveness, investigating its implications for mental health (McCullough, Pargament, & Thoresen, 2000; Worthington, 1998). Within the realm of interpersonal relationships, forgiveness assumes a pivotal role, serving as a catalyst for healing and restoration (Enright & Fitzgibbons, 2000; Finkel, Rusbult, Kumashiro, & Hannon, 2002; Rusbult, Hannon, Stocker, & Finkel, 2005; Witvliet, 2005). A compilation of forgiveness studies in these contexts unveils the intricate factors contributing to the forgiveness process, illuminating the outcomes and consequences associated with either extending forgiveness or withholding it.

Forgiveness is a process that is dynamic rather than static, capable of being nurtured and enhanced through interventions. This review conducts a critical assessment of forgiveness interventions, scrutinizing their effectiveness and dissecting the underlying mechanisms that promote positive change. Consequently, the review endeavors to amalgamate and integrate a wealth of knowledge derived from diverse studies, offering a comprehensive perspective on forgiveness that goes beyond individual viewpoints. Through an exploration of the psychological aspects of forgiveness, this research aspires to contribute to a more profound and nuanced comprehension of forgiveness and its extensive implications for both individuals and societies.

Building upon this exploration, the dynamic essence of forgiveness takes center stage, underscoring its capacity for cultivation and enhancement through targeted interventions. The review proceeds to meticulously scrutinize a range of forgiveness interventions, evaluating their efficacy and deconstructing the fundamental mechanisms that drive positive transformations. Through this comprehensive methodology, the objective is to amalgamate and integrate a diverse array of knowledge derived from various studies, providing a broad perspective on forgiveness that transcends individual viewpoints.

This research, conducted to scrutinize forgiveness-based experimental studies in Türkiye, aspires to provide a substantial local perspective on the subject, which is extensively explored, particularly within the purview of positive psychology. The study delves into the examination of forgiveness interventions within the culturally and socially intricate framework of Turkish society. On one facet, it seeks to establish a robust scientific foundation for gauging the efficacy of forgiveness interventions in Türkiye. Conversely, it aims to deepen our understanding of how this intricate psychological process unfolds within a society defined by its distinct values and norms. Beyond the primary objective of broadening the horizons of forgiveness research, this study endeavors to make a noteworthy contribution with the potential to enhance psychological well-being, foster interpersonal concord, and facilitate conflict resolution in our culturally diverse global landscape.

Definitions

After a comprehensive review of the literature, it is apparent that a consensus on the definition of forgiveness is lacking (Worthington, 2019). Various perspectives on forgiveness underscore different dimensions; some emphasize emotional aspects, while others focus on cognitive, behavioral, or motivational elements. Enright (1996) characterizes forgiveness as the ability of an individual to release negative emotions—such as disappointment, anger, and the desire for revenge—stemming from a mistake. Instead, individuals adopt positive emotions like compassion, love, and understanding, coupled with the display of positive behaviors. Worthington (2015) contends that forgiveness is both an art and a science, involving the process of mitigating emotions, motivations, and cognitions rooted in negative resentment. Diverse definitions of forgiveness have been put forth, exploring its presence, absence, and the underlying processes. These definitions encompass a spectrum of cognitive, emotional, and behavioral responses to an error (Strelan & Covic, 2006). Enright and Fitzgibbons (2000) provide another perspective, defining forgiveness as a transformation from a negative to a more positive state, integrating cognitive, behavioral, and emotional aspects.

It's crucial to acknowledge that forgiveness doesn't imply pardoning the wrongdoer, tempering calls for justice in socially sanctioned manners, overlooking the harm inflicted on the individual, endorsing or justifying the wrongdoing, legitimizing it by entertaining the notion that the offender's actions were right, presuming that the situation will naturally improve over time, dismissing the inherent repercussions of the offense by substituting

negative thoughts or emotions with neutral or positive ones, or seeking retaliation against the wrongdoer in any form (Denham, Neal, Wilson, Pickering, & Boyatzis, 2015; Enright & Coyle, 1998; Enright & Fitzgibbons, 2015; Enright, Freedman, & Rique, 1998; Freedman, & Enright, 1996; McCullough, Pargament, & Thoresen, 2000; Worthington, Witvliet, Pietrini, & Miller, 2007).

Approachs to Forgiveness

Forgiveness models are conceptual frameworks crafted within the realm of social sciences, especially in psychology, to comprehend the dynamics of the forgiveness process. Models of forgiveness serve as theoretical frameworks designed to comprehend how individuals go about forgiving others. They offer valuable guidance to both researchers and practitioners by providing insights into the psychological, emotional, and behavioral dimensions of forgiveness. Depending on their distinctive experiences and contexts, individuals frequently find utility in multiple models or stages within these models. In essence, forgiveness models contribute significantly to our comprehension of how individuals navigate the intricate process of forgiving others.

Forgiveness Process Model

Enright and the Human Development Working Group formulated a forgiveness process model and carried out over 10 intervention studies. Enright and Fitzgibbons (2000) provide a comprehensive description of the model and intervention strategies. Representing the forgiveness process in four fundamental stages—uncovering (becoming cognizant of negative feelings linked to the offense), decision-making (recognizing the client's requirement for alternative solutions to alter their sentiments toward the offender), working (comprehending and empathizing with the offender), and deepening/outcome (exploring meaning and universality)—this 20-stage model outlines the intricate journey of forgiveness.

In the “uncovering” phase (Steps 1-8), individuals delve into the experience of injury and injustice, assess the depth of their anger, and explore ways to manage that anger. In the “decision-making” phase (Steps 9-11), wherein individuals seek to comprehend the essence of forgiveness and its advantages, those who have been hurt attempt to reorganize their emotions, address the issue, and make the decision to forgive the wrongdoer. Following this, individuals acknowledge their errors, assume responsibility, and progress to the “working” phase, where they adopt a new perspective. During the working phase (Steps 12-15),

individuals reframe the negative situation, beginning to perceive it differently, and concentrate on the humane aspects of the offender. Empathetic and compassionate feelings toward the offender come to the forefront in this phase. Lastly, individuals reach the "deepening/outcome" stage, relinquishing negative emotions like anger and resentment through a renewed perspective. In this stage (Steps 16-20), individuals unearth new insights into the negative event and the forgiveness process, recollecting instances when they, too, required forgiveness in the past. They realize they are not alone in the forgiveness journey, leading to psychological healing. Through these stages, adverse experiences and emotions can culminate in meaningful and positive outcomes (Akhtar, & Barlow, 2016; Baskin & Enright, 2004; Enright 2019; Enright, & The Human Development Study Group, 1996).

Every primary stage comprises significant sub-stages. These stages and their sub-units lack a strict chronological sequence and are not universally experienced in the same manner by each individual. A skilled counselor, upon scrutinizing the components of this model, can discern how these stages might be applied within the context of their unique theoretical approach and therapeutic proficiency. Research consistently indicates that this approach tends to be more effective than support-oriented control conditions across diverse adult samples. This model conceives forgiveness as a complex construct involving cognitive, emotional, and behavioral components. It defines the process as one in which the flow between stages is adaptable and can move in either a forward or backward direction (Enright ve Fitzgibbons, 2000; Enright, & Kittle, 1999; Freedman, Enright, & Knutson, 2005).

Worthington's Forgiveness REACH Model

While many forgiveness models typically concentrate on cognitive processes, Worthington (1998a) formulated a model that underscores the emotional dimension. This model posits that cognition and behavior should fundamentally be intertwined with the emotional injury. The forgiveness process initiates with the hurt person's empathy, progresses with humility in the hurt person, and ultimately solidifies through a commitment to forgiveness. Within this framework, the essential elements of forgiveness are identified as empathy, humility, and dedication to forgiveness. Worthington's proposed model regards forgiveness as a decision-making process and independently assesses the cognitive and emotional facets of this progression. The notion of cognitive forgiveness is characterized by a decision to forgive that actively contributes to fostering constructive and reconciliatory relationships. This encompasses the intention to cultivate a different motivation and behavior

towards the offender. Emotional forgiveness is defined as the replacement of negative emotions towards the individual or situation to be forgiven with positive emotions, particularly sympathy, empathy, and compassion. This entails substituting positive emotions for negative ones that impede or diminish the impact of forgiveness. In summary, Worthington's model underscores the intricacy and adaptability of this process by addressing forgiveness across emotional, cognitive, and behavioral dimensions (Berry, Worthington, O'Connor, Parrott III, & Wade, 2005).

Worthington (1998b) created the five-step REACH model for forgiving a particular offense. This model encompasses recalling (R) the incident, understanding the offender's perspective, building empathy (E), showing altruism (A), publicly demonstrating commitment (C) to forgiveness, and making a formal commitment and holding (H) the achieved gains. The REACH Model involves recalling and expressing painful feelings associated with the offense, developing empathy with the offender's perspective and motivations, recognizing times when the victim has received forgiveness from others, giving an altruistic gift of forgiveness, making a formal commitment to forgive, and holding onto the gains made (Akhtar, & Barlow, 2016; Goldman, & Wade, 2012; Wade, & Meyer, 2009; Worthington, 2001). In numerous studies, this intervention strategy based on the model has been identified as more effective than no treatment at all in facilitating individuals to forgive particular offenses, and in certain instances, it has proven to be more effective than active control treatment (McCullough, & Worthington, 1995; McCullough, Worthington, & Rachal, 1997).

Other Models

The two models mentioned above (Enright's and Worthington's) are the most widely used forgiveness interventions (Akhtar, & Barlow, 2016). Since they have been described in detail, the following ones will be briefly mentioned.

Hargrave's forgiveness model centers around the theme of forgiveness within family dynamics. In this model, an individual who has experienced harm within the family may grapple with unchecked emotions of anger and resentment towards the offending party. Simultaneously, they may carry feelings of guilt or shame, believing that they are unworthy of a relationship built on trust. In an attempt to minimize the risk of future harm, the individual might display overly controlled behavior, or they may navigate life in a state of chaos, convinced that relational pain is inevitable. The model comprises two fundamental elements: justification and forgiveness. Justification involves the harmed individual developing empathy

for the offender and gaining insights into the negative situation. On the other hand, forgiveness entails interaction between the harmed and offending parties, with the aim of restoring love and trust within the family. This process is geared towards healing relationship wounds and reconstructing a positive bond (Hargrave, 1994; Hargrave ve Sells, 1997; Sells ve Hargrave, 1998).

Gordon (2003) introduced a cognitive forgiveness model specifically designed for individuals who have undergone traumatic events, focusing on pardoning significant mistakes. This model, as proposed by Gordon and Baucom (2003), delves into topics like marital infidelity and outlines the forgiveness process across three stages: impact, understanding, and healing, and taking action. In the initial stage, the individual undergoes emotional, cognitive, and behavioral upheaval, recognizing sentiments such as sadness and pain. Subsequently, the person seeks to comprehend why the event unfolded for both themselves and the other party involved. Following this, the individual addresses the "why" question to understand the negative emotions and experiences, taking measures to mitigate the adverse impact on their life. In the concluding stage, negative emotions like pain, helplessness, and anger diminish, initiating a healing phase where positive emotions, especially relational trust, are re-established. Throughout the forgiveness process, the individual scrutinizes relational beliefs, investigates the origins of the situation necessitating forgiveness and its repercussions on the relationship. They formulate new and realistic expectations, standards, and assumptions, considering both positive and negative aspects related to themselves and the individual being forgiven (Gordon, & Baucom, 1998; Gordon, Baucom, & Snyder, 2004).

In the social psychological determinants model (McCullough Rachal, Sandage, Worthington, Brown, & Hight, 1998), forgiveness is conceptualized as a motivational system. This framework encompasses emotions such as hurt and anger within this motivational system. Hurt involves an individual's perception of an attack and the inclination to avoid the associated situation. On the other hand, anger corresponds to the motivation to refrain from reconnecting with the offender. Additionally, the emotion of anger encapsulates the desire to seek revenge or cause harm to the offender, commonly known as the revenge motive. These motivations of avoidance and revenge diminish the probability of the individual extending forgiveness. To put it differently, these emotional responses emerge as factors that decrease the inclination to forgive (McCullough, 2000; 2001; McCullough, Bellah, Kilpatrick, & Johnson, 2001).

Scobie and Scobie (1998) investigated four models that delved into various aspects of the forgiveness construct, ultimately crafting an integrated forgiveness model by synthesizing these approaches. The initial model explored the positive impact on the forgiver's well-being that arises from mitigating negative emotions like anxiety and anger resulting from wrongdoing. The second model adopts a philosophical stance, underscoring the necessity of overcoming resentment and discerning between right and wrong. The third model addresses forgiveness within a religious framework, while the fourth and final model, the prosocial model, concentrates on altruistic behavior aimed at enhancing interpersonal relationships. Individuals perceive events as positive, negative, neutral, or ambiguous. The developed model specifically focuses on scenarios where the perceived event is negative, driven by the notion that events categorized as negative warrant a forgiveness strategy. Negative events are classified into four violation levels, ranging from mild to severe. These levels are; *Apology-Automatic*, *Apology-Dependent*, and two different levels of *Forgiveness*.

Aims of Interventions

Interventions aimed at promoting forgiveness have the potential to enhance individuals' emotional well-being. The cultivation of forgiveness skills is associated with a reduction in adverse emotional states, including stress, anger, and depression. These intervention programs play a role in mitigating conflicts within relationships and facilitating the development of healthier interpersonal connections. This applies to various contexts, whether within the family, friendships, or work relationships. Forgiveness is beneficial for enhancing stress coping abilities. Engaging in forgiveness interventions equips individuals with effective strategies to navigate through negative experiences (Wulandari & Megawati, 2020). Particularly, forgiveness proves to be impactful in anger management. Programs focused on forgiveness intervention empower individuals with the skills needed to manage anger and respond in a more constructive manner (Lawler-Row, Karremans, Scott, Edlis-Matityahou, Edwards, 2008).

Forgiveness plays a role in fostering understanding of others' perspectives and cultivating empathy (Worthington, 1998). This contributes to the establishment of deeper connections in relationships. Interventions promoting forgiveness can also aid in personal development, enhancing self-esteem, fostering a positive mindset, and facilitating inner peace. Such interventions contribute to heightened tolerance and understanding within communities, fostering increased social cohesion and solidarity. They assist individuals in relinquishing

thoughts of blame and revenge, enabling them to take positive strides toward the future rather than dwelling on past negative experiences. Forgiveness interventions support individuals in letting go of negative behaviors and adopting more constructive ones (Lundahl, Taylor, Stevenson, & Roberts, 2008).

Exploring forgiveness interventions through research offers valuable insights into fostering forgiveness. This research gains importance as forgiveness is associated with numerous positive outcomes, including enhanced mental and physical health, stronger interpersonal bonds, and the creation of a more harmonious society. Recognizing forgiveness as a promoter of psychological well-being underscores the growing significance of studies aiming to augment individuals' capacity for forgiveness, whether directed towards specific individuals or situations, or in a general sense.

In this study, the goal is to systematically review the effectiveness of forgiveness-centered group interventions. The attempt was made to access all intervention studies conducted in Türkiye. The aim of this review is to assist researchers in comprehending the need for developing and implementing forgiveness-based interventions for individuals, and to guide them in the effective design of such interventions. The study addresses the following questions within this framework:

1. How were the research groups selected in studies involving group interventions for forgiveness?
2. In which academic departments and during which years were the studies incorporating group interventions for forgiveness conducted?
3. Regarding the studies employing group interventions for forgiveness, what is the theoretical orientation, the number of sessions, and duration?
4. Which measurement tools were utilized in studies assessing the effectiveness of group interventions for forgiveness, and to what extent have these interventions proven effective?

Method

Model

This study is a descriptive research aiming to investigate interventions implemented to enhance forgiveness in specific groups and assess their effectiveness. Descriptive research involves analyzing events in their natural state and attempting to ascertain the current

situation. It involves collecting, analyzing, and interpreting data without manipulating variables. This type of research is often used to answer questions related to the current state of affairs, characteristics of a group, or the prevalence of certain phenomena within a population. The findings from descriptive research contribute valuable insights for understanding and describing the features of a given subject, setting the groundwork for further investigation and hypothesis testing. In this type of research, the relationship between past events and situations is examined, aiming to provide a detailed explanation of "what" (Erkuş, 2005).

In this study, the preference for descriptive research over meta-analysis in the analysis of experimental studies is grounded in several crucial points. While meta-analysis is an effective statistical method for consolidating findings from a large number of studies, it may not always align with the characteristics of experimental studies. Experimental studies often involve complex methodologies and different participant characteristics. Therefore, methods like meta-analysis run the risk of overlooking important details when amalgamating these specifics. In contrast, descriptive research provides the capability to analyze the unique features and context of each experimental study in detail. This approach has the potential to capture crucial details outside the general scope of meta-analysis by meticulously addressing the methodological differences, participant profiles, and contextual factors of each experiment. This preference may stem from the necessity to comprehend the intrinsic complexity and distinctions of each experiment. Descriptive research also contributes to a more comprehensive and context-specific interpretation of experimental findings by identifying patterns and trends in the literature. The decision to choose descriptive research over meta-analysis can be viewed as a methodological accommodation to the complexities and specificities inherent in experimental research paradigms. By highlighting the richness and diversity of empirical studies, descriptive research offers a more comprehensive and context-specific interpretation (Berman, & Parker, 2002; Higgins, Thomas, Chandler, Cumpston, Li, Page, & Welch, 2019).

Search Strategy, Eligibility Criteria and Study Selection

A structured literature review was conducted to access experimental studies carried out in Türkiye, utilizing the thesis center database of "Council of Higher Education". In the search for published experimental theses related to forgiveness, keywords like "forgive, forgiveness, forgiver, forgiveness" were employed, and a total of 144 theses were scrutinized. Additionally, a literature review was performed in both Turkish and English to encompass

published research articles, particularly focusing on studies examining the efficacy of forgiveness. Databases including Wiley Online Library, PsycINFO, Taylor and Francis, Springer Link, Scopus, Science Direct, Sage Journals, EBSCOhost, Google Scholar, and TR Index were utilized. Throughout this review, keywords such as "forgiveness intervention," "forgiveness group," "forgiveness therapy," "forgiveness training," and "forgiveness program" were used to identify studies involving experimental interventions.

The criteria used to determine the research articles in the literature review were aimed at including forgiveness group interventions, offering details about the features and content of the applied intervention, and substantiating the effectiveness of the intervention with meaningful data. The exclusion criteria encompassed articles in languages other than Turkish or English, articles with only abstract access, studies not reliant on group intervention, and review/descriptive articles.

Findings

In this study, 7 research articles (Asıcı, & Karaca, 2019; Asıcı, & Karaca, 2020; Batık, & Afyonkale-Talay, 2021; Bugay, & Demir, 2012; Özgür, & Eldeleklioğlu; Parlak, Öksüz Gül, 2021; Taysi, & Vural, 2016) and 13 theses (Adam Karduz, 2019; Alp, 2022; Asıcı, 2018; Çardak, 2012; Çolak, 2014; Eker, 2017; Ertürk, 2019; Göregen, 2022; Gültekin, 2023; Karakaş, 2014; Murat, 2021, Şahin, 2023; Tezcan-Yanar, 2023) focusing on forgiveness interventions for various groups between 2012-2023 were selected and analyzed. All studies were conducted in Türkiye. The features and findings of the studies examined within the scope of the study are provided under the following headings.

The Distribution of Theses Based on Departments

As depicted in Table 1, the distribution of the theses examined in this study reveals that 9 were conducted in the field of educational sciences, 2 in the field of philosophy and religion, and 2 in the field of nursing. This data suggests that the topic of forgiveness spans across various disciplinary fields.

Table 1

The Distribution of Theses Based on Departments

	Educational Sciences	Philosophy and Religion	Nursing
Doctoral	6	2	2
Master	3		

The Distribution of Studies According to Years

As indicated in Table 2, the studies were conducted between 2012 and 2023. This suggests that research on forgiveness group interventions does not have a long history and has been undertaken in a relatively recent timeframe. Particularly after 2017, there is an observable increase in the frequency of such studies.

Table 2

The Distribution of Studies According to Years

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Doctoral	1	-	2	-	-	1	1	1	-		2	2
Master	-	-	-	-	-	-	-	1	-	1	-	1
Article	1	-	-	-	1	1	-	1	1	2	-	-

The Distribution of Studies According to Research Type

While it's widely acknowledged that experimental studies typically employ a quantitative model, it's worth noting that in certain instances, researchers integrate qualitative research methods, such as interviews, to assess the impact of interventions. As seen in Table 3, in the context of this study, it was noted that two doctoral theses and two articles incorporated qualitative research techniques. This nuanced approach of utilizing qualitative methods to gauge the effectiveness of the intervention is considered an appropriate and insightful strategy.

Table 3

Distribution of Studies According to Research Type

	Qualitative	Quantitative	Mixed
Doctoral	-	8	2

Master	-	3	
Article	-	5	2

Measurement Tools

As seen in Table 4, in examining the measurement tools employed by the studies within the scope of the research to assess the effectiveness of forgiveness interventions, it is evident that a variety of measurement tools were utilized. While the table includes measurement tools specific to forgiveness, non-forgiveness-oriented instruments were also employed in intervention studies to gauge the impact on various variables. Notably, in the study by Asıcı and Karaca (2019), no measurement tool related to forgiveness was employed. Instead, the study focused on the effect of the intervention on aggression, utilizing a measurement tool in this context. Therefore, the measurement tool used in this study is not included in the table. Alongside quantitative measurement tools, qualitative techniques such as interviews were employed in four studies to delve into a deeper understanding of the effects.

In the realm of measurement tools, the Heartland Forgiveness Scale, crafted by Thompson, Snyder, Hoffman, Michael, and Rasmussen (2005), and subsequently translated and adapted into Turkish by Bugay and Demir (2010), emerges as a prominent instrument. This scale encompasses 18 items distributed across three sub-dimensions: self-forgiveness, forgiveness of others, and forgiveness of the situation. Additionally, the Enright Forgiveness Inventory for Children, developed by Enright (2005), found application in two studies. The Forgiveness Scale for Adolescents, formulated by Asıcı and Karaca (2018), was employed in three studies. This particular scale is a 21-item measurement tool designed to gauge adolescents' inclination to forgive in interpersonal relationships, incorporating four sub-dimensions: components of forgiveness, taking revenge, maintaining anger, and empathizing. Furthermore, the Forgiveness Flexibility Scale, developed by Çolak, Koç, Eker, and Düşünceli (2017), along with the Forgiveness Scale devised by Ersanlı and Vural-Batik (2015), and the Trait Forgiveness Scale, originated by Berry, Worthington, O'Connor, Parrot III, and Wade (2005), and later adapted into Turkish by Akın, Akın, and Gediksiz (2012), each found application in a singular instance.

Table 4

Measurement Tools

	HFS	EFI-C	FS-A	FFS	FIS	FS	TFS	I
Doctoral	4	1	1	3	1			2
Master	2		1					
Article	2	1	1			1	1	2

Note. HFS: Forgiveness Scale (Heartland), EFI-C: Enright Forgiveness Inventory, FS-A: Forgiveness Scale for Adolescents, FFS: Forgiveness Flexibility Scale, FIS: Forgiveness Inclination Scale, TFS: Trait Forgiveness Scale, I: Interview

Intervention Groups

When examining the composition of the intervention groups, as seen in Table 5, it is observed that in four studies, the sample comprised non-student adults. While one group did not specify its characteristics, another group consisted of psychological counselors, one group involved diagnosed psychiatric patients, and yet another group included relatives of individuals with terminal illnesses. Regarding the experimental and control groups, they comprised 10, 60, and 28 individuals, respectively.

The experimental and control groups of university students varied in size from 8 to 15. In studies targeting high school students and children (fourth to sixth-grade students), the sample size increased, and in some studies (Asıç1, 2018; Asıç1, & Karaca, 2019; Asıç1, & Karaca, 2020; Göregen, 2022), the class was selected as the sample. Another noteworthy point in this section is that the three studies I examined were derived from a single intervention program.

Table 5

Intervention Groups

	University students	Hihg school students	Children	Adults
Doctoral	3	3	1	3
Master	1	2		
Article	2	3	1	1

Number of Sessions

As depicted in Table 6, the intervention programs are typically composed of 8 or 10 sessions. Specifically, seven studies comprised 8 sessions, and five studies involved 10 sessions. Two studies were completed within 5 sessions, while there was one study for each of the session durations: 2, 9, 11, 12, 16, and 18.

Table 6

Number of Sessions

	2	5	8	9	10	11	12	16	18
Doctoral			4	1	3	1	1		
Master			1		1				1
Article	1	2	2		1			1	

Intervention Theoretical Model

When examining the theoretical underpinnings of the intervention programs used in the studies, as seen in Table 7, it is evident that models such as Enright's forgiveness process model and Worthington's forgiveness REACH model, which are widely cited in the literature, are frequently employed. These models serve as the foundational frameworks for the intervention programs in ten (each model in five studies) studies. Additionally, intervention programs grounded in logotherapy, value-oriented spirituality, positive psychology, cognitive-behavioral approaches, creative drama, and psychodrama have also been developed. However, during the review, satisfactory information regarding the determination process of the intervention programs in four studies could not be obtained. As mentioned earlier, in three publications derived from the same intervention program, it was indicated that Enright's process model and studies conducted abroad were utilized, while one study did not provide information on this aspect.

Table 7

Intervention Theoretical Model

	REACH	Enright	Logo	VOSEC	PPO	CBO	CD	PD	NI
Doctoral	3	1	1	1	1	1			2
Master	1	1					1		
Article	1	3						1	2

Note. VOSEC: Value Oriented Spiritual Empowerment and Care, PPO: Pozitive Psychology Oriented, CBO: Cognitive Behavioral Oriented, CD: Creative Drama, PD: Psychodrama, NI: No Information

Effectiveness of Forgiveness Interventions

In assessing the impacts of the examined studies, as depicted in Table 8, it was found that intervention programs had a statistically significant effect on the experimental groups in 16 studies, while no such effect was observed in 3 studies.

Table 8

Effectiveness of Forgiveness Interventions

	Significant impact	No impact	Not analyzed
Doctoral	8	2	
Master	2	1	
Article	6		1

As mentioned earlier, I cannot provide information on this issue as a different variable, other than forgiveness, was measured in a study conducted with the same sample group. However, in a study where the effect was observed (Göregen, 2022), it was determined that the mean scores of "forgiving others" and the total scores of the scale, sub-dimensions of the forgiveness scale, were statistically significant, while the other sub-dimensions of the scale were not. In another study (Parlak & Öksüz-Gül), no significant difference was found in a sub-dimension, while a significant effect was found in the total score. In yet another study (Murat, 2021), while no effect was observed in quantitative data, positive effects were identified in interviews, which were qualitative techniques.

Follow-up Evaluations

As seen in Table 9, follow-up evaluations were conducted in eight of the studies, and it was observed that the impact persisted in all of them. Six studies included a follow-up after three months, one after four months, and one after two months. In a study (Şahin, 2023) where a three-month follow-up was conducted, an additional follow-up was also performed after one month.

Table 9*Follow-up Evaluations*

	1 month	2 months	3 months	4 months	No follow-up
Doctoral	1	1	3		6
Master			2		1
Article			1	1	5

Discussion and Results

This study analyzed research involving forgiveness interventions for specific groups in Türkiye, aiming to provide a comprehensive overview. Upon a general evaluation of the results obtained from the analyzed studies, it is evident that most of the studies contribute to

enhancing the ability to forgive. Furthermore, some studies were noted for by reducing negative emotions and behaviors while promoting an increase in positive emotions and behaviors.

Experimental interventions focusing on forgiveness have been conducted across a diverse array of disciplines. These studies are prevalent in fields such as psychology, sociology, health, and psychiatry. From a psychological perspective, research on forgiveness has explored its potential benefits in various aspects of human life. For instance, studies have delved into its impact on interpersonal relationships (Noreen, Bierman, & MacLeod, 2014; Wai, & Yip, 2009), romantic relationships (Braithwaite, Mitchell, Selby, & Fincham, 2016; Rye, & Pargament, 2002), mental health (Davis, Ho, Griffin, Bell, Hook, Van Tongeren, DeBlaere, Worthington, & Westbrook, 2015), and its role in coping with stress (Toussaint, Shields, & Slavich, 2016). In the realm of social sciences, research on forgiveness frequently addresses issues like social reconciliation, interethnic relations, and group dynamics (Marta, & Fernando, 2020), while pedagogical investigations explore how forgiveness skills can be effectively integrated into educational and training processes (Neng Lin, Enright, & Klatt, 2011). Though the majority of the studies we reviewed primarily belonged to the field of psychology, we also encountered two studies each in the domains of religion and philosophy (Göregen, 2022; Karakaş, 2014) and health (Gültekin, 2023; Şahin, 2023). This multidisciplinary approach underscores the extensive range of experimental interventions related to forgiveness and the intricacies inherent in these studies.

The incorporation of a qualitative dimension into the mixed design of four of the analyzed studies (Asıcı, 2018; Asıcı, & Karaca, 2019; Asıcı, & Karaca, 2020; Göregen, 2022) not only enriched the research methodology but also facilitated a more comprehensive understanding of the effectiveness of forgiveness interventions by addressing potential shortcomings in quantitative methods. In two different experimental studies on forgiveness conducted abroad (Freedman, 2018; Vassilopoulos, Koutsoura, Brouzos, & Tamami, 2020), it was observed that a mixed design was employed, incorporating both quantitative and qualitative approaches. This approach provided a more comprehensive perspective compared to traditional experimental research, which solely relies on quantitative methods. The inclusion of qualitative data, in addition to quantitative data, contributed to obtaining richer and more detailed results regarding the effectiveness of forgiveness interventions. Consequently, the results derived from these studies can be deemed more robust and reliable. The utilization of a mixed design afforded researchers access to both quantitative and

qualitative data, allowing for a nuanced exploration of participants' experiences and perceptions. This comprehensive approach facilitated a more profound examination of the impact of forgiveness interventions and provided insights into how these interventions influenced participants. Moreover, the mixed design enabled a holistic evaluation by analyzing both qualitative and quantitative data. Employing this methodological approach endowed researchers with greater depth and a broader perspective concerning the efficacy of intervention programs.

In the studies we reviewed, we observed that intervention programs typically comprised eight to ten sessions. Baskin and Enright (2004) assert that forgiveness is a time-consuming process and that short-term, decision-based programs are not as effective as process-based programs. Similar results were corroborated in the study conducted by Lundahl et al. (2008). Among the studies we analyzed, we noted that the predominant target group was composed of university and high school students. Two studies focused on secondary school students, while four studies included non-student adults in their samples. Aside from one group where the sample was unspecified, one group comprised psychological counselors, another group included diagnosed psychiatric patients, and a different group consisted of relatives of individuals with terminal illnesses. It is generally evident that these studies were primarily conducted with students, and sample selection was typically done without considering a common problem area. Regarding age, some studies have cited findings indicating that forgiveness reactions tend to increase with age (Allemand 2008; Arshi, Dalirian, Eghlima, & Shirinbayan, 2016; Ingersoll-Dayton, Campbell, & Ha, 2008; López, Serrano, Giménez, & Noriega, 2021; Záhorcová, Enright, & Halama, 2023).

It is evident that Enright's forgiveness process model and Worthington's forgiveness REACH model are commonly adopted in the studies under review. These models offer a comprehensive framework for grasping the intricacies and multidimensional nature of the forgiveness process. While Enright's model delves into the individual's internal emotional processes, Worthington's model places greater emphasis on external contexts and relationships. Both models treat forgiveness as a dynamic process, underscoring that it necessitates time and effort. In the studies we examined, although all programs showed positive effects, it was frequently observed in other studies conducted within the context of the models used in experimental research and in meta-analyses examining these studies that Enright's forgiveness process model yielded more effective results than the REACH model

(Baskin & Enright, 2004; Lundahl, Taylor, Stevenson, & Roberts, 2008; Wade, Hoyt, Kidwell, & Worthington, 2014).

The models define forgiveness, underscore its potential benefits, and advocate for the cultivation of empathy toward the offender. These approaches acknowledge that forgiveness is not an instantaneous occurrence but involves recognizing one's emotions and thoughts about the event or person that caused harm, attempting to comprehend the offender, and fostering positive emotions. Forgiveness is an individualized journey, with each person navigating the process differently. For some, it may unfold swiftly and smoothly, while for others, it may be a more gradual and challenging endeavor. There is no fixed timeframe for forgiveness; the crucial aspect is forgiving when one feels emotionally prepared (Toussaint, Williams, Musick, & Everson, 2001). Forgiveness contributes significantly to both mental and physical well-being. It aids in alleviating psychological issues like stress, anxiety, and depression. Furthermore, it has the potential to mitigate the risk of physical health problems, including heart disease, cancer, and chronic pain. Strengthening relationships is another positive outcome of forgiveness, fostering a deeper sense of closeness, trust, and fulfillment (Lawler, Younger, Piferi, Jobe, Edmondson, & Jones, 2005; Toussaint, & Webb, 2005; Witvliet, Ludwig, & Laan, 2001). Beyond these models, intervention programs drawing inspiration from various psychological schools have been developed. These programs strive to assist individuals in the forgiveness process, incorporating diverse strategies aimed at enhancing psychological health and relationships (Gordon, 2003; Hargrave, & Sells, 1997; Jacinto, & Edwards, 2011).

In 16 of the studies we reviewed, as expected, forgiveness intervention programs were found to have a statistically significant effect on the experimental groups. However, in 3 studies (Göregen, 2022; Murat, 2021; Parlak & Öksüz-Gül), such an effect was not fully observed. Experimental studies conducted abroad and the meta-analyses examining them generally indicate the effectiveness of intervention programs related to forgiveness (Akhtar & Barlow, 2016; Baskin & Enright, 2004; Harris, Luskin, Norman, Standard, Bruning, Evans, & Thoresen, 2006; López, Serrano, Giménez, & Noriega, 2021; Lundahl, Taylor, Stevenson, & Roberts, 2008). Forgiveness interventions play a crucial role in fostering a positive attitude towards forgiveness. They go beyond the mere imparting of knowledge about forgiveness, providing individuals with the practical skills and tools needed for effective forgiveness. These interventions are instrumental in helping people navigate and manage anger (Akhtar, 2002; Goldman, & Wade, 2012), alleviate anxiety and depression (Freedman, & Enright,

2017; Menahem, & Love, 2013; Xie, Tang, Rapp, Tong, & Wang, 2020), nurture hope (Jankowski, & Sandage, 2011; Kaleta, & Mróz, 2020), enhance empathy (Macaskill, Maltby, & Day, 2002), and elevate overall life satisfaction (Berry, Worthington, Parrott, O'Connor, & Wade, 2001; Bono, McCullough, & Root, 2007; Lawler-Row, & Piferi, 2006; Kaleta, & Mróz, 2018; Walker, & Gorsuch, 2002).

Forgiveness-based group interventions emerge as particularly valuable resources. Additionally, the impact extends beyond individual well-being, influencing interpersonal relationships and contributing to the creation of empathetic and supportive communities. Embracing forgiveness interventions represents a proactive and impactful strategy for promoting mental health and well-being across diverse populations. Forgiveness-centered group interventions emerge as highly valuable assets. These interventions play a significant role in fostering empathetic and supportive communities, influencing not only individual well-being but also making a positive impact on interpersonal relationships. Embracing forgiveness interventions signifies a proactive and efficient approach to enhance mental health and well-being across diverse populations. Future research in this field could provide a deeper understanding of how forgiveness-based interventions contribute to the mental health and well-being of communities. This can be achieved by delving more extensively into the positive effects of forgiveness, both at the individual and societal levels.

In brief, the examination of forgiveness interventions aimed at specific groups in Türkiye has revealed their effectiveness in enhancing individuals' forgiveness capacities, diminishing negative emotions, and encouraging positive conduct. These interventions span various academic domains, offering valuable insights into the enhancement of psychological wellness. Moreover, the study underscores the significance of forgiveness-centered group interventions, accentuating their potential impact on not only individual mental health but also the establishment of empathetic and supportive communities. This research contributes to a more thorough comprehension of forgiveness and the efficacy of forgiveness interventions, presenting significant implications for the advancement of mental well-being and the cultivation of harmonious relationships among diverse populations.

Recommendations

The existing body of research underscores the positive impact of forgiveness interventions across various settings, emphasizing their potential to enhance individual well-

being. However, for a more comprehensive and nuanced understanding, it is imperative to embark on more specific studies. Researchers are encouraged to undertake targeted investigations that delve into the intricacies of forgiveness interventions across different age groups and cultural contexts. This refined and culturally sensitive approach holds the promise of not only advancing the development of tailored forgiveness interventions but also amplifying their applicability and effectiveness. By unraveling the unique dynamics of forgiveness within distinct age brackets and diverse cultural settings, researchers can extract invaluable insights. These insights, in turn, will pave the way for more precise and culturally attuned mental health practices, fostering resilience and well-being across a broader spectrum of individuals.

Forthcoming research should place a heightened emphasis on investigating the enduring impacts of forgiveness interventions. While the existing body of literature predominantly underscores the short-term benefits of such interventions, it is imperative to gain a comprehensive understanding of their long-term effects and the sustainability of their positive outcomes over the course of individuals' lives. Delving into these long-term aspects can offer deeper insights into the multifaceted ways in which forgiveness interventions can foster stronger interpersonal relationships, build more resilient communities, and potentially influence broader societal dynamics. Therefore, future research endeavors should prioritize comprehensive, long-term studies that encompass continuous monitoring and in-depth examinations to elucidate the societal and enduring effects of forgiveness interventions. This approach extends the potential of forgiveness interventions to provide a broader perspective and wield a more substantial and sustained positive influence on society.

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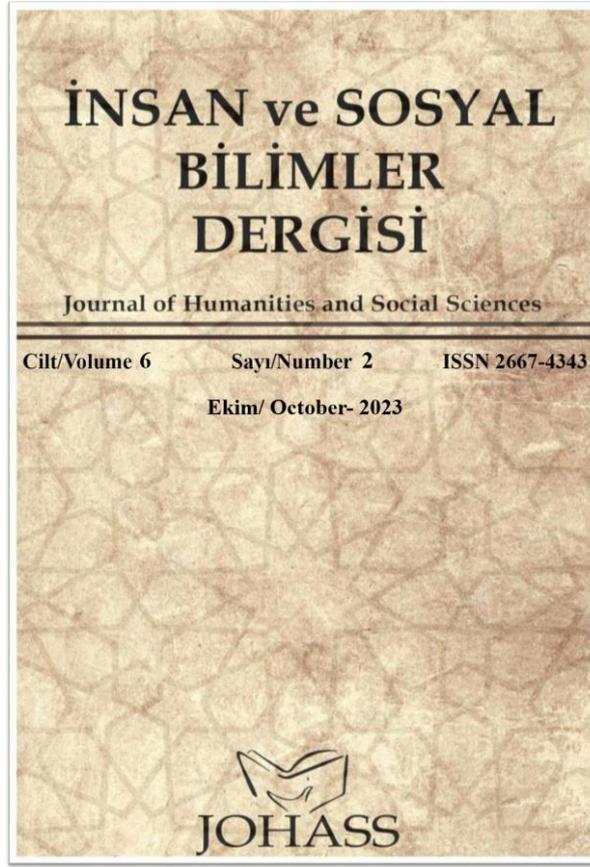
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**Content Analysis of Master's and PhD Thesis on Climate: Studies
Conducted in The Field of Education in Türkiye**

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Content Analysis of Master's and PhD Thesis on Climate: Studies Conducted in The Field of Education in Türkiye

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Abstract

Through geography education, students make connections between natural phenomena, environment and behavior, and climate and climate change. Climate Science is positioned as “a sub-branch of geography classified under physical geography as a basic field of study”. Climate; It is expressed as the average condition of weather conditions such as precipitation, temperature, pressure, humidity and wind as a result of long-term observations in a place. When the literature is examined, there are many studies on climate in the field of education. These studies differ in terms of research topic, method and sample. It has been determined that there are no studies aimed at determining the direction of master's and doctoral theses on climate in the field of education. The aim of our research is to reveal the current situation by evaluating the content of master's and doctoral theses on climate in the field of education. Document review method was used in the research. The data were analyzed through content analysis. As documents, 73 studies, including master's and doctoral theses on climate in the field of education in our country, were examined. According to the results obtained, it is seen that the postgraduate studies on climate in the field of education are predominantly on master's thesis and the majority of the studies were conducted in 2022. In addition, it was seen that most of the climate theses were made at Gazi University. In the studies, climate change and global warming were mostly discussed, and it was determined that the method used was mostly descriptive scanning method. In the studies, the preferred sample group was students.

Keywords: Education, master's thesis, doctoral thesis, climate, content analysis

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Introduction

Geography is “a collection of sciences consisting of many branches of science that investigates and examines the mutual interactions between human beings and the natural environment, adhering to the principles of distribution, relation, comparison, causality of situations with the activities that develop as a result of these interactions, and by applying various research methods, and presenting the results in a synthesis” (Özçağlar, 2009). Within the subject area of geography, climatic events such as precipitation regime and temperature distribution, which are included in the physical characteristics of the environment we live in from near to far, are also included (Atalay, 1994; Doğanay & Sever, 2011; Unfamous, 2014). Geography is essential to “a real education as a way of thinking.” As individuals living on Earth, “the main purpose of our lives is to understand the world and the processes and tendencies of the activities on it” (Ari, 2010). Through geography education, students make connections between natural phenomena, the environment and behavior, and climate and climate change (De Blij, 2005). Climatology or climate science is a sub-branch of geography classified under physical geography as an essential field of study. As one of the branches of physical geography, climate science examines the weather conditions of the natural environment (Yakar, 2019).

The concept of climate is generally defined as “the combination of the average characteristics of all weather conditions observed in any part of the world for many years, as well as the frequency of these events, their temporal distribution, observed extreme values, severe events, and variability types” (Türkeş, 2001). What is known about Earth’s climate is based on observations of the atmosphere, oceans, and land surface, including the hydrological and carbon cycles and the cryosphere (all frozen places on Earth). Using regular weather observations over some time, long-term average conditions can be measured, and information about the climate of a region can be obtained. Climatologists use climate normals (average 30-year historical averages of variables such as temperature and precipitation) as a shorthand to place the magnitude of the current heatwave or rainstorm in a historical context (World Meteorological Organization [WMO], 2023).

One of the most important factors affecting human life has always been climate. Especially settlement; Industry, transportation, agriculture, scientific studies, and city planning are essential fields of study carried out by evaluating climate information and data. When talking about climate, which is vital for human life, the first thing that comes to mind is

the atmosphere, which causes the concepts of weather and climate to be confused (Çalış, 2022). Weather describes short-term natural phenomena such as fog, rain, snow, blizzards, wind and thunderstorms, tropical cyclones, etc., at a specific place and time (WMO, 2023). In other words, the atmospheric conditions experienced or observed in any part of the world for a short time (within twenty-four hours at most) are the weather, while the average characteristic of the weather conditions experienced or observed for a long time is the climate (Erlat, 2016). As can be understood from the definition, the most critical feature distinguishing weather and climate is time (Çalışır, 2022). The climate must be in a particular state of equilibrium. Maintaining this balance means maintaining life balance. In addition, climate is not inherently fixed and permanent but can change naturally over time or due to human activities (Sabancı, 2023). Throughout the approximately 4.5 billion years of life of our world, changes in the climate have always been experienced as a result of natural conditions without human influence caused by “changes in the radiation rate from the Sun, continental movements and volcanic eruptions “ (Atalay, 2005), and “increases in some periods and decreases in some periods” have occurred in global temperature (Yuva, 2020). In addition to naturally occurring climate change, a period has begun since the 19th century in which human activities have also played a role in climate change. For this reason, today, the concept of climate change is defined by considering the increasing accumulation of greenhouse gases as a result of human activities (Doğru & Yüzbaşıoğlu, 2023). Accordingly, climate change is defined as “long-term and slow-developing changes in climatic conditions with large-scale and significant local effects, regardless of the cause” (Türkeş et al., 2000).

With climate change, “changes that will occur in the form of temperature increases, irregularities in the precipitation regime, periodic increases or decreases in snow and rain events, melting of glaciers due to increasing in temperature and the resulting rise in sea level, extinction of species in the ecosystem or proliferation of harmful species” can occur socially and socially changes are expected (Harvey, 2008). Global warming, on the other hand, is defined as “the increase in the earth’s temperature as a result of the proliferation of greenhouse gases in the atmosphere as a result of various activities of humans” (Doğan, 2005). Human-induced greenhouse gases are the most important factor that “causes global warming and consequent climate change.” Greenhouse gas formation is primarily caused by the use of fossil fuels, garbage, wastes, and agricultural activities in transportation, industry, and energy production (Öztürk, 2002; Doğru & Demirbaş, 2020). In the studies conducted by

scientists, it is stated that global warming and climate change are largely caused by humans (Anderegg et al., 2010; Cook et al., 2013).

Harvey (2008) stated that climate change is the most important of the consequences of global warming. The concepts of global warming and global climate change are similar and can be used interchangeably by humans. The climate of the world we live in is changing, and the reason for this change is considered to be the warming of the atmosphere and the increase in temperature due to global warming (İklimbu, 2023). Global warming refers to the increase in the world's average temperature values that can lead to climate change. On the other hand, climate change refers to changes in seasonal temperature, precipitation, and humidity values in a certain region (ISU, 2023). Global climate change, which has emerged with the combination of these two concepts in recent years, refers to “the increase in the average surface temperatures of the earth and the changes in the climate as a result of the rapid increase in greenhouse gas accumulations released into the atmosphere by human activities such as burning fossil fuels, land use changes, deforestation, and industrial processes, strengthening the natural greenhouse effect.” Global climate change is a change that is “caused by human activities in addition to the natural variability of the climate experienced throughout the long geological history of the earth” (General Directorate of Meteorology [MGM], 2023).

When the literature is examined, it is seen that there are many studies on climate in the field of education (See Table 1). However, it has been determined that there needs to be research to determine the trends of graduate theses on climate in the field of education in Türkiye. Based on this situation, it aims to examine and compare the graduate theses on climate in Türkiye's education field in terms of different variables. This review is important in revealing the preference of graduate theses on climate in the field of education in Türkiye, comparing graduate theses, guiding new research on climate in the field of education in the future, and drawing attention to the use of less preferred variables in theses. Along with graduate education, it aims to provide students with the ability to access information by using scientific research methods to interpret and evaluate it. In doctoral education, it is aimed to provide the student with the necessary skills to interpret scientific events independently from a broad perspective and to reach new results (Karaman & Bakırcı, 2010). It aims to interpret the findings obtained by the content analysis method by combining the study with graduate theses. However, it is also expected that researchers who want to use the content analysis method will contribute to using this method.

This research aims to evaluate the content of master's and doctoral theses on climate in our country's education field and to reveal the current situation. The research answered the following questions:

Within the scope of this purpose, the following sub-problems have been identified:

1. What are the types of master's and doctoral theses on climate in education?
2. In which years were the master's and doctoral theses on climate in the field of education completed?
3. In which universities have the master's and doctoral theses on climate in the field of education been made?
4. What topics do master's and doctoral theses on climate in the field of education include?
5. What are the research methods of master's and doctoral theses on climate in the field of education?
6. With which sample/study group were the master's and doctoral theses on climate in the field of education made?

Method

Model

A qualitative research design was used in this study to examine master's and doctoral theses on climate in the field of education. Yıldırım & Şimşek (2018) defined qualitative research as a research process in which perceptions and facts are revealed realistically and holistically by using data collection techniques such as observation, interview, and document analysis (Boğdan & Biklen, 1992). In this study, Karasar (2008) used "document analysis," which is one of the qualitative research methods, "because it focuses on analyzing existing records and documents, allows the finding, examining and interpretation of documents related to the subject, the data collection process is more economical and reliable, and it is suitable for the research." Document analysis is a "systematic method used to examine and evaluate all documents, including printed and electronic materials that can be accessed" (Wach, 2013 cited in Kırıl, 2020).

Data Collection Tools

In this study, the following steps were followed while collecting the data. First of all, the database to be used during data collection was decided. Since national theses will be preferred, it is thought that the Council of Higher Education YÖK National Thesis Center will be the most accurate database to achieve the goal. While scanning the database, it was researched with the help of keywords such as “climate, climate education, climate change, global warming, air, humidity, atmosphere, natural disaster, primary school, primary education, geography education, life science, social studies, science/sciences.” No year interval was determined during data collection, and all documents obtained as a result of the scan were included in the research. This situation also reveals the limitation of the research. Then, some criteria were decided for content analysis. These criteria are 6: “type,” “year,” “university,” “subject,” “method,” and “sample.” Along with master's and doctoral education, students are given the ability to access information through scientific methods. At the same time, it is aimed to provide students with the necessary skills to independently interpret scientific events from a broad perspective and reach new results. It was thought that studies with these qualifications would contribute to science.

Analysis of Data

The data collected in the study were analyzed with the help of content analysis. Several methods are recommended in qualitative data analysis. The researcher, who uses the first method, descriptive analysis, content analysis, and thematic analysis, should analyze the data by including his own interpretations in addition to these techniques. Secondly, while obtaining the data, the data should be presented with a descriptive approach by adhering to the original version or, when necessary, by directly quoting the discourses of the individuals participating in the research. The third method is using some themes in addition to the descriptive approach. Themes suitable for the subject should be determined, and relationships should be established between these themes. These methods can be used separately, or the data can be analyzed by using all three methods together in the same research (Yıldırım & Şimşek, 2018). The researcher is obliged not to disturb the reality of the subject he is researching while making a description. When making interpretations, events and facts should not be separated from their reality, and their originality should not be distorted (Miles & Huberman, 1994). As the reasons for using content analysis in research; It is due to its features such as “focusing on identifying certain words or concepts in the document being

studied and allowing the words and concepts in the document to be systematically analyzed with smaller content categories in line with certain rules” (Büyüköztürk et al., 2008). In the descriptive analysis, “the data summarized and interpreted are subjected to a deeper processing in content analysis, and concepts and themes that cannot be noticed with a descriptive approach” can be discovered as a result of this analysis (Yıldırım & Şimşek, 2018). While analyzing the data, “explicit content coding, which is one of the content coding types, was based on the direct determination of various features of the theses (subject, method, etc.)”. As a result of the coding process, the data were expressed as “frequency (f) and percentage (%)”.

In qualitative research, “since subjectivity is slightly higher, it is sometimes exposed to criticism about validity and reliability” (Arastaman, Fidan & Fidan, 2018). Therefore, in qualitative research, “reporting the collected data in all details and explaining in detail how the results were reached increases the study’s validity.” In qualitative research, it is accepted from the very beginning that “the researchers cannot give the same results since it is known that everyone’s methods of perceiving and interpreting events are different” (Yıldırım & Şimşek, 2018). This study ensured reliability and validity by paying attention to these issues. The study’s results, which are formed by handling master’s and doctoral theses on climate in education, are compatible with the conceptual framework. The data collected in the research were collected and reported in “all details.” The studies conducted between 2006 and 2023 were scanned, and the data were collected in detail under the type of studies, years, universities where the theses were done, subjects, methods, and samples of the studies. The part about how the results are obtained is explained in detail in the “data source and data collection” section. The results reflect reality. The results are consistent with the research questions and related theories. Doing all these contributes to the validity of the research. With all these applications, measures have been taken for validity and reliability.

Compliance with Ethical Standard

In this article, the journal writing rules, publication principles, research and publication ethics, and journal ethical rules were followed. The research is not included in the study group that requires ethics committee permission.

Findings

In this research, which was carried out to evaluate the content of master's and doctoral theses on climate in the field of education in Türkiye, some findings were reached.

Findings on the First Sub-Problem

In the research, "What are the types of master's and doctoral theses on climate in the field of education? The types of studies that emerged according to the first sub-problem are given in Table 1:

Table 1

Types of Master's and Doctoral Theses on Climate in the Field of Education

Type	Frequency (f)	Percent (%)
Master's Thesis	64	87.8
Ph.D. Thesis	9	12.2
Sum	73	100

Information on the types of master's and doctoral theses on climate in the field of education in Türkiye As can be seen from the table above, a total of 73 theses have been reached, 64 (87.8%) of which are "master's and doctoral theses" and 9 (12.2%) are "doctoral theses" of the "master's and doctoral theses" on climate in the field of education.

Findings on the Second Sub-Problem

In the research, "What are the publication years of master's and doctoral theses on climate in education? The years of the studies that emerged according to the second sub-problem are shown in Table 2:

Table 2

Publication Years of Master's and Doctoral Theses on Climate in the Field of Education

Year of Publication	Master's Thesis Frequency (f)	Ph.D.Thesis Frequency (f)	Percentage (%)
2006	2	2	5.5
2007	2	-	2.7
2008	1	1	2.7
2009	2	-	2.7
2010	4	-	5.5

2011	2	-	2.7
2012	1	1	2.7
2013	2	-	2.7
2014	6	1	9.6
2015	1	-	1.4
2016	1	-	1.4
2017	1	-	1.4
2018	5	2	9.6
2019	10	-	13.7
2020	6	1	9.6
2021	4	-	5.5
2022	10	1	15.1
2023	4	-	5.5
Sum	64	9	100

Table 2 shows the publication years of “master’s and doctoral theses” on climate in the field of education in Türkiye. Accordingly, the first studies that can be accessed were published in 2006. The highest number of thesis were completed in 2022 (15.1%), 10 (13.7%) in 2019, and 7 (9.6%) in 2020, 2018, and 2014, respectively.

Findings on the Third Sub-Problem

In the research, “In which universities were the master’s and doctoral theses on climate in the field of education made? Universities where the studies are carried out according to the third sub-problem” are as follows:

Table 3

Universities where Master’s and Doctoral Theses on Climate in the Field of Education are Made

Universities	Frequency (f)	Percent (%)
Gazi University	12	16.5
METU	6	8.2
Kirsehir Ahi Evran	4	5.5
Aksaray	3	4.1
Ataturk	3	4.1
Ondokuz Mayıs	3	4.1
Ankara	2	2.7
Alanya Alaaddin Keykubat	2	2.7
Burdur Mehmet Akif Ersoy	2	2.7
Giresun	2	2.7
Hacettepe	2	2.7
Inonu	2	2.7
Marmara	2	2.7
Necmettin Erbakan	2	2.7

Ankara Yıldırım Beyazıt	1	1.4
Agri Ibrahim Chechen	1	1.4
Aydin Adnan Menderes	1	1.4
Bahcesehir	1	1.4
Boğaziçi	1	1.4
Bursa Uludag	1	1.4
Dokuz Eylul	1	1.4
Erciyes	1	1.4
Erzincan Binali Yildirim	1	1.4
Fırat	1	1.4
Gumushane	1	1.4
Istanbul Bilgi	1	1.4
Istanbul	1	1.4
Istanbul Technical	1	1.4
Kastamonu	1	1.4
Kirikkale	1	1.4
Manisa Celal Bayar	1	1.4
Nigde Omer Halisdemir	1	1.4
Recep Tayyip Erdogan	1	1.4
Sakarya	1	1.4
Suleyman Demirel	1	1.4
Tokat Gaziosmanpasa	1	1.4
Van Yuzuncuyıl	1	1.4
Yildiz Technic	1	1.4
Bülent Ecevit (Zonguldak Karaelmas)	1	1.4
Sum	73	100

In Table 3, the universities where “master’s and doctoral theses” on climate in the field of education were made, and their rates are as follows: Gazi University 12 (16.5%), Middle East Technical University 6 (8.2%), Kırşehir Ahi Evran University 4 (5.5%), Aksaray University, Atatürk University and Ondokuz Mayıs Universities 3 (4.1%).

Findings on the Fourth Sub-Problem

In the research, “What topics do master’s and doctoral theses on climate in the field of education include? The topics included in the studies that emerged according to the fourth sub-problem are shown in Table 4:

Table 4

Topics of Master’s and Doctoral Theses on Climate in the Field of Education

Topics	Frequency (f)	Percentage (%)
Climate Change and Global Warming	41	55.4
Climate, Seasons, Rainfall, etc. Topics	11	16.2
Teaching Climate with Multiple Intelligences, GIS, Active Learning, Google	10	13.5

Earth, Material-Supported Teaching, Argumentation, Extracurricular Activities, etc.		
Misconceptions About Climate and Concept Teaching	9	12.2
Climate Literacy and Scale Improvement	2	2.7
Sum	73	100

From Table 4, the studies mainly focus on climate change, global warming, climate, seasons, precipitation, etc.; teaching climate through multiple intelligences, GIS, active learning, Google Earth, material-supported teaching, argumentation, extracurricular activities, etc.; It is seen that there are issues related to climate-related misconceptions and concept teaching, climate literacy, and scale development.

Findings on the Fifth Sub-Problem

In the research, “What are the research methods of master’s and doctoral theses on climate in the field of education? The research methods of the studies that emerged according to the fifth sub-problem are shown in Table 5:

Table 5

Methods of Master’s and Doctorate Theses on Climate in the Field of Education

Methods	Frequency (f)	Percent (%)
Descriptive Survey Method	29	39.7
Experimental Method	20	27.4
Case Study	16	21.9
Phenomenology (Phenomenology)	5	6.9
Document Review	2	2.7
Action Research	1	1.4
Sum	73	100

Accordingly, "the experimental method," "document analysis," "case study," "action research," "phenomenology," and "descriptive survey methods" were used in the studies. The most preferred methods were "descriptive survey method" (39.7%), "experimental method" (27.4%), "case study" (21.9%) and "phenomenology" (6.9%), while the least preferred methods were "document analysis" (2.7%) and "action research" (1.4%)

Findings on the Sixth Sub-Problem

In the research, “What are the samples/study groups of master’s and doctoral theses on climate in the field of education? The sample/study groups of the studies that emerged according to the sixth sub-problem” are shown in the table below.

Table 6*Sample/Study Groups of Master's and Doctoral Theses on Climate in the Field of Education*

Sample/Study Groups	Frequency (f)	Percent (%)
Student	44	60.8
Pre-service teachers	19	26.5
Teacher	7	9.9
Curriculum	1	1.4
Domain Expert	1	1.4
Medical Staff	1	1.4
Sum	73	100

When 73 studies on climate in the field of education are examined in Table 6, it is seen that the most studied group is students (60.8%). It was determined that the second group was pre-service teachers (26.5%), and the third group was teachers (9.9%).

Discussion and Results

In the study, graduate theses on climate in the field of education were evaluated. Accordingly, a total of 73 thesis, 64 of which are master's theses and 9 of which are doctoral theses, have been reached among the graduate theses on climate in the field of education. Among the reasons for the low number of doctoral theses reasons for the high number of doctoral studies can be explained as the fact that it requires expertise, is more challenging to write, is comprehensive, and takes more time, there are few doctoral programs, the number of master's programs is high and the master's degree is the first step of an academic career. In addition, it can be shown by the low number of faculty members in the relevant field, and the number of doctoral staff needs to be higher. On the other hand, the fact that only nine doctoral theses have been made in the relevant field reveals that there is a need for more doctoral theses on climate in the field of education. There needs to be a study examining graduate theses on climate in education. However, the same results were obtained in the studies examining graduate theses in the literature (Bektaş & Karadağ, 2013; Çiçek & Yeşilbursa, 2019; Demirbaş & Aydınöz, 2022; Güven & Sword, 2017; Kaymakçı, 2017; Yavuz, 2016).

The first climate study in the field of education was completed in 2006. The most studies were conducted in 2022, 10 in 2019, and 7 in 2020, 2018, and 2014, respectively. Looking at the publication years of the studies it varies between 2006 and 2023. While most studies were conducted in 2022, the most minor studies were conducted in 2015, 2016 and 2017. Considering that the studies discussed in the research are only climate studies in the

field of education, it is seen that there has been a relative increase since 2019. However, there has been a decrease or increase in graduate thesis studies. It is necessary to raise students' awareness about global climate change, which is seen as one of the most critical problems of recent times, and turn this awareness into behavior (Budak, 2021). It can be stated that the increase in this way has started to raise awareness about climate education. In addition, it can be said that the concerns caused by the rapid increase in the effects of climate change in recent years have increased the number of studies on climate in the field of education. Studies in the literature support this (Papadimitriou, 2004; Groove and Gutter, 2007; Ayvaci & Şenel Çoruhlu, 2009; Bozdoğan & Yanar, 2010; Karişan, 2011; Aydın, 2014; Emlı & Afacan, 2017; Gürer & Sakız, 2018; Koca, 2019; Mahanoğlu, 2019)

According to the universities where graduate theses are made, Gazi University ranks first, and 12 theses have been made. It is seen that similar results have been obtained in various studies conducted in the field of education (Adlığ, 2021; Akgün & Akgün, 2021; Güleç & Hüdavendigar, 2020; Şimşek, 2019; Oğuz Haçat & Demir, 2019; Tarman et al., 2010; Uzun & Çakmak, 2021). Middle East Technical University was determined as 6. Among the reasons for the overstudy in these universities compared to other universities it can be related to the fact that “master’s” and “doctorate programs” were opened in previous years, the high number of lecturers and graduate students, and the fact that they have a well-established structure in terms of practical and establishment dates. On the other hand, Kırşehir “Ahi Evran University” was determined as 4, “Aksaray University,” “Atatürk University” and “Ondokuz Mayıs University” were determined as 3. Another striking finding is that all universities where the theses were completed, except for Bahçeşehir University, are state universities.

According to the subject content of the graduate theses on climate in the field of education, the studies that directly deal with climate change and global warming (55.4%) are the most. Secondly, topics such as climate, seasons, precipitation, etc. (16.2%) were examined in theses. On the other hand, multiple intelligences teaching of climate, climate teaching with GIS, climate teaching with active learning method, climate teaching with Google Earth, climate with material-supported teaching, teaching climate with argumentation, extracurricular activities, etc. (13.5%) are also the topics included in the theses. In addition, topics related to climate-related misconceptions and concept teaching (12.2%) and climate literacy and scale development (2.2%) were also included.

Preferred methods in theses are “experimental method,” “document analysis,” “case study,” “action research,” “phenomenology,” and “descriptive survey methods.” The most preferred methods were descriptive survey method (39.7%), experimental method (27.4%), case study (21.9%), and phenomenology (6.9%), while the least preferred methods were document review (2.7%) and action research (1.4%). The researchers prefer Quantitative research methods, and the descriptive survey method is mostly used. When the qualitative research methods used are evaluated, it can be said that the case study method is the most preferred. Similarly, Koçoğlu & Gökalp (2021) stated in their study that the most preferred quantitative research methods are the survey method and the case study for qualitative research. Again, in the studies conducted in the literature for the analysis of graduate theses, the scanning method has been the most used (Akaydın & Kaya, 2015; Güleç & Hüdavendigâr, 2020; Daytime, 2022; Shrewd, 2021; Lightning, 2019)

When 73 studies on climate in education are examined, it is seen that the most studied group is students (60.8%). The second group (26.5%) is pre-service teachers. Considering that the teacher candidates are also university students, it is as high as 87.3%. It will be seen that the majority of the studies are students. The focus on this group may be because it is easier to reach and work with university students. Most of the studies in the literature have been conducted for students (Oğuz Haçat & Demir, 2018; Güleç & Hüdavendigâr, 2020; Gürkan, 2023; Blackbird, 2020; Karakuş, 2020; Koçoğlu & Gökalp, 2021; Sevgili, 2023; Long & Lighter, 2021). The third group studied in the study was teachers (9.9%). In the literature reviews, Şahin, Calp, Bulut, & Kuşdemir (2013) determined the sample as students and teachers in their studies. In another study, the sample was primary school students, then classroom teachers, and textbooks were in third place (Şimşek, 2019; Guven & Sword, 2017). Altay’s (2020) article review study also shows that the sample group consists of students and teachers.

Recommendations

Based on the results of the research, the following suggestions can be made:

When we look at the studies on climate in the field of education, it is seen that the studies need to be more comprehensive. Therefore, more work should be done to raise awareness about the climate issue.

This research, which reveals the current situation of the studies on the climate issue in the field of education in Türkiye, may allow a comparative study with various research that will reveal the current situation in different countries.

Academic studies on climate in education should be increased in graduate education, especially in doctoral education.

In general, the studies were applied to the students. Therefore, studies can be carried out to examine climate issues and climate change from the perspective of adults.

In the research methods, mostly (67.1%) quantitative research methods such as screening and experimental methods were used. Qualitative research methods can be emphasized in new studies.

Compliance with Ethical Standard

In this article, the journal writing rules, publication principles, research and publication ethics, and journal ethical rules were followed. The research is not included in the study group that requires ethics committee permission.

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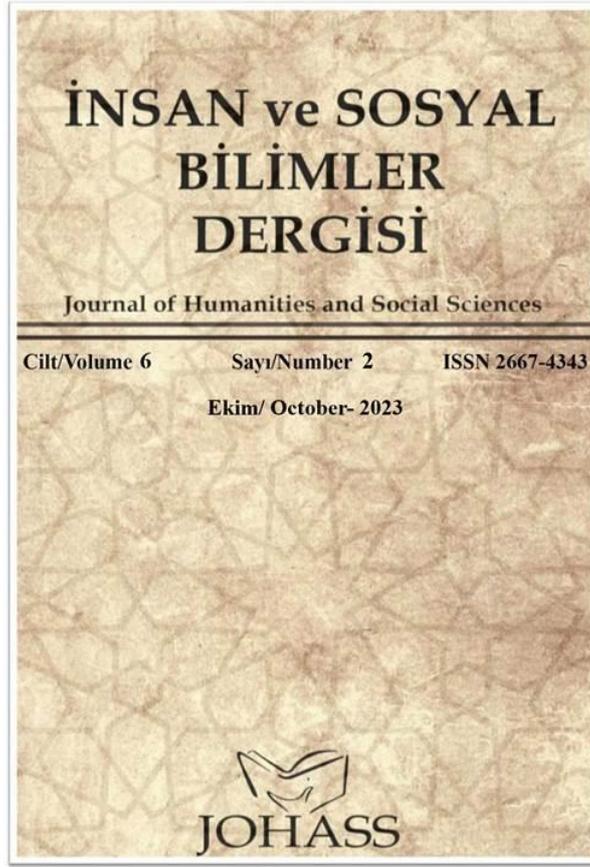
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The Effect of a Cultural Landscape Area on Urban Green Spaces: Case Study of Diyarbakir Fortress and Hevsel Gardens

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The Effect of a Cultural Landscape Area on Urban Green Spaces: Case Study of Diyarbakir Fortress and Hevsel Gardens

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Abstract

The Diyarbakır Fortress and Hevsel Gardens are an example of combining cultural landscapes and urban green spaces. These types of areas preserve historical and cultural richness while meeting the green and social space needs of modern cities. The aim of this study is to reveal the impact of these two important heritages, which have cultural and historical value, on urban green spaces in the Diyarbakır Sur District. The presence of green areas in the Sur district has been determined in line with this objective. Field observations, Master Development plans, planning annotations, the “management plan”, land registry records, cadastral procedures, urban guidebooks, and digital mapping platforms were employed as methodologies. Inclusive and exclusive quantifications of the designated cultural landscape area were conducted. The study quantitatively reveals the presence of active green areas in two heritage areas intertwined with culture, nature and historical built environment. The fields of heritage and nearby environmental arrangements affect the amount of green space in the Sur district. These landscaping enhancements substantially elevated the per capita functional green space in the district, increasing it from 18.22 square meters to 37.75 square meters. Similarly, they increased the availability of parking spaces, with the per person spacedetermined as 16.64 square meters. This study thus recommends increasing the regulations in buffer zones that reflect the unity of traditional and modern elements, with sustainable approaches that are compatible with ecological balance and planned for the long term.

Keywords: Cultural landscape, urban green spaces, Diyarbakır Fortress (Castle), Hevsel Gardens.

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Introduction

Diyarbakır Fortress and Hevsel Gardens represent a unique cultural landscape located in southeastern Turkey. “Diyarbakır Fortress and Hevsel Gardens Cultural Landscape Area” was registered on the UNESCO World Heritage List at the 39th term meeting held in Bonn, Germany, in 2015 (Turkish National Commission of UNESCO, 2015). This area is among one of the rare examples in the world where the location is integrated into the historical settlement fabric and ongoing agricultural activities. Diyarbakır Castle has an impressive structure with a history of thousands of years, and bears the traces of various civilizations. This castle is situated in the city center, and integrates with the city. The castle is a part of Diyarbakır's identity and an important element that forms the cultural landscape of the city. Hevsel Gardens consist of historical irrigation canals and agricultural areas located around Diyarbakır Castle. While these green areas preserve the urban balance of the city, they simultaneously offer productive agricultural areas. At the same time, its visual landscape allows city residents to experience natural beauty. Urban green spaces play a critical role for the livability of cities and the quality of life of their residents. These areas contribute towards preserving the natural environment, improving air quality, reducing people's stress and providing opportunities for physical activity (Bucaklı, 1999). Urban green spaces are also important for the sustainability of cities. In this context, Diyarbakır Fortress and Hevsel Gardens offer a unique urban green area to city residents. These spaces bring a balance to the complexity and pace of city life. They simultaneously protect the historical and cultural heritage, and contribute to the sustainability of urban life.

The aim of this study is to reveal the impact of these two important heritages, which have cultural and historical value, on urban green areas. For this purpose, the green area presence of Sur district was determined. A comparison was made to quantitatively explain the effect of the cultural landscape area. The comparison measured active green areas, including and excluding the cultural landscape area. There are many studies in the literature about the structures of the Suriçi region, which examine the texture of historical settlements in the city, and the cultural landscape areas included in the World Heritage List. It is important to bring such areas to the agenda from different angles, due to the increase in awareness and environmental planning works since its inclusion in the World Heritage List, the desire to develop tourism and trade, and the traditional cultural elements being forgotten. This study aims to draw attention to the historical and natural structure of the area and its immediate

surroundings by revealing their direct contribution to the needs of the city, rather than a visual landscape. The study data will hopefully contribute to public space planning. The originality of the study is that it quantitatively reveals the structure of two rare heritage areas integrated with the city, intertwined with culture, nature and historical built environment, which directs the existence of active green areas.

Conceptual Framework

Urban Green Spaces

The establishment of healthy and ordered urban environments hinges upon the arrangement, quantitative attributes, functional attributes, and aesthetic attributes of accessible green spaces conceived within the scope of methodical planning (Kiper et al., 1991). Public parks situated within urban open green spaces serve notable social and cultural roles, particularly in the 21st century (Thompson, 2002). The open spaces into two categories: (1) those that are actively utilized, observed, and experienced by individuals; and (2) those that, although not actively utilized, fulfill urban roles and influence urban evolution (Tankel, 2011). Some studies delineate green spaces as “surface expanses of extant open spaces adorned or integrated with vegetative components encompassing both woody and herbaceous plants” (Öztan (1968) and Özbilen (1991), as cited in Önder et al., 2012). As per the prevailing legislative framework in Turkey, green spaces consist of those designated for public benefit, including playgrounds, recreational zones, picnic spots, leisure venues, amusement areas, and similar recreational facilities (Official Gazette, 2017). Within inclusive of fairs, botanical and zoological gardens, as well as metropolitan-scale regional parks (Official Gazette, 2017).

According to the same regulatory provision, green spaces which include functions and construction conditions are delineated as encompassing playgrounds, parks, picnic spots, and recreational areas (Official Gazette, 2017). In Turkey, as reported in Annex-2 of the Spatial Plans Construction Regulation, published in the Official Gazette of 14 June 2014 designated as number 29,030, a guideline has avocate a norm of 10 square meters of open and green space per person (Official Gazette, 2014). However, Özdede et al. (2021), suggested 54 m² of green space per person in the model they developed, while determining the need for more green space after the pandemic, stating that even this was below the standards in some countries (Table 1) (Özdede et al., 2021).

Table 1

Green Space Standards Recommended In Different Countries (Ersoy 2009, cited in Özdede et al., 2021; p.371).

	Settlement Size	Ratio to Urban Area (%)	m2/Person
USA	Province		10.5
	25,000+	40.24	106.4
	250,000+	39.97	123.5
Germany	Province		15
	600,000+		27.3
England	Province		14–21
	10,000+	21.5	63
France	Province		25
	100,000+		23
Netherlands	Province		20.5
Sweden	City (Stockholm)		77
Canada	2,000,000 (Toronto)	24.2	
Russia	Province		50
Italy	Rome		22
	Small- and Medium-Sized Cities		12.5
Australia	Province		10
	Sydney		19.2
	80,000+	9.7	40

Green spaces are indicators of social development, comfort levels, and the importance given to healthy living, and they have economic, ecological, social, and physical functions. emphasize the biological, meteorological–climatic, physical, psychological, social, and economic functions of green spaces (Atabay (1994), Şener (1987), and Sümer (1988) as cited in Bucaklı, 1999). Green spaces play an important role in improving physical and psychological well-being (Bedimo-Rung et al., 2005; Romagosa, 2018). Open and green spaces are pivotal to ensuring the robust sustenance of urban areas, serving multifarious functions encompassing recreation, ecological balance, and land organization (Gökalp & Yazgan, 2013).

Cultural Landscape

The term “cultural landscape” was initially introduced in Germany during the latter part of the 19th century, subsequently evolving into a foundational concept within the realm of geography (Jones, 2003). In 1895, Ratzel characterized the cultural landscape as a territory altered by human intervention, and in 1903, Schluter underscored the impact of human actions on the configuration of the landscape as a responsive measure to determinism (Jones, 2003). In 1922, Krebs characterized it as a locality transfigured by human conduct (Jones

2003). In 1925, Sauer introduced this German-origin definition to the global discourse, defining a cultural landscape as “a region sequentially transformed by human agency via cultural undertakings, and molded by distinct cultural collectives from the antecedent natural landscape preceding human engagement” (Jones, 2003). Jones (2003) stresses that scholars in geography and ethnology rigorously engaged with the construct of the “cultural landscape” within the context of Scandinavian nations in the interwar period. From the 1960s onwards, the notion “cultural landscape” began to further permeate diverse academic disciplines, and was subsequently integrated into the nomenclature of environmental management (Jones, 2003). From the 1970s onwards, this view changed with different debates (Mitchell, 1994). The term “cultural landscape” has been diversely understood across disciplines, influenced by distinct academic traditions and specific pedagogical and socialization processes inherent to each discipline (Jones, 1988). Despite the diminishing focus on cultural landscapes within the evolving discipline of geography, fields like anthropology, ecology, architecture, and landscape architecture have demonstrated a burgeoning interest in this concept, integrating it into their academic inquiries during this period (Aplin, 2007; Jacques, 1995).

Cultural landscape as a concept, was used by the “World Heritage Committee” in 1987 (Aplin, 2007). Three decades after the acceptance of the Venice Charter, and with the rise of various discussion platforms and global organizations centered on heritage, there is a pressing imperative to revisit and recalibrate notions of heritage, particularly in terms of the demarcation between cultural and natural values (Jacques, 1995). For example, cultural landscapes emerged as a topic of great interest for the international conservation community in the 1990s, and were then adopted as a conservation category (Jones, 2003; Jacques, 1995). In 1992, the “World Heritage Committee” initiated the inclusion of cultural landscapes into the World Heritage list, marking it as the inaugural international legal instrument for their protection (Rössler, 2006). Since 1992, there have been a series of statements on cultural landscapes that are aimed at an international audience (Jacques, 1995). Cultural landscapes are categorized into three distinct classes of outstanding universal value for World Heritage purposes: clearly defined landscapes designed and intentionally created by humans, organically evolved landscapes, and relational cultural landscapes (Taylor & Lennon, 2011).

In 1995, the Committee of Ministers of the Council of Europe endorsed the Recommendation on the Integrated Protection of Cultural Landscapes as an integral component of Landscape Policy (Jones, 2003). Consequently, the domain of cultural heritage management experienced a swift expansion in the fields of planning and execution (Jacques,

1995; Taylor, 2009). As articulated in Robert Z. Melnick (1984), the cultural landscape serves as a tangible reflection of human endeavors and beliefs in conjunction with the natural landscape (Fowler, 2003). Wagner and Mikesell assert that a cultural landscape is a discernible and emblematic outcome resulting from the interplay between a distinct human community, encompassing particular cultural inclinations and capabilities, and a unique assortment of natural conditions. Cultural landscapes stand as a testament to numerous epochs of natural evolution and the cumulative efforts of countless human generations (Fowler, 2003). The International Union for Conservation of Nature (IUCN) formally delineates the term “cultural landscape” as “a geographically designated region linked with historical occurrences, endeavors, or individuals, encompassing cultural or aesthetic merits, inclusive of both cultural and natural resources, as well as fauna, be they wild or domesticated” (Architecture interview, 2011). For an area to be recognized as “cultural landscape”, the synergy between nature and human influence must yield significant outcomes over a period, and these outcomes must exist in equilibrium (Özsüle, 2005). Cultural landscape types are classified in different ways, depending on “the function of the landscape, the origin of the landscape, the International Union for Conservation of Nature (IUCN), and the World Heritage List” (Table 2) (Erdoğan, 2022).

Table 2*Types of Cultural Landscapes (Erdoğan, 2022)*

	Classification
According to the function of the landscape	Agricultural Industrial Recreational landscape
According to the formation of the landscape	Natural Areas Unaffected by Humans Areas Shaped Jointly by Humans And Nature Areas Completely Shaped by Humans
Classification of the International Union for Conservation of Nature (IUCN)	Clearly Identifiable Landscape Areas Organically Developed Landscape Areas -Geological Heritage -Residual Landscape Areas -Landscape Areas with Continuity Complementary cultural landscape areas
Classification in the World Heritage List	Consciously Human-Made Landscape Areas Organically Shaped Landscape Areas Combined Cultural Landscape Areas

The UNESCO World Heritage List has an important role in protecting historical, natural and cultural heritage elements and transferring them to future generations. It provides

a universal platform for the protection and sustainability of listed works. Thanks to heritage sites with increased brand value, the tourism industry develops and contributes to the economy.

A nominated property must (i) be a representation of a magnum opus of human inventive brilliance; (ii) signify a substantial shift in human values, either within a specific period or a particular cultural zone, especially in relation to advancements in architecture, technology, monumental arts, urban organization, or landscape architecture; or (iii) provide a unique, or at the very least, exceptional record of a thriving or disappearing cultural tradition or civilization. Furthermore, it should (iv) present a superlative example of a structure, or architectural or technological ensemble, that denotes significant stages—a term that is frequently misconstrued—in human history. The property might also (v) typify traditional human settlement or land use that serves as a symbol of a culture, or several cultures, especially when such cultures are under threat. Last, the nominated site should have (vi) a clear and tangible association with momentous events, ongoing traditions, ideologies, or with artistic and literary masterpieces of unmatched global stature (Fowler, 2003).

The UNESCO World Heritage List includes cultural, natural, and mixed heritage sites recognized by the World Heritage Committee as being of outstanding universal value. As of September 2023, there were 1199 World Heritage sites, 933 of which were categorized as cultural, 237 as natural, and 39 as mixed (UNESCO, 2023).

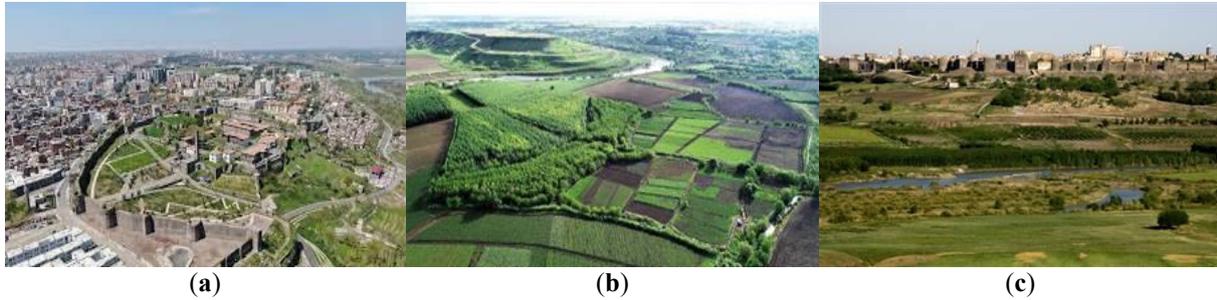
Diyarbakır Fortress and Hevsel Gardens Cultural Landscape Area

The Diyarbakır Fortress and Hevsel Gardens, acknowledged as a cultural landscape area by the UNESCO, are situated adjacent to the historical city walls, along the banks of the Tigris River. This area, rich in unique flora and fauna, is a hub for agricultural activities and embodies local cultural and production traditions (Figure 1).

Hevsel Gardens, seamlessly intertwined with both the Tigris Valley and the city, occupies a paramount position as the city's most significant landscape area. Simultaneously, its central position within the city and its utilization as agricultural terrain makes it an uncommon example of a cultural landscape. Within this framework, initiatives for the area's development began in 2012, and a Management Plan was drafted in 2013.

Figure 1

Diyarbakır Fortress and Hevsel Gardens ((a): (Photo Gallery, n.d), (b): (Demirören News Agency,2023), (c): (Soyukaya, 2015))



In 2015, during the 39th session of the UNESCO World Heritage Organization in Bonn, Germany, the Diyarbakır Fortress and Hevsel Gardens Cultural Landscape Area was added to the UNESCO World Heritage List. This decision was based on the criterion (iv): “The rare and impressive Diyarbakır Fortress and associated Hevsel Gardens, with its extensive masonry walls and gates (including many repairs and additions) and landscape setting of inscriptions, gardens/fields, and the Tigris River, which bear witness to a number of important historical periods in this region from Roman times to the present day”. Between 2016 and 2021, conservation status reports were drafted at regular intervals. The ICOMOS World Heritage Committee also included the Cultural Landscape of Diyarbakır Fortress and Hevsel Gardens, Turkey in their World Heritage List as a cultural landscape area. This was further underscored in the tentative Declaration of Outstanding Universal Value (UNESCO, 2015). The factors rendering the Diyarbakır Fortress and Cultural Landscape as exceptional can be summarized as follows:

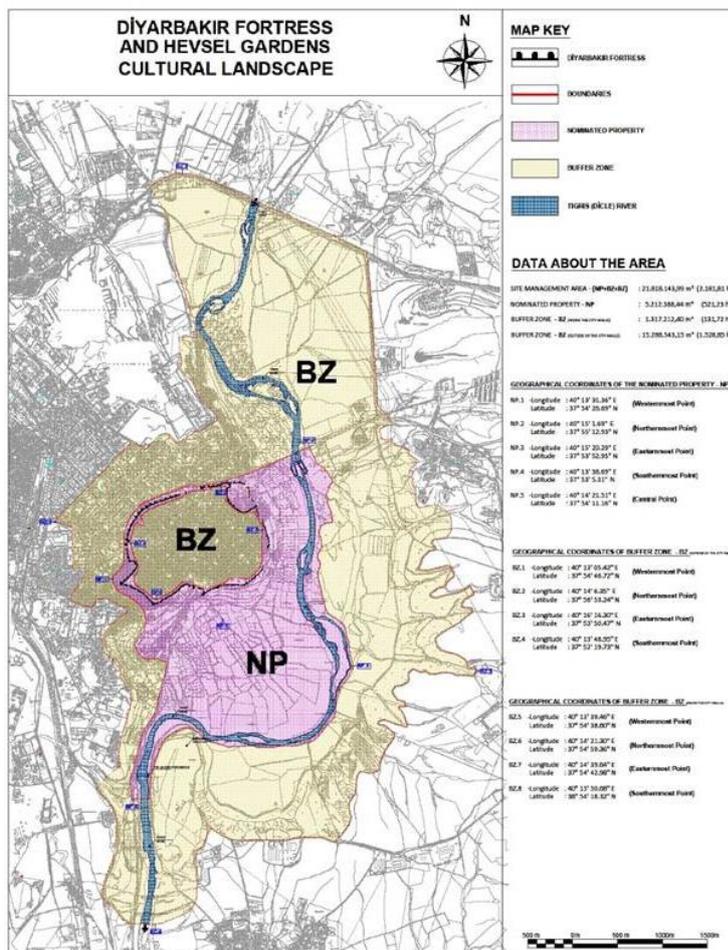
- It stands as a representation of a frontier. It encapsulates the geographic planning, construction methodologies, and material utilization of diverse civilizations.
- The site boasts of unique architectural elements, including inscriptions, doors, and distinctive decoration styles.
- It occupies a strategic bridging or junction position, linking Mesopotamia and Anatolia.
- Historically, it has been a habitation center for civilizations with varied socio-cultural backgrounds, such as the Hurrians, ancient Byzantium, medieval civilizations, Byzantine, and Ottoman empires.

- The site features a fertile valley, the navigable Tigris River, a diverse array of horticultural plants, and plentiful water resources.
- In this region, the springs, castles, and cities exemplify some of the most adept applications of water-integration techniques, serving as a significant model for various civilizations (UNESCO, 2015).

The Diyarbakır Fortress and Hevsel Gardens Cultural Landscape Area has two basic components: Nominated Area (NP) and Buffer Zone Area (BZ) (Soyukaya, 2015). The aggregate expanse of the management area is 1942.66 hectares. In this area, the NP encompasses 520.76 hectares, the Walled BZ is 132.20 hectares, and the Non-Walled BZ spans 1289.69 hectares, as illustrated in Figure 2.

Figure 2

Diyarbakır Fortress and Hevsel Gardens Cultural Landscape Area (Diyarbakır Fortress and Hevsel Gardens Cultural Landscape Area Management Plan, 2013)

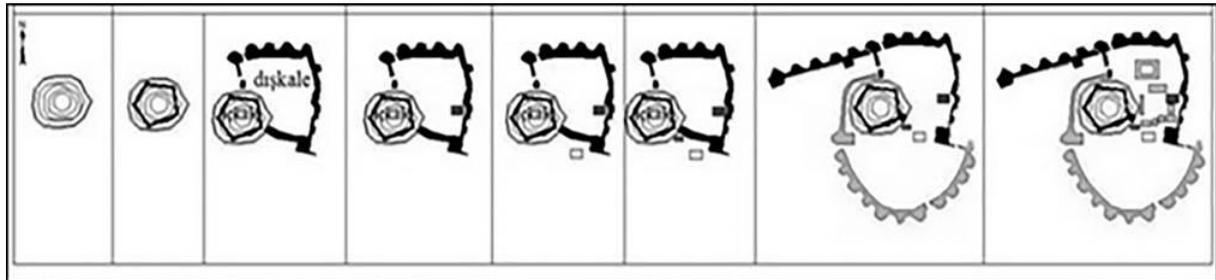


Diyarbakır Castle and Walls

The Diyarbakır Castle consists of two parts: The Inner Castle and the Outer Castle. Diyarbakır has been a significant hub since ancient times, playing host to various civilizations. Situated at the intersection of major trade routes, it has consistently served as the administrative, commercial, scientific, and artistic epicenter of the region (Dalkılıç & Halifeoğlu, 2009). Beysanoğlu (1996) narrates the city's evolutionary timeline as follows. The initial settlement is believed to have taken root on a rocky hill known as Fiskaya, referred to as the mound (Amida), before 3000 BC. From 3000 BC to 1260 BC, during the Subartu-Hurrian period, a castle was constructed encompassing the mound (Beysanoğlu, 1996). As time progressed, the castle expanded, leading to the development of an Inner Castle and Outer Castle arrangement (Kakdaş Ateş & Payaslı Oğuz, 2019) (Figure 3).

Figure 3

Inner Castle Development Map (Kakdaş Ateş & Payaslı Oğuz, 2019)

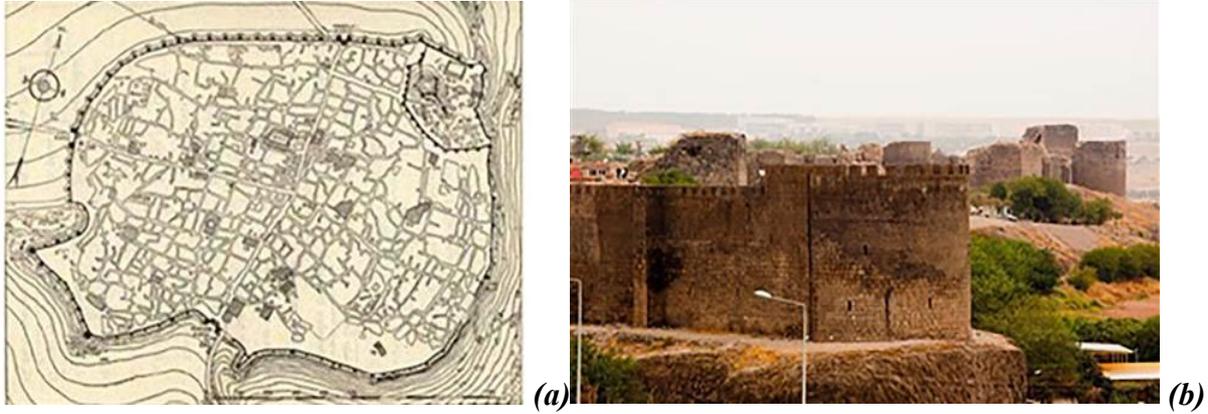


The city walls (Figure 4) continued with the Outer Castle surrounding the city after the construction of the Inner Castle. There are 82 bastions in the outer walls, and 19 in the Inner Castle (Halifeoğlu & Dalkılıç, 2005). The city walls open outward with four main gates (Dağ Gate, Urfa Gate, Mardin Gate, Yeni Gate). The Inner Castle section in the northeast of the city walls opens into the city with the Saray Gate and Küpeli Gate, and out of the city walls with Fetih Gate and Oğrun Gate (Beysanoğlu, 1996). The perimeter length of the Diyarbakır city walls in the protection area is approximately 5200 m. The walls of the Inner Castle within Suriçi extend to a length of 599 m (Nabikoğlu & Dalkılıç, 2013). When combined with the Inner Castle, the overall length of the city walls is approximately 5800 m. The total area enclosed by these city walls, inclusive of the Inner Castle, is roughly 1.57 square kilometers or 157 hectares (Nabikoğlu & Dalkılıç, 2013).

Figure 4

(a): Map of the first urban texture of historical Suriçi (Kakdaş Ateş & Payaslı Oğuz, 2019),

(b): A photo of the city walls (Soyukaya, 2015)



The Inner Castle houses the Hazrat Suleiman Mosque and Sahabeler Tomb, Old Prison Building, Saint George's Church, Courthouse A Building, Courthouse B Building, Gendarmerie Intelligence (Cavalry Regiment Union), Atatürk Command Building, Artuklu Palace, Lion Fountain, Artuklu Arch, Old Corps Building, Armory Building, and Police Station Building (Figure 5). In addition to the significant historical administrative edifices located within the Inner Castle, the Hazrat Suleiman Mosque serves as another notable landmark within the city. Prior to the restoration efforts, the dilapidated structures surrounding the mosque were removed and the area subsequently underwent landscaping improvements (Figure 6) (Demir & Kakdaş Ateş, 2020).

Figure 5

Structures in the Inner Castle Museum complex (with the new functions of the buildings): (a). Museum administration building, (b). Archaeology-2 Museum, (c). Courthouse B building, (d). Museum artifact storage, (e). Saint George's Church art gallery, (f). cafeteria building, (g). Courthouse A building, (h). Ataturk Museum, (i). Archaeological Museum administrative building (Demir & Kakdaş Ateş, 2020).

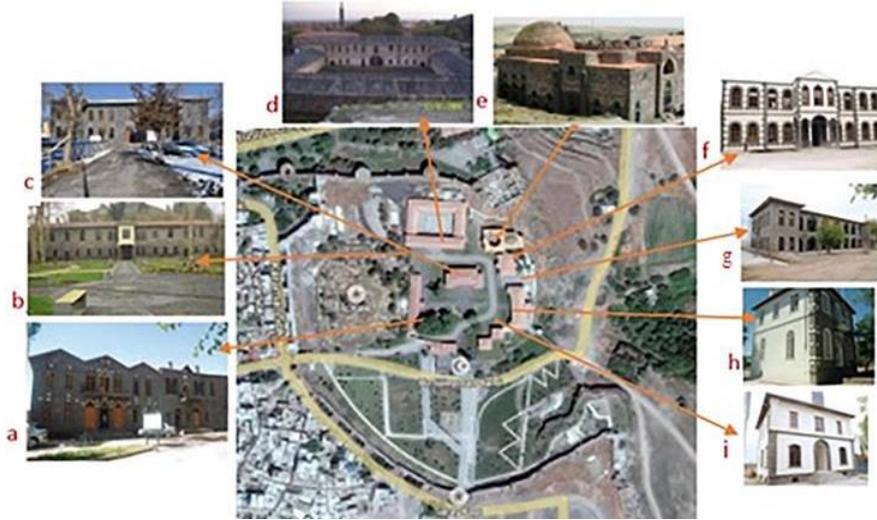


Figure 6

Slum Area Which was Converted into a Park During the Restoration of The Inner Castle (Demir & Kakdaş Ateş, 2020).



Hevsel Gardens

The borders of the Hevsel Gardens, which cover an area of 103.5 hectares today, extend from the walls of Diyarbakır to the Tigris River (Diyarbakır Fortress and Hevsel Gardens Cultural Landscape Area Management Plan, 2013) (Figure 7). Today, agricultural activities are carried out in the Hevsel Gardens. Approximately 30 hectares of the area designated as the Hevsel Gardens are utilized for poplar groves, while 83 hectares are allocated for vegetable and fruit cultivation. These fertile agricultural lands host plant species specific to the region: "Delibardağan, Mint, Goosegrass, Dill, Ağbandır, Acice, Tolık (Mallow), Pırpırım (Purslane)" (Diyarbakır Fortress and Hevsel Gardens Cultural Landscape Area Management Plan, 2013). The Hevsel Gardens are irrigated using the Anzele and Prophet Süleyman water sources. The Gardens also contain heritage items such as Diyarbakır

Watermelon, Borani, keleks, mills, sand peach, hülle, traditional agricultural tools (water traps, plows, sickles) which are included in the multicultural, multi-layered unique culture of Diyarbakır. (Diyarbakır Fortress and Hevsel Gardens Cultural Landscape Area Management Plan, 2013). In addition, the banks of the Tigris River, which is the most important water source in Mesopotamia flowing into the Persian Gulf, is adjacent to Hevsel Gardens. There are 189 bird species in Hevsel Gardens, and many mammals such as otters, foxes, squirrels, martens and hedgehogs live in them.

Figure 7

Hevsel Gardens (Soyukaya 2015)



Study Area and Method

The study area is the Sur district of Diyarbakır city center. Situated along the Tigris River, Diyarbakır occupies a position within the Mesopotamian region, renowned as the Fertile Crescent (Figure 8). The city of Diyarbakır carries the imprints of numerous civilizations, owing to its geographical positioning, fertile terrain, and pivotal location at the crossroads of primary transportation roads (Demir Kayan, 2023). The oldest known settlement is Amida Höyük (Gabriel, 1940) (Virankale, Virantepe, or Top Tepe), which is the administrative center in Suriçi, and according to research, it dates back to 4000 BC (Ökse 2015). Currently, the urban landscape encompasses 17 districts, with 4 of them serving as central hubs. The entire population of the city lived in Suriçi until 1945 (Arslan, 1999). Following the proclamation of the Republic, habitation persisted within the historical enclave of Suriçi. However, in the 1950s, because of a burgeoning population and evolving needs, urban expansion stretched beyond the city's encircling fortifications (Beysanoğlu, 2001). Subsequently, this expansion continued, marked by the inclusion of the Yenişehir district during the 1970s and the Bağlar district during the 1980s. This was followed by the

Huzurevleri and Peyas neighborhoods in the 1990s. The 2000s witnessed a pronounced wave of settlement activity within the Kayapınar district (Biçen & Vural, 2022). The contemporary urban tapestry remains in a state of ongoing evolution.

Figure 8

Fertile Crescent (a) (Ay, 2021), Diyarbakır (b) (Şehirsorgula, n.d)



The district of Sur, which constitutes one of the four central districts of Diyarbakır, is home to a population of 100,613 people, and encompasses a residential expanse spanning 119,537.49 hectares. The central neighborhoods of the district, which consists of villages and neighborhoods, were included in this study, while rural areas were excluded. The study area, confined to the vicinities of Diyarbakır Fortress and Hevsel Gardens, along with their immediate environs, encompassed an area of 7907.14 hectares, accommodating a populace of 56,349 (Table 3). A total of 20 neighborhoods in the Sur district were studied (Table 4).

Table 3

Population and Settlement Size of The District of Sur and The Study Area (KEOS, 2023; TKGM, 2023; TURKSTAT, 2022)

Database	Data
Population (TURKSTAT 2022)	100,613
Settlement Area Size (ha) (KEOS- Urban Automation System 2022)	119,537.49
Study Area Population (2022) (persons)*	56,349
Study Area Settlement Area Size (ha)* (KEOS, TKGM- Land Registry and Cadaster)	7907.14

* The author gauged this parameter employing the supplementary tools available within the online application.

Table 4

Characteristics of the Neighborhoods Studied in The District of Sur (KEOS, 2023; TKGM, 2023; TURKSTAT, 2022)

Neighborhoods	Population (Persons) *	Settlement Area Size (ha) **
Alipaşa * (including Hevsel)	1225	281.16
Cevat Paşa	2336	39.73
Bağıvar (Dicle)	8741	2067.56
Fatihpaşa	1827	178.50
İskenderpaşa	5360	10.99
Fetih (Kıtlıbil) and Yiğitçavuş	6713	2094.56
Melikahmet	4926	14.76
Yukarıkılıçtaşı	1878	1862.30
Abdaldede	763	3.00
Kebir Mosque	1400	5.48
Nebi Mosque	3046	10.25
Cemal Yılmaz	925	7.73
Dabanoğlu	2589	10.28
Hasırlı	2004	20.62
Lalebey	1661	8.81
Savaş	1354	6.23
Süleyman Nazif	562	3.18
Çarıklı (Yeşilvadi, Çaruği)	6514	1273.47
Ziya Gökalp	2525	8.53

* TURKSTAT 2022 Population Data. ** KEOS Data.

In this study, per capita of green spaces within the borders of Sur district. It is aimed at determining the amount of active green and park areas, and to determine the effect of the works carried out in the field of cultural landscape at this amount. Information about active open green areas and Hevsel Gardens was obtained by using the implementation plans, master planning notes and "Diyarbakır Fortress and Hevsel Gardens Cultural Landscape Area Management Plan" received from the Metropolitan Municipality and Sur Municipality. Development plans, on-site observation, land registry and cadastral applications, city guides and online maps were used as methods to determine the area sizes of existing active green areas in the neighborhoods of Sur Municipality. Obtaining the area sizes revealed the total presence of active green areas and their distribution according to neighborhoods. Measurements were made by including and excluding the cultural landscape area, and determine the per capita amounts of active open green areas and park areas. Thus, the

contribution of the Hevsel Gardens landscape area, which is considered an active green area, to the city is expressed quantitatively in this study.

Findings

A significant part of the active open green areas in the Sur district of Diyarbakır is in the urban historical texture and cultural landscape area. The urban green areas consists of practices aimed at protecting the urban historical texture. Thus, in the association of quantitative quantities, applications/processes need to be defined. Therefore, the findings consist of large-scale studies carried out within the district borders to increase the presence of green areas, and data revealed by on-site observations and calculations.

Active Green Areas: Sur District

The historical settlement area of Sur district consists of villages/neighbourhoods located outside the castle walls, new residential areas and the university campus. The existence of urban active open green areas in Sur district include:

- Parks located in the historical urban fabric,
- Parks and picnic areas located on the university campus,
- Urban forest,
- Cemeteries,
- Green areas built and being constructed in the protection and buffer zones of the tissue that is considered a cultural landscape area today.

The most important part of active open green areas is the arrangements made in the protection and buffer zones of the historical texture. These arrangements are around the walls and on the banks of the Tigris River, the most valuable water source of Mesopotamia, adjacent to the Hevsel Gardens.

Within the scope of the protection of Diyarbakır Castle and Walls, the green areas were arranged around the walls. In the year 2002, the Diyarbakır Metropolitan Municipality embarked on a comprehensive project with the objective of expropriating and relocating structures adjacent to the city walls. Within the scope of this project, an area around the city walls spanning 3.5 km in length and covering 12.3 hectares has been transformed into a functional green space, accompanied by the establishment of parks running parallel to the walls (Diyarbakır Fortress and Hevsel Gardens Cultural Landscape Area Management Plan,

2013) (Figure 9). Additionally, the Mass Housing Administration executed an urban renewal and development project aimed at expanding the green spaces within and in the vicinity of the Inner Castle. Executed within the cultural landscape area of the Inner Castle in Sur, Diyarbakır, this project led to the redevelopment of a 154,877 m² area (Figure 10). The area around the city walls between Ben u Sen and the Yedi Kardeş Bastions was designated as a green area after 2015.

Figure 9

Functional Green Space Arrangements Along the City Walls (Mücadele Gazete, 2023; Soyukaya, 2015)



Figure 10

Inner Castle Landscape Arrangements (YouTube;2019; Anatolian Agency, 2017)



Landscaping works are also being carried out along the Tigris Valley in the buffer zone. Within the sequence of planned green spaces, the first stage project has been successfully concluded, while construction activities continue. Stages 2, 3, and 4 involve the deliberate planning of actions. A project has been formulated with the aim of addressing the

issue of insufficient open green spaces within the city and harnessing the untapped potential of the Dicle Valley and its environs for the urban area (Ministry of Environment, Urbanization and Climate Change, 2023). A comprehensive Master Plan and Urban Design Project was meticulously developed for the expansive 1098.55-hectare expanse encompassing the Dicle Valley. The “Diyarbakır Province Dicle Valley Kırklar Hill Recreation Area Master Plan, Urban Design, and Landscape Implementation Project” was meticulously devised and executed within the designated project area of 32.28 hectares. This area is bordered by the Hevsel Gardens to the north, the Ongözlü Bridge to the south, the Ovabağ-Diyarbakır road to the west, and Kırklar Hill to the east. This marks the initial phase, referred to as the first Stage implementation area, as demarcated by the General Directorate of Spatial Planning (Ministry of Environment, Urbanization and Climate Change, 2023) (Figure 11). Phase 1 encompasses the vicinity of the Ongözlü Bridge, a historical and cultural heritage element of significance. The recreational space surrounding the Ongözlü Bridge holds vital importance as a focal area for ensuring the preservation of the bridge itself and its inheritance for generations to come. The historical settings surrounding the bridge has been meticulously repurposed, transforming it into a vibrant space that not only preserves intangible cultural heritage, but that has also emerged as a popular destination for both city residents and tourists alike. Following the closure of the bridge to traffic, the bridge and its adjacent surroundings have undergone a complete transformation into an area dedicated to the preservation of intangible cultural heritage (Demir Kayan, 2021).

Figure 11

Diyarbakır Province Tigris Valley Kırklar Hill Recreation Area (Tigris News, 2023)



As a response to this issue, a protocol titled “Diyarbakır Alipaşa and Lalebey Neighborhood Urban Renewal (Shantytown Transformation) Project” was signed in 2008, through collaboration between Diyarbakır Governorship, TOKİ, Diyarbakır Metropolitan Municipality, and Sur Municipality. Through the ongoing urban regeneration project carried out jointly by TOKİ, Diyarbakır Metropolitan Municipality, Sur Municipality, and Diyarbakır Governorship, the aim is to “clear the Historic Wall Protection Band and Suriçi, which have been destroyed, deteriorated, and heavily worn out in the face of the intense migration that Diyarbakır has received, from shanty and/or illegal structures that do not comply with the historical texture, and to bring the historical texture back to the city in a way befitting Diyarbakır Province, which has hosted civilizations for centuries” (Çatalbaş 2012). In 2015, operations were carried out in Suriçi due to regional problems. In this process, 61% of the Cevatpaşa, Fatihpaşa, Dabanoğlu, Hasırlı, Cemal Yılmaz, and Savaş neighborhoods were demolished in terms of area and 72% of the structures (Soyukaya, 2017; Sur Report, 2018). Upon the conclusion of the operations, a decision for expropriation was enacted for 6292 out of the 7714 plots (Soyukaya, 2017). Within this framework, new construction and enhancements to green spaces were carried out within the conservation and buffer zones (Figure 12).

Figure 12

Urban Transformation Green Spaces in Suriçi: (a): 10 May 2016, (b): 4 April 2017, (c): 20 August 2023 ((a,b): (Soyukaya, 2017), (c): (Google Earth, 2023))



(a)

(b)

(c)

Green areas in Sur district

In this study, the composition of functional green spaces in the district of Sur includes one urban forest, two cemeteries, one nation garden, two picnic areas, and twelve established parks, and strip parks built parallel to the city wall (Figure 13 and Table 5).

Table 5

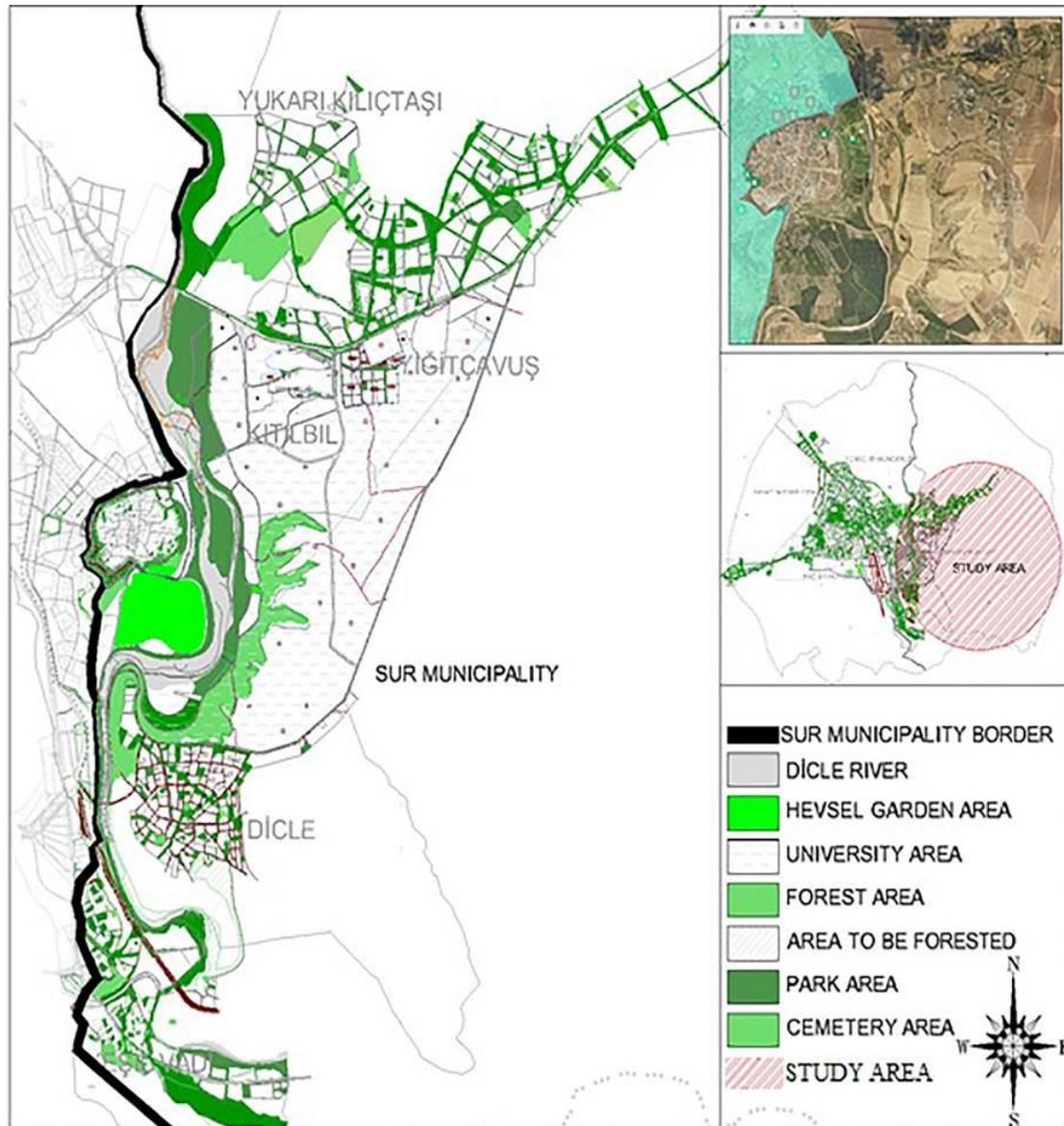
List of Extant Functional Outdoor Green Spaces in The District of Sur (Prepared by the Researcher Using the Master Development Plan, KEOS and TKGM)

Public Park Name	Address	Neighborhood	Block/Plot No.	Surface Area (m2)
Hatun Kastal Playground	In Hatun Kastal, Old Mardin Highway	Alipaşa	-	617.00
Mardinkapı Tea Garden	Adjacent to Mardinkapı Cemetery, 288–208. Sok.	Alipaşa	-	25,511.76
Hevsel Gardens (UNESCO)		Alipaşa	-	1,035,000.00
		Alipaşa	-	36,615.72
		Nebi Mosque	-	3514.28
Strip parks around the city walls (123,000 m2)		İskenderpaşa	-	15,252.00
		Melikahmet	-	49,168.00
		Lalebey	-	18,450.00
Hazrat Suleiman—Inner Castle Park (Inner Castle Local Cultural Landscape Area in Sur, Diyarbakır) (Including the Nation Garden)		Cevatpaşa	35-5.9 33-8.5.10 34-11 57-16,26,31,34,28	154,877.00
Kırklar Mountain Tigris Valley, Phase 1		Bağıvar (Dicle)	block: 0 plot: 2	322,800.00
Şahide Ana Playground	Direkhane, Kaya-Elçi St.	Fatihpaşa	Next to 57-5	4712.00
Urban Transformation green bands (ongoing)		Fatihpaşa		24,500.00
Derelict Cemetery	Bardakci 2. st. behind	Fatihpaşa	within 545/2, 62/5-6-4 and 62-9	38,950,00
Urban Transformation green bands (ongoing)		Hasırlı		38,400.00
Hacı Mehmet Cantürk Park	-	İskenderpaşa	133-7	1262.70
Hevsel Gardens Cemetery		Kıtılbal (Fetih + Yiğitçavuş)	-	26,500.00
University picnic area	Dicle University	Kıtılbal (Fetih + Yiğitçavuş)	in 7567-32	298,600,00

Anzele Park	İnönü boulevard Kesmeli St.	Melikahmet	621-5 318-1 318- 31 621-6	189.24
Kervansaray family picnic area		Kıtıl bıl (Fetih + Yiğitçavuş)	-	52,400.00
Playground		Yukarıkılıçtaşı	-	3500.00
Urban Forest	Behind of the Agricultural Equipment Institution	Yukarıkılıçtaşı	7011-4	15,000.00

Figure 13

Green Spaces (Prepared by the Researcher Using the Master Development Plan) (DBB,2009)



This study determined that there is a total of 212.74 hectares of green areas in Sur district. Subsequently, the proportion of developed urban land to functional green spaces was

calculated to be 2.69%. When historical cultural landscapes were excluded from the calculation, this ratio diminished to 1.29%. The amount of active green areas available per capita in Sur district is 37.75 m². When Hevsel Gardens and the Inner Fortress, both of which are categorized as historical cultural landscape areas, are removed from the total of functional green spaces in the district of Sur, the per capita allocation of functional green space reduces to 18.22 square meters (Table 6).

Table 6

Data of functional green spaces in the district of Sur in Diyarbakır

		Cultural Landscape Area Included	Cultural Landscape Area Excluded
Functional green space	(m ²)	2,127,419.70	1,026,369.70
	(ha)	212.74	102.63
Proportion of functional green spaces to the settlement area (%)		2.69	1.29
Functional green space per capita (m ²)		37.75	18.22
Number of functional green spaces		21	19

When the presence of public parks in the district of Sur is taken into account, the proportion of such areas relative to the overall urban land is 1.18%. The ratio of existing public parks outside the historical cultural landscape is 1.10% (Table 7). Public parks which are considered as urban green spaces were typically constructed as part of the city's makeover of the protected zone.

Table 7

Data of Public Parks in Sur, Diyarbakır

		Cultural Landscape Area Included	Cultural Landscape Area Excluded
Public park	(m ²)	937,542.70	872,092.70
	(ha)	93.75	87.20
Ratio of public parks to residential areas (%)		1.18	1.10
Public park per capita (m ²)		16.64	15.47

A total of 20 neighborhoods were studied in the district of Sur. Of these neighborhoods, only 10 have public parks (Table 8) The parks are distributed in different areas of the city, depending on their function and location. Urban-scale parks covering areas over 5000 m² are the majority. When looking at the distribution of parks:

- In recreation areas organized parallel to the Tigris Valley,
- Around the walls, in the protection band, in strips,
- In the buffer zone along the Tigris valley and
- It is seen that there are parcel arrangements in the conservation area that include urban transformation practices.

These park areas contain children's playgrounds and walking paths. When analysed from a neighborhood scale, these parks were seen as unevenly distributed. There are large differences in the amount of park areas per person. One neighborhood is home to four public parks, three neighborhoods each contain two public parks, and six neighborhoods each feature a single public park (Table 8). These public parks include children's playgrounds and walking paths. At the neighborhood level, it is evident that public parks are not evenly distributed, and there are large differences in the amount of park space per capita. In the district of Sur, 10 out of 20 central neighborhoods have zero park space per capita. Meanwhile, three neighborhoods boast of more than 35 square meters of park space per capita. The park space per capita is between 10–15 m² in four neighborhoods, and between 1–3 m² in three neighborhoods (Table 8). In the Cevatpaşa and Fatihpaşa neighborhoods, the ratio of park space per capita has seen a notable increase, owing to the presence of cultural landscape areas. The impact of urban transformation efforts is particularly noticeable in neighborhoods adjacent to the city walls, most notably in Hasırlı and Fatihpaşa.

Table 8

Public Parks in Sur

Neighborhoods	Number of Public Parks Identified	Public Park Area (m ²)	Public Park Area per Capita (m ²)
Nebi Mosque	1	3514.28	1.15
Cevatpaşa	1	154,877.00	66.30

Bağıvar (Dicle)	1	322,800.00	36.93
Fatihpaşa	2	29,212.00	15.99
Hasırlı	1	24,500.00	12.23
İskenderpaşa	2	16,514.70	3.08
Lalebey	1	18,450.00	11.11
Melikahmet	2	49,357.24	10.02
Yukarıkılıçtaşı	1	3500.00	1.86

Discussion and Results

While World Heritage cultural landscapes do not constitute a distinct classification, they are esteemed as the pinnacle of the “hierarchical scale” in terms of their heritage importance (Aplin 2007). Therefore, it is important to protect the cultural landscape with sustainable approaches. Correct strategies must be developed for conservation plans to be sustainable. Local communities, government institutions, non-governmental organizations, interest groups, experts and professionals, and the public are identified as key participants in the planning of cultural landscapes; However, it is emphasized that the official administration is in the most effective position (Selman, 2007). Institutions have a great role in the decisions taken in the Diyarbakır cultural landscape area and nearby environmental regulations. Contributions of Diyarbakır heritage sites such as their symbolic value, memory feature, experience, cultural values, tourism potential and visual landscape come to the fore. In addition, digitizing the contribution to the city can be used as data in corporate planning decisions.

Diyarbakır Fortress and Hevsel Gardens Cultural Landscape Area; It is classified as a cultural landscape area created by human hands, with its cultural and historical qualities. The discourse of tourism development in this area is emphasized in management plans and studies. However, it is important to plan tourism in the long term according to rational goals. Landorf (2009) evaluated six different industrial cultural landscape areas in England for sustainable tourism management: Blaenavon, Cornwall and West Devon Mining Landscape, Derwent Valley Factories, Ironbridge Canyon, New Lanark and Saltaire. In his study where he conducted qualitative content analysis; It addresses the relationship between heritage tourism and sustainable development. In order to reduce tourism impacts and make the importance of the area sustainable, it emphasizes its two basic principles as a long-term and holistic planning process and multi-stakeholder participation in this planning process.

Integrating sustainability principles into planning processes; It explains the analysis of the current environmental, social and economic situation, the establishment of long-term goals and planning for strategic orientation, the active participation of stakeholders, the determination and monitoring of performance criteria, and the creation of training and awareness.

Landscape structure in heritage areas is an important part of the identity of universal values. Shamsuddin et al. (2012) in his study evaluating the Factors Affecting the Character of the Urban Landscape through the George Town, Penang Unesco World Heritage Site; It states that high-rise construction threatens the heritage value. It explains that landscape character is a part of the identity of the area through landscape components. In George Town, known for its Penega Tree, Padang Kota Lama and Esplanade historical open areas; He states that activities such as sports and gatherings and that recreation areas increase the attractiveness. Gardens are the most important element of identity in the cultural landscape of Diyarbakır. The uninterrupted use of these gardens throughout the historical process and the production styles, tools and products depending on this use constitute the identity of cultural values. For this reason, it is important to preserve the historical landscape identity and revitalize the elements that are about to disappear. When the products to be produced with traditional production and use methods are presented in the green areas where they are built and will be built, the bond between modern and traditional will strengthen and add value to the heritage. At the same time, that will make a positive contribution to the city in terms of the green space needs of the local people.

For green space needs, a standard of 10 m² of open and green space per person is recommended in Turkey (URL 4). Özdede et al. (2021) suggest that this standard is lower than developed countries and that they recommend an area of 54 m² in the model they developed for green areas, the importance of which is understood in pandemic conditions. The findings made in Sur district show that it complies with the legislation in force and is close to the amount of green space suggested by Özdede et al 2021.

As a matter of fact, in Demir Kayan and Biçen's scholarly article, "An Evaluation of the Adequacy of Functional Outdoor Green Spaces in Diyarbakır City Center", a comprehensive assessment was conducted on three central districts of Diyarbakır: Kayapınar, Yenişehir, and Bağlar. In this assessment, the per capita availability of green space was quantitatively measured for each district, based on its population. The figures revealed a per capita green space of 4.67 square meters for Yenişehir, 3.21 square meters for Bağlar, and

2.88 square meters for Kayapınar. In another part of the study, a total of 116 public parks were scrutinized. The resulting data indicated per capita park space allocations of 3.30 square meters for Yenişehir, 2.05 square meters for Bağlar, and 2.32 square meters for Kayapınar (Demir Kayan & Bıçen,2023). According to this present study, the district of Sur boasts a per capita green space allocation of 37.75 square meters, the highest in the city. Remarkably, this figure is at least eight times greater than those observed in the other evaluated districts. Similarly, although there are only 16 public parks, the amount of park space per capita is 16.64 m². This represents the pinnacle of green space allocation within the city, a figure that is at least six times higher than those noted for the other districts.

On the other hand, Green areas built after 2016 in the cultural landscape area are contrary to the organic street texture of the historical city. These spatial arrangements made within the scope of urban transformation numerically increase the amount of green areas/parks per capita. However, the urban transformation has damaged the historical texture and has no qualitative harmony. Dinçer (2016), criticizes the rapid implementation of the expropriation process and joint stakeholder participation in the study. "The recovery process of the city points to a difficult, laborious and long road that has no examples in the world yet, due to its many uncertainties and unknowns. Perhaps it should be reminded here at the right time; UNESCO states that "in order for a world heritage to be well managed, all stakeholders must consider its value and protection." It tries to spread the principle of "one must have a common perspective on the subject" (17)" (Dinçer, 2016).

Diyarbakır Fortress and Hevsel Gardens are an example of where cultural landscape and urban green areas come together. Such areas meet the needs of modern cities while preserving historical and cultural richness. The preservation and sustainability of this heritage highlights the importance of urban green spaces for future generations. The conservation efforts that started in the 1990s for Diyarbakır's historical urban conservation and continued throughout the process, as well as the preparation of the candidacy file for its inclusion in the World Heritage List, contributed to increasing awareness.

In a more expansive perspective, Diyarbakır Fortress and Hevsel Gardens, located in a delineated cultural landscape zone and listed on the World Heritage roster, have amplified the area's tourism potential by fostering heightened awareness and appreciation of the region's cultural and natural significance. It is evident that the cultural landscape area substantially contributes to augmenting the district's green space inventory.

The significant contribution of the cultural landscape area has served as a catalyst, inspiring the strategic organization of green spaces along the city walls and buffer zone of Tigris valley. Subsequently, green space enhancements have been executed within the historical conservation area surroundings (Tigris valley and outside the city walls), further enriching the urban greenery. Furthermore, urban transformation initiatives have also played a role in the augmentation of the quantitative increase green spaces. However, within the scope of urban transformation, the newly built green areas in Suriçi neighborhoods are completely opposite to the historical urban texture. This situation damaged the historical texture of Suriçi.

While the extent of green spaces remains below the benchmarks set by some more developed nations, there has been a discernible narrowing of this gap. When we take people's movements into account, it becomes evident that residents from 15 neighborhoods within the Suriçi settlement have the opportunity to benefit from these public parks, regardless of whether their specific neighborhoods boast green spaces of their own. The neighborhoods that have the most improved access to functional green spaces and public parks, particularly due to enhancements in the protected area and buffer zone, are the Cevatpaşa, Alipaşa, Fatihpaşa, Kıtılbıl (Fetih and Yiğitçavuş), and Hasırlı neighborhoods.

In the study, the value of 37.75 m² per capita of urban green areas shows that the cultural landscape area (Hevsel Gardens) makes a significant contribution to the green area presence of the district. In the buffer zone (Suriçi historical city texture), with their promising tourism potential, incorporating more functional green spaces in the areas frequented by visitors will offer a refreshing and healthy solution to sustainable urban and cultural landscape planning.

Recommendations

Cultural landscape areas make a quantifiable contribution to the inventory of functional green spaces and public parks within the residential zones they encompass. Nonetheless, the following recommendation is put forth to enhance the qualitative aspects of potential cultural landscape areas.

Arrangements within the demarcated buffer zones intended for conservation areas should include recreational landscapes and public parks. The qualities of these areas may be enhanced through the strategic exploitation of the inherent dynamics present within the cultural landscape. It is widely understood that functional green spaces, which we have come

to appreciate even more after the pandemic, benefit society by creating a healthier environment. In these regions, with their promising tourism potential, incorporating more functional green spaces in the areas frequented by visitors will offer a refreshing and healthy pathway.

The following suggestions give an overview of possible action plans in buffer zone (not the Suriçi historical city texture):

- Although Hevsel Gardens is a protected area, it is used by individuals for agricultural activities and entrances are limited. For this reason, organizing local product promotion days and special fair areas in the buffer zones,

- In buffer zones; Increasing agricultural activities and encouraging and encouraging traditional forms of production,

- Creating areas for wild pigeon (Boran) and/or other bird watching,

- Contributions can be made to the brand value and identity of the city by carrying out activities such as organizing festivals along the Tigris River.

- The Tigris River, one of the most important water resources of Mesopotamia, is in the buffer zone of the landscape area. The natural structure of this important river; Dams are constantly deteriorating due to material removal from the river bed (Halifeoğlu et al. 2009), environmental pollution (Halifeoğlu et al. 2009) and exposure to human interventions. Bringing the importance of the Tigris River to the agenda, raising awareness, taking responsibility and carrying out effective work to reduce degradation can contribute to the protection of the heritage area and the more effective use of green areas.

- It is recommended to increase the regulations in buffer zones that reflect the unity of traditional and modern elements with sustainable approaches that are compatible with ecological balance.

Basing sustainability principles on planning in the protection of this area will bring success in achieving more rational goals.

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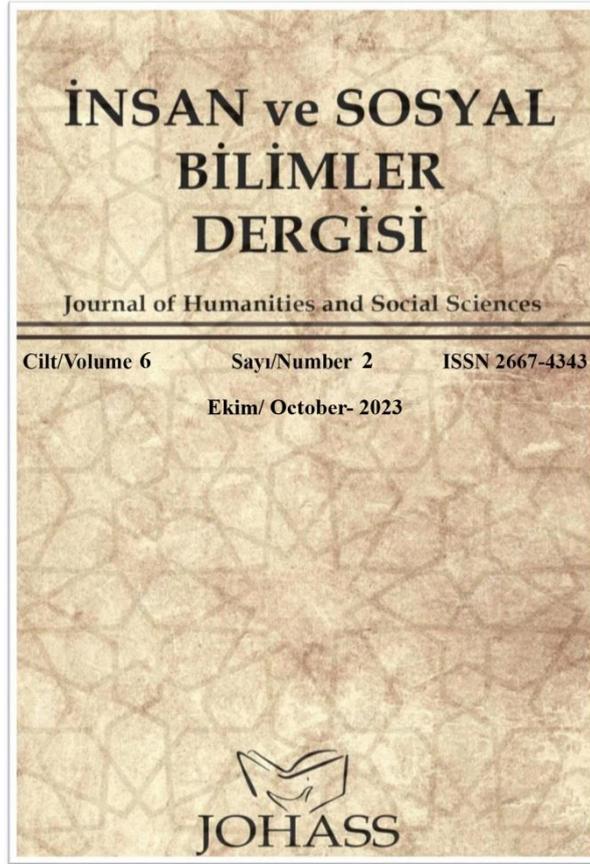
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**A Review of Achievement Test Development in Türkiye Regarding the
Achievement Test Development Process**

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A Review of Achievement Test Development in Türkiye Regarding the Achievement Test Development Process

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Abstract

The purpose of this research is to determine to what extent the articles titled achievement test development, published between 2020-2023, meet the steps that should be followed during the achievement test development process. The research is a document review study within the scope of qualitative research. In determining the studies to be included in the research, consideration was given to the fact that the aim and title of the research included '...developing an achievement test', that the full text of the article was accessible, and that the research language was Turkish, and a total of 40 articles were included in the research. In the study, a coding list was created and used by the researcher, based on Turgut and Baykul's (2012) achievement test development steps. Data analysis of the research was carried out using the categorical analysis method, one of the types of content analysis. In the articles examined within the scope of the research, it is seen that there are deficiencies in almost all stages of the achievement test development process, starting from presenting the test plan based on the test plan to including the items to be included in the final test form. In line with the research results, it may be suggested that the achievement test development steps in the literature be taken into consideration in studies.

Keywords: Achievement test, achievement test development steps, document review

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Introduction

To establish an effective education system, it is imperative to assess the efficacy of educational policies and curricula, the capabilities of the educators responsible for instruction, and the identification of potential challenges within the educational process. Among these factors, student achievement stands out as one of the most critical indicators for evaluating the functionality of the education system. Tests designed to gauge student achievement serve as the foundation for decisions related to teaching, guidance, administration, and research. In light of the significance of achievement tests in education, it is crucial to engage in a comprehensive discussion concerning their classifications, attributes, and the steps involved in their development

Various definitions emerge when delving into the literature on achievement tests, although they share common elements. These definitions encompass measurement tools specifically designed to assess the general knowledge acquired at school and in life (Heckman & Kautz, 2012). They consist of a series of questions aimed at evaluating an individual's learning outcomes after exposure to educational experiences (Anderson, 1972). Additionally, they measure the knowledge or skills acquired throughout a student's educational process (Popham, 2008). Some refer to them as maximum performance tests, focusing on identifying what an individual has learned (Thorndike & Thorndike-Christ, 2013), while others view them as tools to gauge the attainment of educational objectives and desired behaviors (Turgut & Baykul, 2012). However, it is also seen that there are different classifications of achievement tests and different names (standard, standard-based, national scale standard, commercial, international scale standard, criterion-based, norm-based, teacher-made achievement tests, and aptitude tests (Airasian, 2001; Brookhart & Nitko, 2019; Popham, 2008) in the literature. These classifications are based on what the test is intended to measure and whether it has the distinctive features of standardized tests. Since it is not the subject of this study, comprehensive information is not provided. However, detailed insights into standardized tests and their characteristics can be found in Koç's (1985) study.

In the creation of achievement tests, various item types with their distinct advantages and disadvantages are employed (multiple-choice, open-ended, short-answer, true-false, etc.). Among these item types, the most commonly used is the multiple-choice item due to its advantages (Fellenz, 2004; Saadat et al., 2021; Anderson, 2003; Aydın, 2018; Chatterji, 2003; Cheung, 2003; Haladayna, 2004; Kline; 2000; Kubiszyn & Borich, 1996; Miller et al., 2012;

Singh & Rosengrant, 2003; Özçelik, 2010). In order for an achievement test to be considered good, it is expected to have reliability, validity, and usefulness. These characteristics can only be achieved by following a certain systematic process during the development of an achievement test. The process referred to as the development of achievement tests, although containing similar points in the literature, has been divided into and labeled as stages in different ways by various researchers (Crocker & Algina, 1986; Haladyna, 1997; Irwing & Hughes, 2018; Lane et al., 2015; Porter, 2002; Turgut & Baykul, 2012; Webb, 1997). One of the most frequently used achievement test development processes in the literature belongs to Webb (1997) and the test development process consists of four criteria. The first criterion is the categorical concurrence criterion, which provides information about the extent to which the items in the test cover the objectives. In this criterion, items and objectives are matched by experts, and the percentage of concordance is examined. The second criterion is depth of knowledge consistency. In this criterion, what is expected from the students in the context of the objectives is revealed and items are developed. The percentages of concordance between the objectives and items are determined. In the third criterion, range of knowledge correspondence, it is necessary to determine the concordance between the behavior that students should have with the objectives and the behavior tested in the items. The last criterion, balance of representation, examines the distribution of items to objectives by calculating the balance index. Another one belongs to Turgut and Baykul (2012), and they have expressed these steps as follows: determining the purpose of the test, and consequently, the objectives for which the test scores will be used; listing the learning outcomes to be measured in the test (e.g., objectives); defining the subject area to be covered by the test; creating a specification table; linking the item type and items to the learning outcomes and the underlying taxonomy; determining the number of items and the duration; specifying and implementing the method to be followed in drafting and editing items and item selection; determining and implementing methods for test construction, replication, administration, and scoring.

The quality of the scores obtained from achievement tests can control efforts to improve education, guide instruction (Kimberlin & Winterstein, 2008), and strengthen decisions made about individuals. The development of achievement tests has been extensively studied by different researchers in different fields and age groups in the literature. These include science (Açıkgöz & Karşlı, 2015; Akbulut & Çepni, 2013; Ayvacı & Durmuş, 2016; Bolat & Karamustafaoğlu, 2019; Armağan & Demir, 2019; Güven, 2013; Saraç, 2018; Şen &

Eryılmaz, 2011), mathematics (Akkuş & Akkaş, 2021; Ersoy & Bayraktar, 2018; Karaboğaz & Ergene, 2023; Narlı & Başer, 2008; Şahin et al., 2023). Achievement tests, which are so frequently studied and are very important in the educational decisions made, and the steps followed regarding the development processes and how they are reported are considered very important. There are some studies in the literature in which achievement test development processes are examined. In his study, Karadağ (2011) examined a total of 77 theses used in doctoral dissertations in educational sciences between 2003-2007 by taking into account the achievement test development processes. He evaluated these tools as having low quality for reasons such as not determining reliability and validity in achievement tests and not including information on how to score the test. Mutluer and Yandı (2012) examined 50 undergraduate theses published between 2010 and 2012 within the scope of educational sciences institutes and determined the theses that acted in accordance with the test development steps and those that did not. Boyraz (2018) examined the multiple-choice achievement tests used in doctoral dissertations developed within the scope of the Department of Elementary Education between 2012-2017. In this study, which deals with the achievement test development process holistically, it was concluded that the achievement tests used in the theses did not meet the desired quality standards. Şahin et al. (2023) examined a total of 39 achievement test development articles published in the journals they identified between 2015 and 2020 in the field of mathematics. In the majority of the articles, it was determined that the item pool was not prepared, pilot application was not carried out, item analysis was omitted, sample items were absent, and there were certain deficiencies in terms of validity. Considering these studies, it is important to examine the current situation regarding achievement test development studies without any field restriction. This study was conducted to discuss the achievement test development process in order to set an example for both researchers and practitioners. Therefore, the aim of the study is to determine to what extent the articles published between 2020-2023 with the title of achievement test development meet the steps to be followed during the achievement test development process.

Method

Model

This research examines the studies that develop achievement tests by taking into account the points to be considered when developing achievement tests. In this respect, the

research is a document review study within the scope of qualitative research. Document analysis involves the process of collecting data by examining existing records or documents (Yıldırım & Şimşek, 2013).

Documents

The aim of the research is to examine the studies in the national literature between 2020-2023, which can be accessed online. "When selecting studies to be included in the scope of this research, we considered whether the research had the purpose and title of '...developing an achievement test,' whether the full article text was accessible, and whether the research was conducted in the Turkish language. Studies that did not meet these criteria and thesis studies were not included in the study. A total of 40 articles were accessed and included in the study. Information about the studies included in the research is presented in Table 1.

Tablo 1

Distribution of articles in Research according to Some Variables

Variables	f	%	
Year	2020	19	47.5
	2021	10	25
	2022	8	20
	2023	3	7.5
Test Developed Area	Science (primary education level)	3	7.5
	Life Science	1	2.5
	Maths	2	5
	Science	24	60
	Turkish	1	2.5
	Biology	1	2.5
	T.R. The History of Revolution	1	2.5
	Nursing	1	2.5
	Digital Citizenship	1	2.5
	Informatics	1	2.5
	Early Literacy	1	2.5
	Basic Laboratory	1	2.5
	International Passenger Transportation	1	2.5
	Measurement and Evaluation Techniques	1	2.5
Grade Level	3rd Class	1	2.5
	4th grade	3	7.5
	5th grade	4	10
	6th grade	8	20
	7th grade	9	22.5
	8th grade	7	17.5
	11th grade	1	2.5
	Undergraduate	5	12.5
	Adult	1	2.5
	Teachers	1	2.5

Considering Table 1, it can be stated that the studies included in the research were published in 2020 at most and in 2023 at least, and that most of them were carried out in the field of science and secondary school grade levels.

Data Collection Tools

Upon reviewing the literature, it becomes evident that, despite the considerable similarity in the achievement test development process, various researchers have delineated its steps in different manners (Crocker & Algina, 1986; Haladyna, 1997; Irwing & Hughes, 2018; Lane et al., 2015; Porter, 2002; Turgut & Baykul, 2012; Webb, 1997). For this study, we relied on the achievement test development steps outlined by Turgut and Baykul (2012) because the steps were understandable and clear and access to the source was easy. To facilitate the examination of the selected articles, we devised a coding list centered on the research's objectives, the steps involved in test development, and considerations throughout the test development process. This coding list was presented to five field experts who completed their doctorate in the field of measurement and evaluation and their feedback was received. In line with this feedback, the list was revised and finalized. In the coding list, firstly, preliminary information about the articles was presented. Then, 36 items with statements graded as yes, partially and no were included.

Collection of Data and Analysis

The data analysis of the research conducted within the scope of qualitative research was carried out by using the categorical analysis method, which is one of the types of content analysis. Categorical analysis can be defined as dividing the subject or situation under investigation into units and grouping each unit into categories according to certain criteria (Mayring, 2004). There are two different ways of conducting categorical analysis: the Theoretical Categorization Process and the Applied Categorization Process. In the process of Theoretical Category Formation, categories can be determined initially as there is a much clearer theoretical foundation to start from. In the process of Applied Category Formation categories can be created as the relevant materials begin to be examined. If needed in the course of research, both approaches can be used simultaneously (Tavşancıl & Aslan, 2001). In this study, since the theoretical basis for the achievement test development process was relatively clear, the theoretical categorization process was employed. The coding process was

carried out by the researcher using a coding list and Microsoft Office Excel 2016 software. Then, frequency values were obtained for each item in the list according to the coding.

The reliability of the data obtained in the context of the categorical analysis method depends especially on the coding process. Ratings of categories, whether the researcher conducts coding at two different times or if the codings remain consistent across different researchers, provide reliability as an indicator of objectivity (Tavşancıl & Aslan, 2001). All articles within the scope of the research were examined by the researcher. Moreover, ten randomly selected articles were asked to be coded by a field expert who completed his/her doctorate in the field of measurement and evaluation in line with the coding list and the agreement between these two researchers was examined. As evidence of reliability in categorical analysis studies, the percentage of agreement between the researchers was calculated using the formula developed by Miles and Huberman (1994) (Reliability= number of agreement / (number of agreement + number of disagreement)). The reliability coefficient calculated based on this formula was found to be 0.91, which is considered as a high level (Cohen & Swerdlik, 2010). It can be stated that this value serves as evidence of the high reliability of the data obtained from the study. In addition, all documents examined within the scope of the research are included in the bibliography to contribute to the reliability of the research (Yin, 2014).

Findings

In the study, 40 articles aiming to develop an achievement test were analyzed in line with the coding list developed by the researcher. The findings obtained in the context of the headings in the coding list are given in the tables below. First of all, Table 2 shows the distribution of the data obtained to determine the purpose of the test.

Table 2

Frequency Values About Purpose of The Test

	Yes		Partial		No/NI	
	f	%	f	%	f	%
Test plan has been created.	18	45	6	15	16	40
The purpose of the test is clearly set out.	26	65	11	27.5	3	7.5
Information about the target audience for the test has	34	85	6	15		

been provided.

When considering Table 2, the initial examination focused on whether a test plan, which is not a formal step in the achievement test development process but provides guidance on systematic progression within this process, had been established. It is seen that 18 of the articles created a test plan and developed the achievement test in line with this plan. In six of the articles, the word test plan or achievement test development process was used, but these steps were not clearly and explicitly stated. Furthermore, 16 articles did not include a test plan or the steps of the achievement test development process. When examining whether the purpose of the test, regarded as the initial phase of achievement test development, is explicitly stated, it is possible to say that 26 of the articles have successfully implemented this stage. However, in 11 articles, it can be stated that the purpose was not clearly explained and the purpose of the achievement test was considered as the purpose of the article. It was evaluated as partial on the grounds that the purpose of the article did not fully meet the purpose of developing an achievement test. Determining which audience the developed test will serve is one of the important steps for the achievement test. In 34 of the articles, this step was present but it was not articulated clearly. Instead, it was evaluated as partial since the relevant information was extracted from the details provided under the research study group's title. Table 3 below shows the frequencies of the learning products to be tested with the items in the test and the characteristics of the test.

Table 3

Frequency Values for The Characteristics of Learning Products and Achievement Test

	Yes		Partial		No/NI	
	f	%	f	%	f	%
All learning products are included.	33	82.5	4	10	3	7.5
The subject area in which the learning products are located is indicated.	33	82.5			7	17.5
The unit area in which the learning products are located is indicated.	30	75			10	25
A taxonomy was used as a basis for classifying learning products.	25	62.5	3	7.5	12	30
The number of items is included.	40	100				
The duration of the test is indicated.	14	35			26	65
The types of items used are indicated.	39	97.5	1	2.5		
The number of options is given.	26	65			14	35

Any achievement test is designed to measure specific learning products within a specific unit or subject area. Therefore, it is important to present this scope in a clear and understandable way in the achievement test development process. In this context, when it is examined whether the articles included all of the learning products that they aimed to measure, it can be stated that 33 of the articles did so. It is seen that four of the articles only defined the general scope of the relevant learning products but did not include what this scope includes, and three of them did not provide sufficient and comprehensible information by pointing to the number of learning products, grade level or the area in which the test was developed. Article 18, which was evaluated as no in this item, gave information as follows: '...related to the subject, the needs were determined by literature review, opinions from experts and students who conducted academic studies, and 23 outcomes emerged.' The article contained no additional information beyond this. According to Table 3, it can be stated that most of the articles contain information about the subject area and units in which these learning products are included. In the classification of learning products, 25 of the articles are based on a classification, with Bloom's classification being the most commonly used, while Haladayna's classification is used to a lesser extent (5). While 12 of the articles did not mention any classification at all, one of the articles mentioned the underlying classification in the introduction but did not include any information in the other sections where achievement test development was explained. In two articles, the steps of the underlying classification were included in the specification sheet, but no other information was provided. Therefore, these three articles were categorized as partial. All articles included the number of items in the final test, but the test duration was featured in 14 articles and omitted in 26. The type of item to be used in the achievement test was only mentioned in the introduction of one article and was evaluated as partial on the grounds that it was understood from this information what the type of item in the test was. However, it is seen that multiple-choice test items are used in all achievement tests. Information on how many answer options multiple-choice items have was included in 26 articles, while 14 articles did not provide this information. Information and frequency values related to content validity and creation of the item pool are presented in Table 4.

Table 4

Frequency Values for Content Validity and Item Pooling

	Yes		Partial		No/NI	
	f	%	f	%	f	%
Specification table was prepared.	30	75	3	7.5	7	17.5
Expert opinion was taken for the prepared specification table.	18	45			22	55
An item pool was created in line with the specification table.	30	75			10	25
The rules taken into consideration while writing the trial items were included.	6	15	8	20	26	65
Expert opinion was taken for the written items.	38	95			2	5
Any statistical analysis was used to determine content validity.	8	20			32	80
Face validity was given.	14	35			26	65

It is possible to say that specification tables have a very important role in achievement tests, especially to ensure content validity. When examining whether the specification table was prepared in the achievement tests, it was determined that the specification table was included in 30 of them, while it was not provided in seven of them. In three articles, it was found that the information that the table of specifications was prepared was given but this table was not included. While expert opinion was taken in 18 articles for the tables of specifications prepared, it was determined that expert opinion was not taken in 22 articles. The specification table prepared in the writing stage of the items to be included in the trial form of the achievement test is taken as a basis. When Table 4 is taken into consideration and in parallel with the item "a specification table was created", 30 of the articles acted in this direction, while 10 of the articles did not include any information or explanation. Various writing rules should be taken into consideration in the context of the type of item used in the writing phase of the items to be included in the trial test form. Since multiple-choice items were used in all of the articles examined within the scope of this study, there are rules to be considered in the writing of this item type in the literature (Haladyna & Downing, 1989; Haladyna et al., 2002; Gronlund & Waugh, 2009; Nitko & Brookhart, 2011; Turgut & Baykul, 2012). It was found that only six of the articles included information about these rules and that these rules were taken into consideration, while in 26 articles only the items were written without any information. In addition, eight articles provided information that source books (e.g. textbooks of the Ministry of National Education, etc.) that can be considered valid in the subject areas of the articles were examined. Therefore, these eight articles were categorized as partial. When it was examined whether the opinions of field experts were taken regarding the appropriateness of the items, it was seen that expert opinions were not taken in only two of the articles. In addition to the specification tables, the analysis of techniques based on expert opinions can also be used to determine content validity. Eight of the articles employed the

analysis of different techniques based on expert opinions (Davis Technique (2), Kendal W Fit (1), Lawshe Technique (5)), while 32 of the articles did not utilize any statistical analysis. Furthermore, 14 of the articles took an expert opinion on face validity and reported the findings obtained, while 26 of the articles did not perform this process. The frequency values regarding the creation and implementation of the trial test form are given in Table 5.

Table 5

Frequency Values Related to the Creation and Implementation of The Trial Test For

	Yes		Partial		No/NI	
	f	%	f	%	f	%
Information about the test instructions was given.	9	22.5			31	77.5
Information was given about the criteria considered in item ordering.	1	97.5			39	2.5
The formal features of the test form were mentioned.	4	10	2	5	34	85
The characteristics of the group to which the trial test form will be applied are described.	19	47.5	11	27.5	10	25

After the writing stage of the items to be included in the trial test form, the stages of creating the form in which these items will be included and the realization of the pilot application follow. Information on this stage is given in Table 5. First of all, when it is analyzed whether information about the test instructions was given or not, it can be stated that only nine of the articles included this information, while 31 of them did not include any information. While information about the formal features during the preparation of the trial test form was included in four articles, no information was given in 34 articles. However, in two articles, the statement stating that “it was only formally organized” was used and no additional explanation was given. Therefore, these articles were evaluated as partial. For example, in article 39, the following expressions are stated: ‘... Creating the first draft form: The candidate achievement test, which was reorganized after the expert opinions, was formally organized and made ready for use by adding the instruction including the purpose and application method of the test.’ While the characteristics of the group to which the trial test form will be applied were included in 19 articles, they were not included in 10 articles. In 11 of the articles, it was seen that limited information about the group in which the application would be made was included under the title of study group and therefore it was evaluated as partial. Frequency values for item and test statistics are given in Table 6.

Table 6

Frequency Values for Item and Test Statistics

	Yes		Partial		No/NI	
	f	%	f	%	f	%
Item difficulty index is included.	39	97.5	1	2.5		
Average item difficulty is given.	25	62.5			15	37.5
Item discrimination index is given.	39	97.5			1	2.5
Average item discrimination is given.	24	60			16	40
Item standard deviation is given.	9	22.5	1	2.5	30	75
Item reliability index is given.	8	20			32	80
Option analysis was performed.	2	5			38	95
Information on item-total correlation was given.	7	17.5			33	82.5
The difference in the scores of the upper and lower groups was obtained by t-test.	11	27.5			29	72.5
The mean of the test is reported.	23	57.5			17	42.5
The standard deviation of the test is included.	20	50			20	50
The reliability of the test was reported.	37	92.5			3	7.5
A statistical package program was used to calculate item and test statistics.	23	57.5			17	42.5
Information about the items to be included in the test was given.	25	62.5	9	22.5	6	15

The item and test statistics calculated from the data collected after the pilot application are highly valuable for guiding the selection of items to be included in the subsequent development of the achievement test. Information on the level of these statistics in the analyzed articles is given in Table 6. First of all, when item difficulty and discrimination indices are examined, it is seen that these indices are calculated and information is given in 39 out of 40 articles. While there is one article that does not include item discrimination indices, one article states that item difficulty indices are calculated but does not provide information about these indices, and is evaluated in the partial category. Another statistic that provides information about the quality of the items is the item standard deviation. While 30 of the articles did not report item standard deviation, nine of them included this value. The 30th-ranked article was evaluated as partial. Similar to the information on the item standard deviation, eight articles reported the item reliability index, while 32 articles did not provide any information. In multiple-choice items, the distribution of responses to options is very important in terms of the quality of the item. Therefore, performing option analysis in the process of developing an achievement test is one of the factors that increase the quality of the item and the test. Option analysis was conducted in only two of the articles, while it was not carried out in 38 articles. Item-total correlations, which provide information about the relationship between the scores obtained from the items in the test and the total score obtained from the entire test and provide information about whether the items sample similar behaviors

(Büyüköztürk, 2011), were calculated and reported in seven articles, while these values were not reported in 33 articles. Another indicator of the discrimination of the items is the difference between the item scores of the individuals in the lower and upper groups examined by independent samples t-test. While 11 of the articles calculated this statistic, 29 did not include it. The mean and standard deviation of the test also provide information about the scores obtained from the test and the group to which the test was applied. While 23 of the articles included the mean of the test, 17 did not include it, and half of the articles reported the standard deviation of the test. The number of articles reporting the findings on the reliability of the achievement tests is 37. There were three articles that did not share any values regarding the reliability of the test. 23 articles used various statistical package programs (TAP, SPSS, ITEMAN) to calculate item and test statistics, while 17 did not report anything, so it was assumed that they were manually calculated. Finally, after the item and test statistics were performed, it was examined whether information about the items to be included in the test and their properties was provided. While 25 of the articles included this information, six did not provide any information. Nine articles in which the total number of items to be included in the test and the sequence numbers of the items were reported but the items were not specified or not shared in the appendix were evaluated in the partial category.

Discussion and Results

In order to decide whether the new behaviors desired to be acquired through education have been learned at the expected level, these behaviors should be measured with measurement tools with sufficiently high validity and reliability (Kutlu & Altıntaş, 2021). One of the most frequently used measurement tools in education is achievement tests. In this study, a total of 40 articles that aim to develop achievement tests and whose titles include achievement test development were examined based on Turgut and Baykul (2012)'s achievement test development steps. The findings obtained in the study were discussed within the scope of the coding list developed by the researcher in line with expert opinions.

Having certain steps and systematics in the achievement test development process is important in terms of the quality of the test to be developed. In addition, the achievement test development process consists of planning, preparation, implementation, and reporting stages (Gömleksiz & Erkan, 2010). Therefore, it is important to have a plan for a qualified achievement test. It is thought that the absence of an achievement test development plan in

most of the articles analyzed may pose a problem both in terms of the achievement test developed and scientific reporting. The first step in test development is to determine the purpose for which the test scores will be used. Since decisions are made in line with the scores obtained from the tests and the decisions taken in education vary, it is necessary to determine the purpose in the process (Atilgan et al., 2015). In line with the findings, it can be said that the purpose of the test was clearly stated. However, the fact that the purpose of the test was confused with the purpose of the research in 11 articles, the purpose of the test was not specified, and it was not clear for what purpose the obtained scores would be used can lead to the result that the researchers did not understand this step.

Once the purpose of the test has been determined, the scope that will serve this purpose needs to be defined. The scope of the test refers to the learning products that will be tested by the items in the test. These learning products should be identified by counting them one by one and should be specified in the subjects or units in which the learning products are included. Only in this way can it be made clear what will be done while preparing the test and which scope the test will serve (Özçelik, 1997). In this context, it can be stated that in most of the articles examined, the learning products were clearly presented and the subjects and units belonging to them were specified. However, it is noteworthy that although there was a study on achievement test development, there were articles in which this step was not presented. The observation that all studies presented the number of items to be incorporated into the test, with nearly all (97.5%) specifying the item types, is considered as valuable input for achieving the intended goals of the developed tests. On the contrary, it can be asserted that the absence of test duration specification in the majority of studies (65%) and the lack of information on the number of options in some of them (35%) could potentially pose challenges for practitioners tasked with administering the test.

Another step in the achievement test development process is to reveal the distribution of learning products to the items, which gives content validity. Content validity can be defined as the sampling of the scope to be measured by test items (Baykul, 2000; Haynes et al., 1995; Mehrens & Lehmann, 1991). Therefore, content validity should not be ignored for a qualified and valid test (Demirel, 2006; Ebel, 1956; Lissitz & Samuelsen, 2007). For this step, preparing a table of specifications to ensure content validity is very important in achievement tests (Büyüköztürk et al., 2012). It can be concluded that this important step is provided in most of the articles analyzed (75%), but it is ignored in a considerable number (17.5%). The presence of articles (7.5%) that do not explicitly reference the specification table, which offers

crucial information for practitioners using the developed test, is considered a potential hindrance to the test's effectiveness in fulfilling its intended purpose. The submission of the prepared specification table to expert opinion provides information about whether or not the coverage is sampled before item writing and eliminates possible errors at this point (Gronlund, 1977). It was concluded that the majority of the studies (55%) skipped this step. However, the result that most of the articles (75%) wrote the items based on the specification table and almost all of the articles (95%) received expert opinion for the trial items is important in terms of producing a qualified achievement test. Moreover, the multiple-choice items used have certain writing rules that need to be taken into account. For these rules, particularly Haladyna et al., 2002 can be consulted. It is quite striking that in a very small portion of the articles (15%) these rules were taken into consideration, while in a large portion (65%) they were not mentioned at all. The finding that 20% of the articles were based on already written articles or reference books may lead to the conclusion that there may be more vulnerability to errors or incorrect item writing during article item. In addition to the creation of the specification table, various indices based on expert opinion can also be used to determine the content authenticity. The Lawshe (1975) technique, which quantifies the suitability of draft items to the relevant learning products with expert opinions, the Davis (1992) technique, which allows inferences to be made about candidate items by taking the opinions of at least three and at most 20 experts, or Kendall's coefficient of concordance are examples of such techniques. The finding that 20% of the articles utilized these indexes and included additional information may indicate that the use of these techniques is not widespread. The fact that each item is understood in the same way by practitioners and researchers is referred to as face validity (Mehrens & Lehmann, 1991; Nunnally & Bernstein, 1994). In line with the findings, it can be concluded that most of the articles (65%) ignored this type of validity.

It was observed that most of the articles did not include any information about the placement of the items in the trial test form, the features of this form and the piloting process before the pilot application was carried out after the trial item writing, and no information was shared. However, there are studies in the literature that discuss the effects of the location of the items in the test on the performance of individuals based on item response theory (Debeer & Janssen, 2013; Doğan Gül & Çokluk Bökeoğlu, 2018; Qian, 2014; Weirich et al., 2014; Weirich et al., 2017). Omitting this information can be viewed as a shortcoming in the respective articles.

Item analysis, which will be carried out with the pilot study data, is the process that provides information about whether the items measure the characteristics to be measured, and if not, what are the reasons for this and how they can be corrected (De Grutijter & Van der Kamp, 2008; DeVellis, 2006; Allen, 2012). Item analysis allows us to observe item characteristics and improve the quality of the test (Linn, 2011; Livingston, 2011). In order to develop a test consisting of quality items, item statistics are necessary. One of the item statistics calculated to determine the quality of the measurement tool is item difficulty. Item difficulty is defined as the ratio of the number of correct answers given to an item to the number of all respondents. Another item statistic is item discrimination. Item discrimination is the ability of an item to distinguish between individuals with high and low performance on the trait measured by the test (Linn, 2011; Livingston, 2011; Moses, 2017). These two statistics are the most frequently used indices in item analysis. The calculation and reporting of these indices in almost all of the articles (97.5%) can be considered as an important result in order to ensure the quality of the developed test. Item standard deviation and reliability indices are also statistics that provide information about item quality. It was concluded that these indices were not used as frequently as other indices in the articles analyzed. Especially after item difficulty and discrimination indices are determined, a very important component of item analysis is distractor analysis (Thissen et al., 1989). The main purpose of distractor analysis is to identify items in the measurement tool that need to be revised and renewed, to eliminate ineffective distractors and to increase the discriminatory power of multiple-choice items (Haladyna, 2016). With distractor analysis, it will be easier to identify possible errors in the items (Hingorjo & Jaleel, 2012). When the studies were examined, it was found that only 5% of the studies conducted distractor analysis, and it was concluded that this step, which is important for developing a quality achievement test, was skipped or not taken into consideration. Each item in an achievement test is expected to be related to other items. The correlation between each item score and the total score obtained from the whole test gives item-total correlations and these values reveal the relationship between the items and the whole test (Cristobal et al., 2007; Pallant, 2007). A large number of articles (82.5%) did not include these values and therefore, this lack of information about the tests makes it difficult to comment on the quality of the test. Another procedure that shows how well the items discriminate individuals in line with the trait to be measured is the comparison of the 27% lower and upper group averages for each item. It can be stated that the fact that this information was not included in most of the articles analyzed (72.5%) reveals that additional

evidence on discrimination was not presented. In addition to item analysis, the calculation of test statistics also provides important information about the characteristics of the test. Test statistics can also be calculated based on item statistics. Since items constitute the test, test statistics are a function of item statistics. One of the most frequently used of these statistics is the mean of the test and the other is the standard deviation of the test. The fact that half or nearly half of the articles do not include these values may indicate that test statistics may not be seen as a characteristic of the test. Another crucial concept in the test development process is test reliability, seen as an indicator of the extent to which measurement results are free from random errors. The fact that the reliability coefficient was calculated in almost all of the articles (92.5%) is a very important result in terms of revealing the quality of the developed test. While various methods for determining reliability exist in the literature (such as those involving multiple administrations, the test-halving method, etc.), it is noteworthy that the articles primarily relied on single-administration methods. In all but one article, the KR-20 reliability coefficient was calculated, with only one article using the halving test method. This pattern serves as a notable indicator of the prevalent methodological approach in use. For the calculation of item and test statistics, which are relatively difficult to calculate manually, there are different programs in the literature that require (EXCEL, R, etc.) or do not require (ITEMMAN, SPSS, TAP, etc.) formula writing. It was concluded that almost half of the articles (42.5%) used any program. Ultimately, it can be said that the purpose of developing an achievement test is to create a feasible measurement tool. In this context, sharing the items that emerged at the end of the achievement test development process and thus sharing the test is important in terms of serving this purpose. While the final version of the test is expected to be shared in the articles examined, the result that this sharing was realized in 62.5% of the articles can be considered as an indicator of the incomplete part of the studies.

In the articles reviewed as part of this research, it is evident that there are shortcomings at nearly every stage, beginning with the formulation of the test plan following the achievement test development process, all the way to the selection of items for inclusion in the final test form. It can be stated that there are similar problems in the studies examining the achievement test development processes carried out in the literature and that they are in parallel with this result (Boyraz, 2018; Karadağ, 2011; Mutluer & Yandı, 2012; Şahin et al., 2023).

Recommendations

Based on the results obtained, especially when the aim of the research is to develop an achievement test, it can be characterized as a situation that should be meticulously completed in this process. In this context, it can be suggested that the achievement test development steps in the literature should be taken into consideration in the studies. Moreover, it is thought that the development of an achievement test development manual containing detailed explanations as a source of studies or revising the existing ones will also contribute to the literature. Although there are studies conducted to develop achievement tests in different fields, it is seen that more achievement tests have been developed in the fields of mathematics, science, and social studies, especially in science. For this reason, it is expected that conducting similar studies by limiting the field and expanding the years of research will contribute to the literature. Given that item difficulty and discrimination indices are derived from item analyses, and mean and standard deviation are computed from test analyses, while other item and test analyses are typically omitted, one of the recommendations of the study is to develop a freely accessible online platform that offers information and simplifies the calculation of these analyses.

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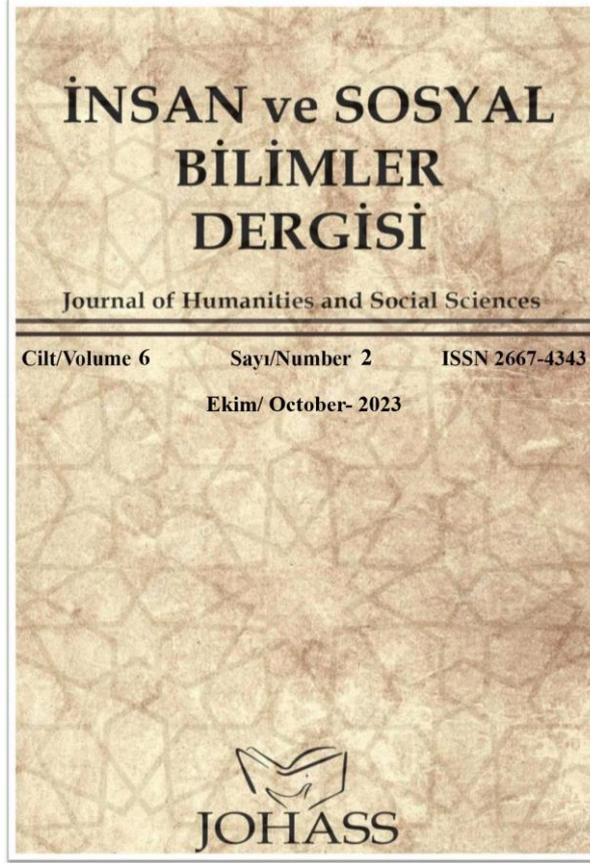
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A Bridge Between Technology and Creativity: Story Writing with Artificial Intelligence

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A Bridge Between Technology and Creativity: Story Writing with Artificial Intelligence

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Abstract

In today's technological environment, it can be said that artificial intelligence (AI) has entered almost every aspect of our lives. It is possible to feel the presence of artificial intelligence from health services to finance, from entertainment to education. One of the most controversial and interesting areas of artificial intelligence is the world of literature. So, how can a machine devoid of emotions and personal experiences navigate the complex and emotionally charged world of storytelling? In this article, the fascinating intersection of artificial intelligence and one of the literary genres, the story, is analysed. It analyses how artificial intelligence perceives the story and what it can bring to this respected literary form. The study examined the data obtained with ChatGPT and Google Bard using the document review method. The data obtained was analyzed with content analysis. As a result of the analysis, it was determined that artificial intelligence has both positive and negative aspects in producing stories. Among the positive aspects, it can be said that he writes an account with a holistic perspective. In addition, it was seen that he produced stories regarding current current events. Its negative aspects are that it lacks human emotions and creativity and creates predictable fiction on standard subjects. As a result, artificial intelligence can produce stories, but considering its shortcomings, it can help writers as a writing aid. However, it can also be said that the development of artificial intelligence algorithms, has the capacity to create more successful stories in the future.

Keywords: Story authorship, artificial creativity, AI co-creativity, creative writing with AI

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Introduction

Artificial intelligence (AI) is a rapidly growing field with a wide range of applications. AI has now become systems that can not only classify but also autonomously generate new data similar to the underlying data (Ghajargar, Bardzell & Lagerkvist, 2022, p. 230). OpenAI's GPT-3 has received press coverage for its ability to produce non-fiction work that is almost indistinguishable from human work (Floridi & Chiriatti, 2020). As a result, interest has increased and work in this area has expanded. Many issues such as boundaries, ethical issues, development possibilities and usage possibilities have attracted the attention of researchers. Looking at the studies; inspiration workshops were designed, time constraints were investigated, ethical principles were investigated, natural language processing models were created to remove the boundaries in creativity. It is possible to frequently come across studies on this subject in the literature. As the design of artificial intelligence technologies has evolved into a human-centred and then nonhuman-centred design approach, new application areas such as creativity have emerged. However, the use of artificial intelligence in a creative process promises more than a tool that supports human creativity. For years, it has been assumed and perceived that AI is a friend or collaborator for humans (Guzdial et al, 2019; Oh et al, 2018). However, AI technologies come with their own limitations, such as lack of transparency and reproduction of what already exists (Abdul et al, 2018). Explainable AI aims to improve the transparency and explainability of an AI system by facilitating forms of dialogue between humans and AI systems (Cawsey, 2003; Liao, Gruen & Miller, 2020). Collaborative creative activities are a form of dialogue between humans and AI. Perhaps one of the earliest models to support this kind of dialogue between humans and computers was Mixed Initiative Methods (Novick & Sutton, 1997). More specifically, as AI technologies have evolved over time, natural language models such as GPT-3 have enabled their use for creative writing and storytelling, redefining their role as collaborators and even creative partners (Branch, Mirowski & Mathewson, 2021). These Technologies have been used for generative literature or to create an "interactive fiction world", allowing humans to see, read and talk to AI using language models (Ammanabrolu, et al. 2020). Examples of facilitating dialogue between humans and artificial intelligence or using similar language models are increasing day by day. ChatGPT, Google Bard, CoAuthor, BLOOM, etc. can be given as examples. One of the most promising areas of AI research is the use of AI to create creative content, such as stories. There are several ways in which AI can be used to create stories.

One is to use AI to create text that is then edited by a human author. Another approach is to use AI to create a story outline that is then elaborated by a human writer. AI has the potential to revolutionise the way stories are written. AI can help writers create more creative, more engaging and more original stories. AI can also help writers save time and effort. However, there are also some challenges associated with using AI to create stories. One challenge is that AI can sometimes produce text that is meaningless or grammatically incorrect. Another challenge is that AI can sometimes produce text that is offensive or harmful. Overall, AI is a powerful tool with the potential to improve the way stories are written. However, before using AI to create stories, it is important to be aware of the challenges associated with using it.

When the international literature was examined, it was seen that many studies were conducted on story writing with artificial intelligence. It can be said that the studies that started with writing stories with artificial intelligence as the topic of these studies have evolved towards artificial intelligence-supported story writing. It can be said that when artificial intelligence is used as a writing assistant, it provides convenience to writers. It can be argued that the development of artificial intelligence algorithms and the active use of natural language processing models are effective in this.

The idea of a computer program that can create parts of a story or the whole story can be considered one of the main reasons that push researchers to work in this field. Looking at the development of the idea of writing stories with artificial intelligence, the first studies in this field were based on classical artificial intelligence algorithms such as symbolic and logical planning and graph traversal to create stories. These algorithms often had some level of user control, such as specifying initial goals and conditions (Klein et al., 1973; Meehan, 1977; Turner, 1993; Dehn, 1981). More recent studies have taken a data-driven approach, drawing on a knowledge base of common sense claims or world facts to improve story coherence (Liu and Singh, 2002; McIntyre and Lapata, 2009). While some recent studies strive to generate entire stories without human intervention (Fan et al., 2018), others have emphasized the importance of designing AI systems that prioritize human involvement in the story-creation process (Riedl and Young, 2006; Roemmele and Gordon, 2015; Swanson et al., 2021; Akoury et al., 2021).

In the literature review, it was seen that there were studies on artificial intelligence-supported story writing in the international literature. This study aimed to draw attention to the issue in the national arena. For this reason, this study was designed with two artificial

intelligence tools, ChatGPT and Google Bard. The study presented an example of the use of artificial intelligence in the field of stories in the national literature. Thus, it aims to increase the number of studies that reconcile artificial intelligence and Turkish literature by giving ideas to the studies of other researchers. Considering the national literature, this study is one of the first studies on story writing with artificial intelligence. With this feature, it fills the gap in the national literature and is a nationally original study. Considering the fact that the entire Turkish literature cannot fit into one article, the study is limited to the story only. Based on this, it can be argued that the study aims to examine the problem of whether artificial intelligence can write stories.

Method

Collection of Data and Analysis

The data of the research was collected using the document analysis technique, which is one of the qualitative data collection methods. Document review involves the analysis of written materials containing information about the phenomenon or phenomena that are targeted to be investigated. Document analysis makes it possible to analyze documents produced within a certain period about a research problem or documents produced by more than one source and at different intervals on a relevant subject, based on a wide period (Yıldırım & Şimşek, 2002, pp. 140-143). Using the content analysis technique, the researcher objectively analyzed the contents of the determined texts, documents, documents, and themes within certain rules. It is a set of methodological tools and techniques that aim to extract meanings from concepts, texts, and verbal or written materials according to predetermined criteria as an objective, systematic, deductive reading tool that investigates social reality. Even though it is seen as weak at the planning stage, it gives effective and interesting results in practice. It is a multifunctional and gradually developing technique that enables the transformation of quantitative into qualitative and the ability to reach unwritten messages based on written text (Tavşancıl & Aslan, 2001, p. 21-22).

ChatGPT and Google Bard artificial intelligence tools, which are popular applications today, were used in the study. These two artificial intelligence tools were chosen because they are free applications and their popularity. ChatGPT was asked whether it could write a story. The programme stated that it could write a story and wrote a short story. It was asked questions about the story and asked to find the deficiencies about the story. Although

criticisms of the story she wrote are quite reasonable, it is thought that she was very successful in terms of the time in which the story took place, the message of the story, and its fiction. Google Bard artificial intelligence was asked directly whether it could write a story, and the study was finalised by deepening the questions and asking questions about how the story could be written better, its deficiencies, etc.

Findings

The Story Written By Google Bard;

Example story here is an example of a story created by artificial intelligence: The year is 2042. The world is a very different place than it was just a few decades ago. Climate change has caused widespread destruction and wars have broken out over scarce resources. Millions of people have been displaced and many more have died. In the midst of this chaos, a young woman named Anya is trying to find her way. She lost her family and home in the war and now lives in a refugee camp. But Anya is determined to rebuild her life. She is passionate about helping others and believes she can make a difference in the world. One day Anya meets a group of people working to solve the root causes of war and hunger. These people are committed to finding peaceful solutions to conflicts and are working to create a more sustainable world. Anya is inspired by their work and decides to join them. Anya works hard to help the group achieve their goals. She travels to different countries and meets people from all walks of life. She learns about the different challenges people face and shares her own story of hope and resilience. Anya's work is making a difference. It is helping to build a more peaceful and sustainable world. It also inspires others to take action. Anya reminds us that there is always hope, even in the darkest of times (Google Bard, 2023).

Google Bard Story Review

The story above is a good example of the potential of AI to produce creative content. The story is well written and engaging and raises important issues about climate change and war. However, there are some shortcomings in the story. For example, the story is a bit predictable and the characters are not well developed.

Google Bard's Answer to the Question "How to Write A Better Story?"

There are several things that could be done to improve the above story. Firstly, the story could be made more unpredictable by adding some unexpected twists and turns. Secondly, the characters could be developed more fully by giving them more background and motivation. Finally, the story can be made more engaging by adding more vivid descriptions and dialogue.

Google Bard Comparing Stories Written By Humans and Artificial Intelligence

There are some important differences between stories written by humans and AI. Human stories are often more creative and original. Humans have the ability to create stories through their own experiences and imagination. This makes them more interesting and remarkable than the stories that artificial intelligence can produce. AI stories are generally more realistic and consistent. AI is trained on large amounts of text data. This gives them the ability to write stories that accurately reflect real-world events and situations. Human stories are often more emotional and empathetic. Humans have the ability to understand and empathise with the emotions of others. This makes them more personal and connected than the stories AI can generate. AI stories can often be created more quickly and efficiently. AI can create stories faster and more efficiently than human writers can. This makes them ideal for applications where large amounts of stories are needed. In general, human stories are usually more creative, authentic and emotional. AI stories are generally more realistic, coherent and efficient.

Here Are Some Examples of these Differences:

Human stories often have a more surprising and unexpected ending. Artificial intelligence stories usually have a more predictable ending.

Human stories usually have a deeper and more thought-provoking theme. Artificial intelligence stories usually have a simpler and more superficial theme.

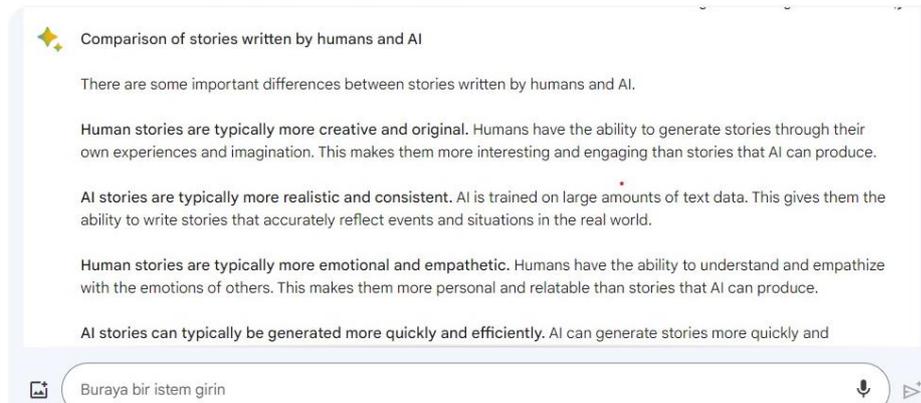
Human stories often leave a stronger and lasting impression. Artificial intelligence stories usually leave a shorter-lasting impression.

Of course, this is just an overview. There are always human stories that are more realistic and coherent, and there are AI stories that are more creative and original. But, in general, these differences can be assumed.

Artificial intelligence's ability to write stories is improving rapidly. This means that in the future, the gap between human stories and AI stories may become even smaller.

Image 1

Google Bard Screenshot Example



Story Written by Chatgpt

Once upon a time in a small village there lived a poor farmer named Jack. Despite his hardships, he remained optimistic and hardworking, always striving to provide for his family. One day, while working in his field, Jack came across a mysterious old lamp. Intrigued, he rubbed the lamp and a genie popped out of it and granted him three wishes. Excited by this opportunity, Jack wished for a bountiful harvest, a big, strong horse and a spacious house. His wishes were fulfilled and Jack's life changed forever. He became the richest and most successful farmer in the village, and his generosity and kindness won the love and respect of all who knew him.

Years passed and Jack's wealth and happiness continued to grow. One day, however, the genie visited him once more and reminded him of the importance of remaining humble and grateful. Jack realised that his true wealth was not in what he had, but in the love and joy he shared with his family and friends. And so he lived the rest of his days with a grateful heart, spreading kindness and joy wherever he went (Chat GPT, 2023).

Chatgpt Answer to the Question "Why Didn't Jack Ask the Lamp Genie for Money?"

In the story, Jack had a simple and humble personality and his priorities were centred on providing for his family and ensuring their well-being. As a result, he wished for a bountiful harvest, a strong horse and a large house to help him achieve this goal. It may not have occurred to him to ask for money, or he may have felt that material wealth was not as important as the love and happiness he shared with others.

Chatgpt Answer to the Question "Why Did Jack Want A Big House?"

In the story, Jack wished for a big house to provide a better life for his family. A bigger house would give him more space and comfort, and possibly improve the quality of life for his loved ones. This wish reflects Jack's desire to care for his family and ensure their well-being despite the financial hardships he experienced as a poor farmer.

Chatgpt Answer to "Why Did Jack Want A Horse? A Tractor Could Help Him Do His Work More Easily." Chatgpt Response to the Question

It is possible that the story takes place at a time when tractors were not yet widely available or accessible to Jack and the horse was a more common and practical farming tool. The horse may also have had sentimental value for Jack as a symbol of strength, reliability and hard work. Wishing to have a strong horse could represent his desire to improve his ability to work the land and provide for his family. Overall, the horse in the story serves as a symbol of Jack's determination and commitment to working hard to provide for his loved ones.

Chatgpt Response to "Why Didn't Jack Ask for More Space?"

In the story, Jack's main concern was to provide for his family and ensure their well-being. Wishing he had more land might have been a logical choice to expand his farming activities and increase his wealth, but he may have decided that a bigger house and a strong horse were more pressing needs. It is also possible that he wanted to prioritise quality over quantity, believing that getting a bountiful harvest from a smaller piece of land would be more satisfying than owning a larger, less productive farm. Ultimately, Jack's aspirations reflect his priorities and values, which put the happiness and comfort of his family before material wealth.

Chatgpt Answer to the Question "Why Didn't Jack Ask for Help for Fieldwork?"

It is possible that Jack did not want help with the fieldwork because he valued independence and hard work. He may have felt that relying on others to do the work would reduce his sense of achievement and self-sufficiency. It is also possible that he did not consider asking for help because he did not realise or think about this possibility at the time. The story emphasises Jack's character as a determined and hardworking individual, and his

decision to ask for a strong horse reflects his desire to develop his own abilities rather than rely on others.

Chatgpt Answer to The Question "Did You Find the Shortcomings in the Story You Wrote?"

As a language model, I have no personal opinions or feelings, but here are some general criticisms of the story I wrote:

Predictable plot: The story follows a classic fairy tale structure with a poor farmer discovering a genie and making a wish. For wealth and happiness, which could be seen as clichéd or predictable.

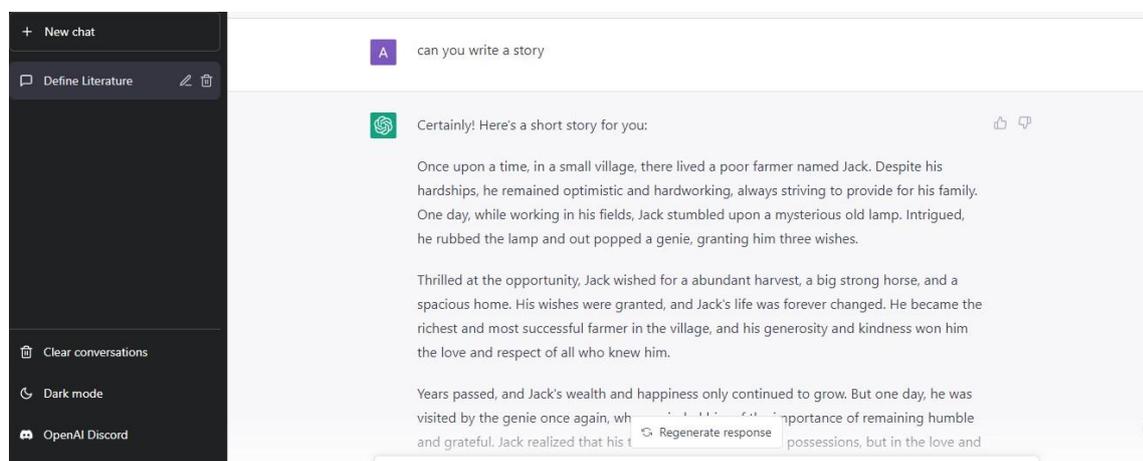
Lack of character development: Jack's character is portrayed as a simple, hard-working farmer, but lacks depth and complexity. His motivations and thoughts are not fully explored, and the story does not address his personal struggles or hardships.

Lack of conflict: There is no major conflict in the story; Jack's wishes are easily and without any major obstacles or difficulties fulfilled. This can make the story seem too simple or lacking in tension.

Lack of cultural context: The story is set in a generic, unnamed village and does not give any context or background information about the culture or society in which the characters live. This can make the story feel less grounded and relatable. These criticisms are common for short stories, but it is worth noting that the purpose of this story is to present a quick and simple narrative rather than a complex, full-blown story.

Image 2

ChatGPT Screenshot Example



Discussion and Results

According to the results of the above study with ChatGPT and Google Bard, the use of artificial intelligence (AI) in literature is a fascinating and developing field. AI has the potential to contribute to literature in a variety of ways, but it is important to understand its limitations and implications. According to the findings of the study; it was determined that artificial intelligence can create a story.

It was seen that it could objectively evaluate the story it created, and determine the positive/negative, missing-need-to-be-developed aspects of the story it wrote. It was emphasised that the story he wrote did not attach much importance to the cause and effect relationship, and that he could use all kinds of tools to fulfil the given task and that it was important for him to fulfil the task. It was also determined that artificial intelligence was aware of its own abilities. It was determined that it created stories similar to the stories it found on the internet in line with its abilities, as well as creating stories according to the news sources and events on the agenda during the study periods.

This showed that literature and story were used in a didactic way in order to remove literature and story from being an art. Because while the production and grain crisis was on the agenda in the news sources in the period when the first story was applied, the Russia-Ukraine war was on the agenda in the period when the second story was created. For this reason, it is thought that artificial intelligence wrote a story about agricultural production in the first story based on the topics it saw in the news sources it scanned, while in the second story it wrote a story about war and its possible bad consequences.

The conclusion to be drawn from this brief sketch of fictional practice is that: (1) AI lacks understanding of the semantic content of narrative discourse, and (2) it also lacks the psychological abilities (the abilities to believe, appreciate and imagine) and communicative practices (i.e. the capacity to produce a "fictional utterance" as well as the capacity to assume a "fictional stance" at appropriate moments) that constitute fiction as a practice. Thus, two challenges to human-AI coauthoring of fiction are AI's lack of semantic understanding and AI's inability to participate in cultural practices, including fiction (Ghajargar, Bardzell & Lagerkvist, 2022, p. 232).

Ghajargar et al. (2022) reached similar results to our study and found that artificial intelligence has emotional deficiencies, cultural deprivation, lack of communication, psychological deficiencies and artistic deficiencies. It can be thought that these deficiencies

can be improved by establishing new artificial neural connections with deep learning algorithms. However, it is also unclear what kind of errors will arise as a result of these developments.

Ippoliti et al. (2022) study, participants unanimously agreed that artificial intelligence-supported writing will not replace writers in the near future. But this technology is making parts of the creative writing process easier, faster, and more fun for both talented and amateur writers. Developers of AI writing tools should focus on the parts of writing that are most time-consuming and least enjoyable. He says it's crucial that audiences watching these tools participate in the conversation about how the tools and the underlying language models that make them possible were developed. Ippoliti et al. (2022) study also supports the findings of this study.

It is therefore important to recognise some of the challenges and concerns associated with AI story creation:

Lack of Emotional Depth

AI lacks genuine emotion and empathy, making it difficult to produce literature with real emotional resonance. Human emotions and experiences are often at the centre of literary works.

Originality and Creativity

While AI can generate text, it relies heavily on the patterns and data it has been trained on, potentially leading to unoriginal or derivative work.

Ethical Considerations

The use of AI in literature raises ethical questions about authorship, copyright and the potential for AI-generated content to devalue human creativity.

Reader Acceptance

Readers may have reservations about accepting AI-generated literature as equivalent to human-generated works. Authenticity and personal connection with the author may be lost.

Bias

AI models can inherit biases present in training data, which can lead to biased or stereotyped content in AI-generated literature.

Again, some of the issues to be considered in writing stories with artificial intelligence are as follows:

Automated Writing Assistance

Artificial intelligence can be used as a tool to assist writers in various aspects of the creative process. For example, it can help generate ideas, suggest synonyms or alternative sentence structures, and even check for grammatical errors and consistency of style.

Story Generation

AI can generate stories or narratives. This involves training AI models on large text datasets and enabling them to create new stories based on the patterns and structures they have learnt. However, these stories often lack emotional depth and may appear to be stereotypical.

Plot and Character Analysis

Artificial intelligence can analyse existing literature to identify patterns in plot structures, character development and themes. This can be valuable for literary analysis and academic research.

Recommendation Systems

AI-supported recommendation systems can recommend books, articles or stories based on the reader's preferences and past reading history, and improve the reading experience.

Translation and Accessibility

AI-assisted translation services can make literature from different cultures and languages more accessible to a global audience.

Content Moderation

Artificial intelligence can be used to scan and moderate user-generated content on literary platforms to ensure that it complies with guidelines and policies. To summarise, artificial intelligence has the potential to be a valuable tool in the world of literature, to assist writers and researchers, and in some cases even to produce content. However, it is not a substitute for human creativity. It should be seen as an aid that complements it. The best results are often achieved when humans and AI collaborate, when humans provide the emotional depth and creative spark that AI currently lacks. Ethical considerations and potential biases in AI-generated literature should also be carefully addressed.

Recommendations

Literature as an art form has always had an important place in conveying human emotions and experiences. It is the medium through which writers convey their thoughts, feelings and imagination to the world. Artificial intelligence may open a new era in literary

creation. However, AI is impressive in terms of its ability to process and produce text, it lacks the emotional depth and life experiences that make human-written literature so fascinating. So, in response to the question "How can artificial intelligence contribute to the field of literature?", the following suggestions are offered.

Automatic Writing Assistance

One of the ways in which AI can help human writers is by offering automated writing assistance. AI can be thought of as a digital assistant for writers, able to suggest ideas, synonyms, sentence structures, and even detect grammatical errors. This collaboration between man and machine can help writers achieve their goals more efficiently by streamlining the creative process.

The Art of Story Generation with Artificial Intelligence

Artificial intelligence can make suggestions and additions to written stories. It can also generate the stories itself. This is an achievement achieved by training artificial intelligence models on extensive datasets of existing literature. These models can then generate new stories based on the patterns and structures they have learnt. Although this approach produces a grammatically sound text, it often falls short in terms of emotional depth and authenticity. Stories created by artificial intelligence often use stereotypical story structures. Here, too, a lack of deep human touch and emotion can be felt. However, if a model that develops itself outside the moulds is designed, it is also curious to see what kind of results this situation will produce.

Plot and Character Analysis of Stories with Artificial Intelligence

Artificial intelligence is adept at analysing existing literature to uncover patterns in plot structures, character development and recurring themes. This can be a valuable tool for literary scholars and researchers, providing new insights into the rich tapestry of human storytelling. With its multiple perspectives, it can be used to reveal details that people may not realise.

Suggestion Systems and Accessibility

AI-supported recommendation systems can enhance the reading experience by recommending books, articles or stories tailored to the individual's preferences. However, it is

necessary to check whether the recommended resources actually exist. In addition, AI-assisted translation services can also encourage cross-cultural interaction by making literature from different cultures and languages more accessible to a global readership.

Ethical Considerations

Artificial intelligence is increasingly affecting the world of literature and raises important ethical questions. One of these questions is who should be recognised as the author of AI-generated content? How do copyright laws apply? Will AI-generated works devalue human creativity? These questions underline the need for careful evaluation and regulation in the field of artificial intelligence literature.

The Human Touch

Despite the incredible capabilities of artificial intelligence, it remains a tool that complements rather than replaces human creativity. Literature is an art form that is fuelled by the depth of human emotion and experience. This is something that AI cannot truly replicate. The authenticity and personal connection that readers feel with human authors cannot be replicated by algorithms. In conclusion, the combination of AI and literature is an exciting development that offers new tools and possibilities for writers, academics and readers. While AI can be a valuable aid and source of analytical insight in the creative process, it cannot replace the emotional depth and originality of human writing. The best results often come from the harmonious collaboration between human imagination and the computational power of AI. As we move forward in this brave new world of literature, it is crucial to proceed with caution, embracing technology while at the same time preserving the spirit of literature - the uniquely human experiences that connect us through words.

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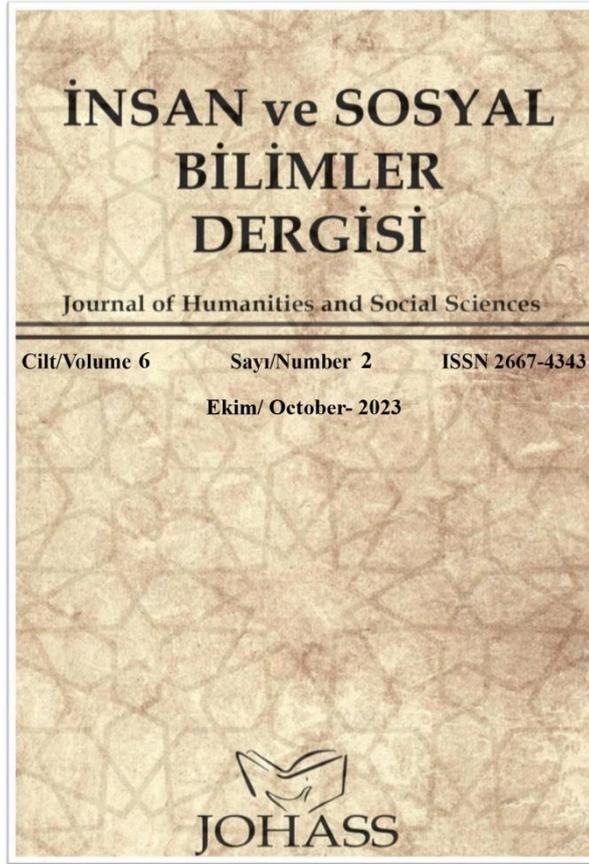
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Digital Game Addiction Tendency and Social Competence in Preschool Children: The Mediating Role of Self-Regulation

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Digital Game Addiction Tendency and Social Competence in Preschool Children: The Mediating Role of Self-Regulation

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Abstract

The aim of this study is to investigate the relationship between digital game addiction tendency and social competence in preschool children and the mediating role of self-regulation skills in this relationship. The sample included 310 preschool children aged 4-6 years (150 girls and 160 boys) studying in three kindergartens in the city center of Aydın. Digital Game Addiction Tendency Scale, Self-Regulation Skills Scale for 4–6-Year-Old Children (Mother Form), Social Competence and Behavior Evaluation-30 Scale - Social Competence Subscale, and Personal Information Form were used to collect the data. Descriptive statistics, Pearson product-moment correlation, and structural equation modeling were used to analyze the data. The results of the Pearson product-moment correlation analysis showed that digital game addiction tendency was negatively correlated with self-regulation skills and social competence in preschool children. Moreover, the results indicated that there was a positive association between self-regulation skills and social competence in preschool children. The results of the structural equation model analysis revealed that digital game addiction tendency was directly related to self-regulation skills and indirectly related to social competence. Self-regulation skills have a full mediating role in the relationship between digital game addiction tendency and social competence. The research revealed the negative effects of digital game addiction on self-regulation skills which in turn affects social competence in preschool children. The results suggest that the effects of digital game addiction and self-regulation skills should be considered when assessing the social skills of preschool children.

Keywords: Digital game addiction, social competence, self-regulation, preschool period

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Introduction

Today, digital devices involved in the daily lives of children from a relatively young age. Therefore, digital devices and their effects on young children are crucial areas of research. However, there is a limited amount of research available on this topic. For this reason, there is a need to conduct a national study on how digital game addiction affects preschoolers in our country. According to the report "Children with Statistics" by the Turkish Statistical Institute (2021), the frequency of internet use among children aged 6-10 years is 78.1% and mobile phones are mostly used for playing games. Similarly, a study conducted by Bulut (2018) reported that children mostly use digital devices for watching cartoons and playing online games.

Digital game addiction is characterized as an overuse and uncontrollable usage that causes social and emotional problems in people's lives and interferes with what they need to do in their daily lives (Lemmens, Valkenburg, & Peter, 2009). The World Health Organization (WHO) and the American Psychiatric Association (APA) consider gaming disorder to be a mental health problem. The third section of the Diagnostic and Statistical Manual of Mental Disorders – 5 (DSM-5), published by the APA (2013), included "Internet gaming disorder" under the title "Condition for Further Study". In addition, the WHO (2019) recognized "gaming disorder" in the International Statistical Classification of Diseases, 11th revision (ICD-11).

Over the past years, as children's digital access has increased, uncontrolled and unconscious digital device use has begun, and the concepts of digital addiction, screen addiction, and digital game addiction have emerged (UNICEF, 2017). In the preschool period, children lack the ability to control their usage of digital games due to low levels of self-control. This situation increases the likelihood of children showing addiction tendencies (Horzum, Ayas, & Çakır Balta, 2008). Budak (2020) investigated digital game addiction among preschool children and found that one in five children had a tendency to become a digital game addict.

As digital game addiction in the preschool years has increased in recent years, there has been an increased interest in studies that examine digital game addiction in this period. However, there are still fewer investigations of digital game addiction in preschool children compared to primary, middle, or high school students. In the literature, some previous works have investigated the relationship between digital game addictive tendencies in the preschool

period and some factors such as parenting (Bağatarhan, 2023; Kay, 2022; Tatsiopoulou et al., 2022) or problem behaviors (Budak, 2020; Cheng & Cao, 2023). However, studies using structural equation modeling in this context are more limited. In order to focus on studies aimed at preventing digital game addiction in the preschool years, there is a need to conduct studies that more comprehensively examine the variables on addiction to digital games. The data obtained from these studies should be used as a source for prevention studies.

Digital Game Addiction Tendency and Self-Regulation

Self-regulation is identified as a structure in which individuals greatly increase the flexibility and adaptability of their behaviors according to the environment and situation they are in and adjust their behaviors according to these situations (Baumeister & Vohs, 2007). According to the behavioral approach, self-regulation is learning self-control (Bronson, 2000). In social cognitive learning theory, Bandura highlights the value of self-regulation capacity. The process of self-regulation involves self-reinforcement and self-punishment. In this way, an individual controls his or her behaviors (Zhou & Brown, 2017). Self-regulation comprises cognitive, behavioral, and emotional processes. It becomes functional with abilities such as controlling impulses and maintaining attention. Therefore, self-regulation is considered to be the ability to suppress, stimulate, or modify attention or behavior as a response to a condition (Eisenberg, Smith et al., 2009). In explanations about self-regulation, the link between self-regulation and the capacity to manage behaviors is emphasized. Therefore, it is predicted that digital game addiction would be negatively related to self-regulation skills. As a matter of fact, a study revealed that self-regulation is negatively related to pathological gaming addiction (Liau et al., 2015). Another study conducted by Duran (2019) showed that self-regulation is negatively related to online gaming addiction among children. As self-regulation skills decrease, online game addiction increases. However, no research was identified that examined the relationship between self-regulation with digital game addiction tendency among preschool children.

Self-Regulation and Social Competence

According to the social cognitive approach, self-regulation is a multistep process in which self-created thinking, affect, and actions are organized and adapted to achieve personal goals (Zimmerman, 2000). In social cognitive theory, self-regulation requires the individual to use internal mechanisms that include self-motivation, self-control, and self-regulation of

behavior. In this framework, self-regulation is considered as the capacity to control oneself in regulating one's life and behavior in society (Bandura, 1999; Senemoğlu, 2012). Studies have demonstrated a positive link between self-regulation and social competence in preschool years. In a research carried out by Diener and Kim (2004) to identify predictors of social competence, self-regulation was found as a predictor of social competence. Another study conducted by Işıksolu Aysel and Tok (2022) investigated the association of self-regulation with social competence among early childhood children.

Digital Game Addiction Tendency and Social Competence

Growing addiction to digital games in young children negatively affects social and emotional development (Şenol, Şenol, & Can Yaşar, 2023). Children with poor social and emotional development experience problems such as communication difficulties, social adjustment problems, or concentration difficulties (Stavrou, 2018). Similarly, social skills such as anger control and social adjustment have been found to decline as problematic media use increases in preschool children (Beadini, 2023).

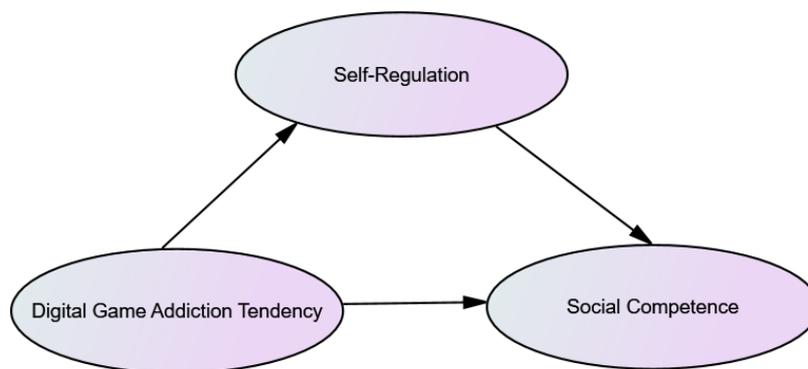
Research has shown that there is a link between digital game addiction and social competence and that digital game addiction reduces social competence. A study carried out by Budak (2020) indicated that as digital game addiction increased in preschool children, social competence decreased, but aggression, anxiety, and withdrawal increased. Another research conducted by Budak (2017) to examine the perspectives of teachers and mothers on digital games revealed that the biggest difference between digital and traditional games is related to social skills and that digital games reduce children's socialization. In another study investigating the impact of digital game addiction in pre-school children according to teachers' views, social effects stand out among the negative effects of digital addiction (Süral, 2022). According to teachers, digital game addiction causes social maladaptation among children, leading to behaviors like difficulties in communication, isolation, and alienation. Spending time in digital games without any communication prevents the development of social skills and causes social inadequacy. Although research provides evidence of the effects of digital game addiction on social competence, more research is needed on this issue. In particular, there is no study on the effect of mediating variables in the link between digital game addiction tendency and social competence. This remains an essential area to be researched.

Present Study

The aim of this study is to examine the relationship between digital game addiction and social competence in preschool children and to identify the mediating effect of self-regulation in this relationship. The following three hypotheses were developed for this purpose and the model of the research is shown in Figure 1:

Figure 1

Research Model



Hypothesis 1. Digital game addiction tendency would be directly and negatively associated with self-regulation in preschool children.

Hypothesis 2. Self-regulation would be positively associated with social competence in preschool children.

Hypothesis 3. Self-regulation would mediate the relationship between digital game addiction tendency and social competence.

Method

Model

In the current research, the relational survey model was used to examine the relationship between social competence and digital game addiction tendency in preschool children and to test the mediating role of self-regulation in this relationship. The aim of the relational research model is the identification of the existence and degree of change of two or more variables together (Karasar, 2011).

Sample and Population

The population of this study included children aged 4-6 years old who attended preschool education in kindergarten. Simple random sampling, one of the sampling methods, was used to ensure that the sample was representative of the population. In this sampling method, all units in the universe have an equal and independent chance of being selected for the sample (Büyüköztürk et al., 2012). Initially, 313 students' data were collected to form the sample; however, 3 students' data were identified as outliers and excluded from the data set. As a result, the sample included 310 children aged 4-6 years (150 girls and 160 boys) and their parents who attended three kindergartens selected using the simple random sampling method in Aydın in the 2023-2024 school year. The mean age of the children between 4 and 6 years was 4.54 (SD = 0.58).

Data Collection Tools

Digital Play Addiction Tendency Scale

The Digital Game Addiction Tendency Scale was created by Budak and Işıkoğlu (2022). It is a 20-item, 5-point Likert-type scale that measures the digital game addiction tendencies of children between 4 and 6 years on the basis of their parents' opinions. The scale scores range from 20 to 100. Increasing scores on the scale indicate that the tendency of digital game addiction in children is increasing. A total score between 20-35 indicates the lowest level of digital game addiction tendency, between 36-51 indicates a lower digital game addiction tendency, between 52-67 indicates a moderate level of digital game addiction tendency, between 68-83 indicates a higher digital game addiction tendency and between 84-100 indicates a significantly greater level of digital game addiction tendency.

Exploratory factor analysis results revealed a 4-factor structure. The subscales were named “dissociation from life, conflict, constant play, and reflection on life”. Confirmatory factor analysis was used to test the 4-factor structure of the scale. The following goodness-of-fit indices were determined: $\chi^2/df=3.40$, AGFI=0.85, CFI=0.92, SRMR=0.52, RMSEA=0.064. Cronbach's alpha and composite reliability coefficients were used to assess the scale's reliability. The coefficients were calculated for the factors of “dissociation from life” ($\alpha=0.88$; CR=0.85), “conflict” ($\alpha=0.90$; CR=0.86), “constant play” ($\alpha=0.82$; CR=0.81), “reflection on life” ($\alpha=0.70$; CR=0.78), and the whole scale score ($\alpha=0.93$; CR=0.95) (Budak & Işıkoğlu, 2022). Cronbach's alpha coefficient was computed as 0.95 in the current study.

Self-Regulation Skills Scale for 4–6-Year-Old Children (Mother Form)

The Self-Regulation Skills Scale (Mother Form) was created by Erol and İvrendi (2018). It is a self-report 20-item and 5-point Likert-type scale. It is used to evaluate the 4-6-year-old children's self-regulation skills from the perspective of their parents. The validity and reliability of the scale were tested on 509 preschool children. Construct validity was assessed using concurrent criterion validity, exploratory factor analysis, and confirmatory factor analysis. According to the results of the exploratory factor analysis, the scale consisted of 4 factors explaining 61% of the total variance. These factors were identified as “attention, working memory, inhibitory control-emotion, and inhibitory control-behavior”. The goodness of fit indices were adequate based on the results of the confirmatory factor analysis: $\chi^2/df=1.91$, RMSEA=0.07, SRMR=0.07. The total correlations of the items in the scale were between 0.36 and 0.70. Cronbach's alpha coefficient is 0.90, concurrent validity is 0.84, and test-retest reliability is 0.77, based on the analyses of the scale. The total scale scores were used in the analysis of the study. Using the Guttman Lambda (Li) method, it was found that the reliability level varied between 0.90 and 0.96 (Erol & İvrendi, 2018). Cronbach's alpha coefficient was computed as 0.86 in the current study.

Social Competence and Behavior Evaluation-30 Scale – Social Competence Subscale

The scale developed by LaFreniere and Dumas (1996) was adapted into Turkish by Çorapçı, Aksan, Arslan Yalçın and Yağmurlu (2010). The scale is comprised of 30 items and has a 6-point Likert-type structure. Exploratory factor analysis of the construct validity of the scale revealed a 3-factor structure. The 3-factor structure of the scale was tested using confirmatory factor analysis. The following goodness of fit indices were obtained: $\chi^2/df=3.06$, GFI=0.84, AGFI=0.81, CFI=0.84, TLI=0.83, RMSEA=0.07. The subscales consisted of 10 items each and were identified as “social competence, anxiety-withdrawal, and anger-aggression”. The social competence subscale was used in the present study. The Social Competence subscale measures children's positive skills in peer relationships, such as cooperation and conflict resolution.

For reliability of the scale, Cronbach's alpha coefficient was computed as 0.88 for the “social competence” subscale, 0.87 for the “anger-aggression” subscale, and 0.84 for the “anxiety-withdrawal” subscale (Çorapçı et al., 2010). Cronbach's alpha coefficient for the social competence subscale was computed as 0.87 in the current research.

Personal Information Form

Information on gender, age, mother's education level, father's education level, and family structure of the children participating in the study was collected using the Personal Information Form.

Collection of Data and Analysis

The data were collected from three kindergartens in the center of Aydın province at the beginning of the 2023-2024 school year. The data collection instruments were sent to the parents of the sampled schools after the research was announced by the teachers of the schools. The data collection forms of the parents who volunteered for the study were collected by the teachers.

Prior to analyzing the data in this study, the Mahalanobis distance was calculated for the overall scores obtained from the scales used to conduct the research, and the multiple normal distribution was examined (Çokluk, Şekercioğlu, & Büyüköztürk, 2016). After the outlier data were removed from the data set, the mean scores, standard deviation values, kurtosis, and skewness coefficients were calculated for the total scores obtained from the three scales and it was found that the data was normally distributed.

The relationships between social competence, digital game addiction tendency, and self-regulation in the preschool period were first investigated using the Pearson Product Moment Correlation Coefficient. The direct relationship between social competence and digital game addiction tendency in preschool children and the indirect relationship through self-regulation skills were examined using structural equation modeling. Prior to the structural equation modeling, the construct validity of all the scales used in the model was tested using confirmatory factor analysis.

In evaluating the model goodness of fit indices, the χ^2/df ratio is less than 5, the CFI value is higher than 0.90 (Hu & Bentler, 1999), the GFI value is greater than 0.85 (Byrne, 1998), RMSEA and SRMR values less than 0.10 (Browne & Cudeck, 1993) were considered as acceptable fit criteria. A bootstrapping procedure (5000 bootstrapped samples, with 95% bootstrap confidence intervals) was used to examine the significance of the mediation effects of self-regulation in the structural model. Data were analyzed using IBM SPSS 23 and IBM AMOS 24.

Compliance with Ethical Standarts

This research has been approved by Aydın Adnan Menderes University Social and Human Sciences Research Ethics Committee with decision number 23 at the regular meeting on 29.09.2023.

Findings

Descriptive Statistics

Table 1 shows descriptive statistics for gender, age, family structure, mother's and father's education, and daily Internet usage time.

Table 1

Descriptive Statistics of the Demographic Variables

	f	%	M (SD)
Age			4.54 (0.58)
Gender			
Girl	150	48.4	
Boy	160	51.6	
Family structure			
Two biological parent family	287	92.6	
Other	23	7.4	
Mother education			
Illiterate	1	0.3	
Literate	1	0.3	
Elementary school	19	6.1	
Middle school	29	9.4	
High school	87	28.1	
Associate degree	56	18.1	
University	102	32.9	
Advanced degree (Master or PhD Degree)	15	4.8	
Father Education			
Elementary school	31	10.0	
Middle school	37	11.9	
High school	85	27.4	
Associate degree	43	13.9	
University	87	28.1	
Advanced degree (Master or PhD Degree)	27	8.7	
Daily Internet Usage Time			
Never	60	19.4	
Half hour or less	103	33.2	
1 hour or less	75	24.2	
2 hour or less	45	14.5	
More than 2 hours	27	8.7	

Note. M = Mean; SD = Standard deviation. N = 310.

The Pearson Product Moment Correlation Coefficients

The means, statistical deviations, and bivariate correlations between digital game addiction, self-regulation, and social competence were calculated and presented in Table 2.

Table 2

Descriptive Statistics and Correlations

	M	SD	1	2	3
1. Digital Game Addiction	42.53	15.67	1		
2. Self-Regulation	76.95	9.01	-0.28**	1	
3. Social Competence	46.78	8.38	-0.24**	0.64**	1

**p < .01

The results indicated that digital game addiction was negatively associated with self-regulation ($r = -0.28$, $p < .01$) and social competence ($r = -0.24$, $p < .01$) in preschool children. Self-regulation was positively associated with social competence ($r = 0.64$, $p < .01$) in preschool children.

Measurement Model

Prior to testing the structural equation model, the construct validity of the Digital Game Addiction Tendency Scale, the Self-Regulation Skills Scale for 4-6-year-olds, and the Social Competence Subscale of the Social Competence and Behavior Evaluation-30 Scale were tested with confirmatory factor analysis. Table 3 shows the results.

Table 3

Confirmatory Factor Analysis Results

Measures	χ^2/df	p	CFI	GFI	RMSEA
Digital Game Addiction Tendency Scale	2.75	0.000	0.94	0.87	0.07
Self-Regulation Skills Scale for 4-6-year-olds	2.08	0.000	0.92	0.90	0.06
Social Competence Subscale of the Social Competence and Behavior Evaluation-30 Scale	3.95	0.000	0.92	0.92	0.09

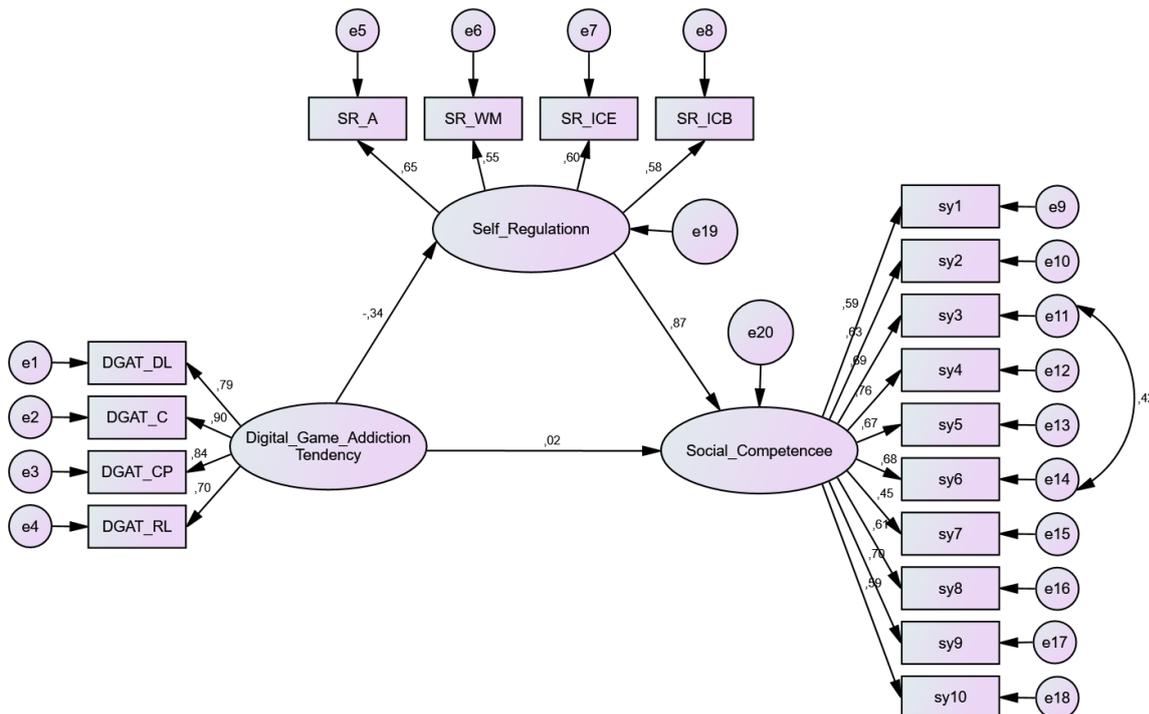
The 4-factor structure of the Digital Game Addiction Tendency Scale was assessed via confirmatory factor analysis. The obtained goodness of fit indices are at an acceptable level: $\chi^2/df = 2.75$, $p = 0.000$, $CFI = 0.94$, $GFI = 0.87$, $RMSEA = 0.07$. The 4-factor structure of the Self-Regulation Skills Scale for 4-6-year-olds was examined using confirmatory factor analysis. Three covariances between the error terms were included in the model, as proposed by the modification indices. The obtained fit indices were also found to be at a good level: $\chi^2/df = 2.08$, $p = 0.000$, $CFI = 0.92$, $GFI = 0.90$, $RMSEA = 0.06$. The structure of the Social Competence Subscale of the Social Competence and Behavior Evaluation-30 Scale was investigated by confirmatory factor analysis. A covariance between the error terms was added to the model, as proposed by the modification indices. The goodness of fit indices are at an acceptable level: $\chi^2/df = 3.95$, $p = 0.000$, $CFI = 0.92$, $GFI = 0.92$, $RMSEA = 0.09$.

Structural Equation Model

A full structural model was examined with maximum likelihood estimation. The findings of these analyses are shown in Figure 2.

Figure 2

The Mediating Role of Self-Regulation in the Relationship between Digital Game Addiction Tendency and Social Competence in Preschool Children



DGAT_DL: Digital Game Addiction Tendency-Dissociation from Life, DGAT_C: Digital Game Addiction Tendency-Conflict, DGAT_CP: Digital Game Addiction Tendency-Constant Play, DGAT_RL: Digital Game Addiction Tendency-Reflection on Life, SR_A: Self_Regualtion-Attention, SR_WM: Self_Regualtion-Working memory, SR_ICE: Self_Regualtion-Inhibitory Control-Emotion, SR_ICB: Self_Regualtion-Inhibitory Control-Behavior.

The goodness of fit indices of the model shown in Figure 2 are as follows: $\chi^2=336.08$, $df=131$, $\chi^2/df=2.57$, $p=0.000$, $CFI=0.91$, $GFI=0.89$, $RMSEA=0.07$, 90% $RMSEA$ CI [0.062, 0.081]. The findings showed that digital game addiction tendency significantly and negatively predicted self-regulation in preschool children ($\beta=-0.34$, $p<.01$). According to this result, hypothesis 1 of the study was confirmed.

The results revealed that self-regulation significantly and positively predicted social competence in preschool children ($\beta=0.87$, $p<.05$). According to this result, hypothesis 2 of the study was confirmed.

Mediation Test

Digital game addiction tendency was not directly predictive of social competence in preschool children ($\beta=0.02$, $p>.05$). It was examined whether digital game addiction tendency indirectly predicts social competence and whether this relationship is mediated by self-regulation for the third research hypothesis. A bootstrapping procedure was applied to determine whether the mediation effects were statistically significant.

The findings of the bootstrapping analyses revealed a significant indirect effect of digital game addiction tendency on social competence through self-regulation. Self-regulation fully mediated the relationship between digital game addiction tendency and social competence in preschool children ($\beta=-0.30$, 95% $BcCI$ [-0.44 -0.20], $p=0.004$). According to this result, hypothesis 3 was confirmed.

At the end of all analyses, the results of the direct, indirect, and total effects between the research variables and their levels of significance are given in Table 4.

Table 4

Direct, Indirect, and Total Effects

Model pathways	β	95% CI	p
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		Lower bounds	Upper bounds	
Direct effects				
Digital Game Addiction → Self-Regulation	-0.34	-0.47	-0.24	0.004
Digital Game Addiction → Social Competence	0.02	-0.08	0.12	0.776
Self-Regulation → Social Competence	0.87	0.79	0.93	0.036
Indirect effects				
Digital Game Addiction → Social Competence	-0.30	-0.44	-0.20	0.004
Total effects				
Digital Game Addiction → Self-Regulation	-0.34	-0.45	-0.21	0.010
Digital Game Addiction → Social Competence	-0.27	-0.38	-0.14	0.010
Self-Regulation → Social Competence	0.87	0.81	0.95	0.010

Discussion and Results

The aim of this research was to explore the association between social competence and digital game addiction tendency in preschool children and the mediating role of self-regulation in this relationship. The findings related to the research hypotheses were discussed in the context of the related literature.

The first research hypothesis is that digital game addiction tendency is directly and negatively related to self-regulation in preschool children. The findings revealed that digital game addiction tendency directly and negatively associated with self-regulation in preschool children. As a result of this finding, the first research hypothesis was supported. According to this finding, the first hypothesis of the study was supported. This result of the research is coherent with previously published research (Duran, 2019; Liao et al., 2015). A negative link between self-regulation and online gaming addiction in children was also reported by Duran (2019). Self-regulation is an individual's capacity to control and prevent his/her own impulses, cope with negative emotions, and exhibit behaviors accepted by society (Acar-Şengül & Yükselen, 2015). Social cognitive learning theory emphasizes the link between self-regulation and behavior, and self-regulation is considered the behavior control capacity (Eisenberg, Smith et al., 2009). Therefore, it seems likely that digital game addiction, which refers to the inability to control behaviors, is related to self-regulation. It can be said that the finding obtained in this research is consistent with both previous research (Duran, 2019; Liao

et al., 2015) and social cognitive learning theory (Bandura, 1999; Eisenberg, Smith et al., 2009). However, no study was found on the association between self-regulation and digital game addiction in early childhood. Further studies on this area are necessary.

The second research hypothesis is that self-regulation is positively associated with social competence in preschool children. The results revealed that self-regulation was positively related to social competence in preschool children. Thus, the second research hypothesis was confirmed. This finding of the current study is coherent with the previous research in the literature (Diener & Kim, 2004; Işıksolu Aysel & Tok, 2022). Işıksolu Aysel and Tok (2022) reported a positive association between self-regulation and social competence in preschool children. In social cognitive learning theory, self-regulation is considered as the ability to control oneself in regulating one's life and behaviors in society (Bandura, 1999; Senemoğlu, 2012). Accordingly, being able to control behaviors in social life is expected to provide more positive results in social relationships. Therefore, individuals with high self-regulation skills are likely to have high social competence. Although this study confirms this information, more studies should be conducted on this topic. In particular, few studies in the literature have examined the association between self-regulation and social competence in the preschool period. This information needs to be further examined with studies that use both quantitative and qualitative data.

The third research hypothesis is that self-regulation mediates the relationship between digital game addiction tendency and social competence. The results revealed that self-regulation was the full mediator in the relationship between digital game addiction tendency and social competence. As a result of this finding, the third research hypothesis was supported. Some studies show that there is an association between digital game addiction and self-regulation in the preschool years (Duran, 2019; Liau et al., 2015). In addition, there are some studies showing that self-regulation skills in the preschool period are positively correlated with social competence (Diener & Kim, 2004; Işıksolu Aysel & Tok, 2022). An important point here is that there is no direct link between digital game addiction and social competence. Digital game addiction tendency is related to social competence through self-regulation. In other words, self-regulation has a full mediating role in the relationship between digital game addiction tendency and social competence in preschool children. The mediating role of self-regulation in this relationship has not been examined in the literature. Therefore, this research contributed to the literature. However, more studies are needed on this topic.

In general, evaluating the research results, digital game addiction in preschool children has an impact on self-regulation and therefore social competence. Children spending too much time with digital games decreases their ability to control their behavior, that is, their self-regulation skills. Since these children spend less time in social environments due to digital games and their ability to regulate their behavior in social environments decreases, their social competence also decreases. In fact, behavioral addictions cause the child to disconnect from social life and decrease their ability to control their behavior, reducing their social competence. In order to prevent this situation, some prevention activities can be carried out, especially through parents. At this point, parent education studies can be carried out to ensure that parents should be positive role models for their children regarding the use of digital devices and that they have information about which games their children will play and for how long. This way, parents can give appropriate guidance to their children. Thus, digital game addiction can be prevented at an early stage.

Recommendations

Some suggestions can be made in this research, which examines the relationship between digital game addiction tendency and social competence in preschool children and the mediating role of self-regulation in this relationship. This research was conducted with preschool children and their parents in Aydın province. In order to generalize the findings, this study can be repeated with larger samples. This study is based on the opinions of parents. A similar study might be conducted based on the opinions of teachers. In addition, this is quantitative research. In future studies, the relationships between digital game addiction, self-regulation, and social competencies in preschool children might be examined with qualitative data by carrying out interviews with teachers or parents. Additionally, the relationship between preschool children's emotion regulation skills, digital game addiction, and social competence might be examined in future studies.

Compliance with Ethical Standarts

This research has been approved by Aydın Adnan Menderes University Social and Human Sciences Research Ethics Committee with decision number 23 at the regular meeting on 29.09.2023.

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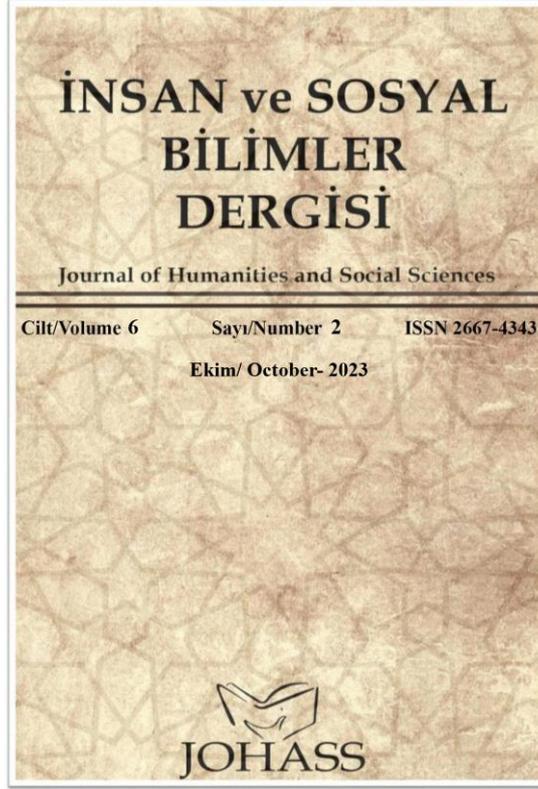
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A Tool to Analyze Delusions in a Nonclinical population: Peter's Delusional Inventory (PDI-21)

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A Tool to Analyze Delusions in a Nonclinical population: Peter's Delusional Inventory (PDI-21)

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Abstract

The purpose of this study is to culturally adapt the Peter's Delusional Inventory (PDI-21), originally developed by Peters, Joseph, and Garety (1999), for use in the Turkish context. A total of 674 participants participated in the data collection process. To provide a more culturally informed framework for the scale, an exploratory factor analysis (EFA) was conducted, resulting in the identification of 21 subscales. This scale structure underwent confirmatory factor analysis (CFA) to examine its six-component structure in a sample of university students. The results indicated that the 21-factor model demonstrated a satisfactory level of fit. To establish the criterion validity of Peter's Delusion Inventory, the EPQR-A scale, which is believed to assess similar constructs, was employed. The findings of the Pearson correlation analysis revealed a statistically significant positive association between the two measures ($r=.35$; $p<.001$). The study yielded a Cronbach's alpha coefficient of .81, indicating a high level of internal consistency. The ratio of Chi-square to degrees of freedom ($\chi^2/df = 2.08$), which was employed to assess the overall adequacy of the model, fell within the acceptable range. The root mean square error of approximation (RMSA) value for the model was determined to be 0.057. In this particular context, it was observed that the model exhibited a satisfactory level of conformity to the covariance matrix. Upon examination of the SRMR value, it was observed that it equaled 0.03, indicating a highly satisfactory fit. The NFI value of 0.92, which was higher than the threshold of 0.90, indicated that the model had a strong fit. The CFI score of 0.96 indicated that the model had a high level of fit. Based on these scores, it can be said that the Turkish form of PDI-21 is a valid and reliable tool.

Keywords: Delusional beliefs, validity, reliability, scale adaptation

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Introduction

Delusion is defined as false beliefs that do not have any logical explanation but are seriously believed by the person (DSM, American Psychiatric Association, 1987; Kiran & Chaudhury, 2009; Mullen, 1979). Studies have shown that delusions can be multidimensional (Brett-Jones, Garety & Hemsley, 1987; Chadwick & Lowe, 1990; Garety & Hemsley, 1987; Oltmanns & Maher, 1988; Strauss, 1969), and their beliefs are at different levels. Karl Jaspers (1913) defined delusion as a distorted reality pattern with three components in general psychopathology and listed these three components as accepting unconventional beliefs, irrationality, and the absurdity and falsity of its contents being discernible by other people. Hamilton (1978), on the other hand, defined delusion as an unshakable belief stemming from internal diseased processes that are incompatible with the person's cultural structure and educational background and therefore easily recognizable. Maher (1974) introduced a cognitive approach to delusions by explaining them as perception disorders. In Garety and Hemsley's (1994) models explaining delusional development, past experiences, influence, self-esteem, and the effects of motivation, as well as prejudices in perspective and judgment systems, come to the fore.

Jaspers' work has shaped the definition of currently existing delusions (Garety 1985), so that when a standard British (Mullen 1979) or American (American Psychiatric Association 1978) definition is taken, it seems that delusions have certain characteristics. These characteristics are: (a) content is considered false or fantastic; (b) the person's level of persuasion is absolute or solid; (c) beliefs are autonomous in the context of the believer's subculture; and (d) they are maintained despite counter-evidence or experience (Garety & Hemsley 1987). When describing delusions, Woo and Keatinge (2008) emphasized that they can be developed around any subject or theme and develop in a way that cannot be accepted in the individual's social or cultural environment. Delusions vary in content and are often associated with various themes such as size, somatic makeup, religion, eroticism, and various aspects of mental and bodily control (p. 473).

The definitions, ideas, and beliefs that society as a whole accepts and that have a measurable influence on societal formation are also those that people who do not subscribe to a particular belief system will uphold in their daily lives. Dawkins elucidates this phenomenon as the transmission of memes and the persistence of these cognitive units inside the realm of thought, even when they are not actively engaged. In his seminal work published

in 1989, Richard Dawkins introduced the notion of the meme, a concept that bears resemblance to the gene in its capacity to propagate beliefs and serves as a fundamental unit in the process of cultural evolution. Walston, Blennerhassett, and Charlton (2000) established a correlation between the delusion of persecution and the innate human survival instinct in their research. They made reference to the idea that shared ideas can influence perceptions of foreign, dangerous, and protected codes, ultimately leading to a false belief in malevolence as a means of self-defense.

In a similar vein, Mullen (1991) posited that while emotions may have a biological basis, their development and manifestation are intricately intertwined with cultural and societal influences. According to Mullen, vocabulary restrictions limit how much people can express their emotions and desires. The speaker posited that our emotions and the corresponding beliefs they engender are intrinsically linked to the cultural context in which we reside. To comprehensively understand an individual's beliefs, it is imperative to examine both the individual's personal experiences and the linguistic expressions ascribed to emotions and beliefs within their cultural milieu.

When examined within this particular framework, one is prompted to contemplate the notion that delusional beliefs have the capacity to influence and shape subsequent experiences. Furthermore, these beliefs have the potential to be transmitted and transformed, adopting novel manifestations over time.

As mentioned above, many studies have been done on the definition, diagnosis, and causes of delusion, but there are still some uncertainties. Although there is a well-established system for the diagnosis and treatment of delusional disorders, the isolation of delusions from society and the fact that it is limited to individuals diagnosed with this disorder may have resulted in not working on a point that will eliminate the uncertainties about delusions (Harper, 2004; Johns & Van Os, 2001; Mullen, 2003; Peters, et al., 2010; Verdoux, 1998). Moreover, empirical research has demonstrated the presence of delusional ideation not only among individuals in clinical settings but also among the non-clinical community. So, using evaluation criteria for delusional beliefs is becoming more and more important, both for finding pathological conditions and for figuring out what kinds of mentalities are common in society. While there are various scales available in the literature to assess delusions, they are mostly utilized by professionals to evaluate the clinical presentation and establish a diagnosis (Forgáčová, 2008; Haddock, et al., 1999; Meyers, et al., 2006). There are no self-administered scales in the literature that solely rely on the individual's responses, without considering

clinical diagnosis. Hence, the incorporation of this scale will significantly enhance the existing body of literature. Consequently, the present investigation involved the adaptation of the PDI-21 scale, originally created by Peters et al. (1999) for the assessment of delusional ideation in non-clinical samples, to the Turkish cultural context.

Method

Study Group

In the process of adapting the Peters Delusion Inventory into Turkish, data were collected from three different groups for linguistic equivalence, criterion-dependent validity, and validity and reliability studies. For the linguistic equivalence study of the scale, 56 participants with an advanced level of English were reached. The criterion-dependent validity study of the scale was carried out using data collected from 183 university students. The validity and reliability studies of the scale were conducted in a total of 674 universities, with 468 (69.4%) females and 206 (30.6%) males, aged between 18-50. SPSS 20.0 and LISREL 8.51 programs were used for the analysis of the obtained data.

Data Collection Tools

Personal information form: The researcher created a form with seven questions asking participants about their gender, age, occupation, educational status, marital status, religion, and ethnic origin. Religion and ethnic origin questions were not required to be answered, and the participants were told that they could answer if they had a religion or ethnicity that they identified with.

EPQ-R: The EPQR-A was created by Francis et al. (1992) through a comprehensive examination of the Eysenck Personality Questionnaire (Eysenck & Eysenck, 1975) as well as its condensed version consisting of 48 items (Eysenck, Eysenck & Barrett, 1985). Karanci, Dirik, and Yorulmaz (2007) conducted the process of adapting the scale to Turkish culture. The EPQR-A inventory comprises three distinct sub-scales, namely extraversion, neuroticism, and psychoticism, with each sub-scale consisting of six individual items. To mitigate potential bias in the questionnaire administration, a lie scale was employed as a control measure. The lie scale was scored using a binary system, with "yes" assigned a value of 1 and "no" assigned a value of 0. The lie scale allowed for a range of scores from 0 to 6.

PDI-21 Delusion Inventory: The Peters Delusion Inventory is a scale developed on the basis of the “Basic State Review” (Wing, Cooper, & Sartorius, 1974) designed to elicit information that enables the investigator to rank 107 symptoms based on patients' self-reports. The Peters Delusion Inventory has 63 items and was designed to measure delusional thinking in the normal population. It consists of 11 "factors," each of which consists of two questions, except for the depersonalization factor, which has only one item. These have been named as religiosity, cruelty, grandiosity, paranormal beliefs, thought disorders, skepticism, paranoid thinking, negative self, depersonalization, catastrophic thinking, broadcasting, and the idea of reference and credibility (Peters, 2004). The scale has a structure that measures the anxiety this belief causes, the persuasion of the belief's reality, and the frequency of the thought using a 5-point Likert scale, and with this aspect, it provides recognition of the multidimensional delusional structure (Garety & Hemsley, 1994).

Findings about the original scale are listed as follows: The internal consistency of the scale was measured by calculating the Cronbach's alpha coefficient, which was found to be 0.82. Item-whole correlations ranged from 0.35 to 0.60.

Compliance with Ethical Standards

The techniques conducted in research studies involving human subjects adhered to the ethical standards set by the institutional and/or national research committee, as well as the 1964 Helsinki Declaration and its subsequent revisions, or other comparable ethical norms. The privacy of all participants was ensured, and complete adherence to confidentiality rules for data collection and analysis was maintained. Therefore, this research study adheres to the principles of research publishing ethics.

Findings

Linguistic Equivalence Study

In developing the scale for the adaptation study of the Peters Delusion Inventory, Prof. Dr. Emmanuelle Peters was contacted via email, and the necessary permission was obtained to adapt the scale into Turkish. Six people with advanced English language skills separately translated the scale into Turkish before evaluating their translations to produce a Turkish form. An English teacher who was not involved in the translation process translated this Turkish form back into English. The word differences between the original English form and

the English form obtained as a result of back translation were determined, and the consistency between the forms was examined. The opinions of three experts from the field of psychological counseling and guidance and two experts from the field of measurement and evaluation were taken. The obtained Turkish form and the original form of the scale were filled out by 37 individuals who are fluent in both languages, one week apart, and the correlation between the data obtained was examined in order to examine whether the Turkish form of the scale was similar to the original form. As a result of the Pearson Product-Moment Correlation Analysis, it was seen that there was a positive and significant relationship between the two forms ($r = .35$; $p < .001$), and it was seen that the Turkish version of the scale had the feature of measuring the variable that was wanted to be measured at a level close to the original language.

Exploratory Factor Analysis

While performing item analysis, the main consideration is to check whether the items distributed in these dimensions are included in a meaningful way in measurement tools consisting of one-dimensional or more than one sub-dimension. The validity studies of a developed or adapted scale are carried out by factor analysis. Factor analysis is a construct validity study that allows the reduction of highly correlated variables to fewer latent dimensions (Tabachnick & Fidell, 2001; Tinsley & Tinsley, 1987). Factor analyses, like all multivariate statistical tests, are quite powerful, can provide a lot of information about the tools used, and are used to indicate whether various items in a scale should be grouped under several sub-dimensions where they reflect a different structure (Williams, Onsman, & Brown, 2010; Streiner, 1994). There are two types of factor analysis. Exploratory factor analysis is used to determine the sub-dimensions in which the items are grouped, while confirmatory factor analysis is used to test how well the items can measure the situation under the existing sub-dimension.

Kaiser-Meyer-Olkin (KMO) values were examined in order to determine whether the distribution was suitable for factor analysis in the sample group, and it was seen that the data were suitable for factor analysis as this value was .801. Tavşancıl (2002) stated that testing the normality of the distribution with Bartlett's Test is important for factor analysis, and stated that the level of significance in the Bartlett's Test is an important predictor of the normality of the distribution. In the analysis, it was seen that the Bartlett's Test value was 30545.22 ($p < .001$), and in light of these results, it was seen that the research data came from a normal

distribution. There are 63 items in total in Peter's Delusion Inventory, which is stated to be a short form. Based on the exploratory factor analysis made during the adaptation of the scale, it was stated that the original scale was one-dimensional, but this one-dimensional structure was not confirmed by confirmatory factor analysis (Peters, Joseph, Day, & Garety, 2004). However, when the studies were examined, it was seen that different culture-specific structures were obtained due to the fact that Peter's Delusion Inventory has a very culture-sensitive structure, and these structures were not confirmed by confirmatory factor analysis. For example, while it is seen that the Peter's Delusion Inventory, which is adapted to the French culture, can be explained with seven sub-dimensions, it is stated that there are seven sub-dimensions but different questions are gathered under different sub-dimensions when adapted to the Spanish culture (Verdoux, Van Os, Maurice-Tison, Gay, Salamon, & Bourgeois, 1998; Lopez-Ilundain, Perez-Nievas, Otero, et al. 2006). In their study, Jones and Fernyhough (2007) evaluated both factor structures on their own samples in order to test which factor structure would be more suitable for the scale. For this reason, exploratory factor analysis was performed in order to determine the factor structure that the scale would create in Turkish culture.

However, in line with the adaptation steps, it was tested whether a one-dimensional structure was confirmed on the data obtained from the Turkish culture, as in the original scale, and it was seen that it was not confirmed. For this reason, considering that it is a short form, exploratory factor analysis was applied without discarding items. The possible sub-dimensions (3, 5, 7, and 11) were analyzed in the context of the sub-dimensions found in other cultures and the theoretical infrastructure. Based on the results, it was decided to think of them as having 21 sub-dimensions. The results obtained are given in Table 1.

Table 1

Peter's Delusion Inventory Exploratory Factor Analysis Results

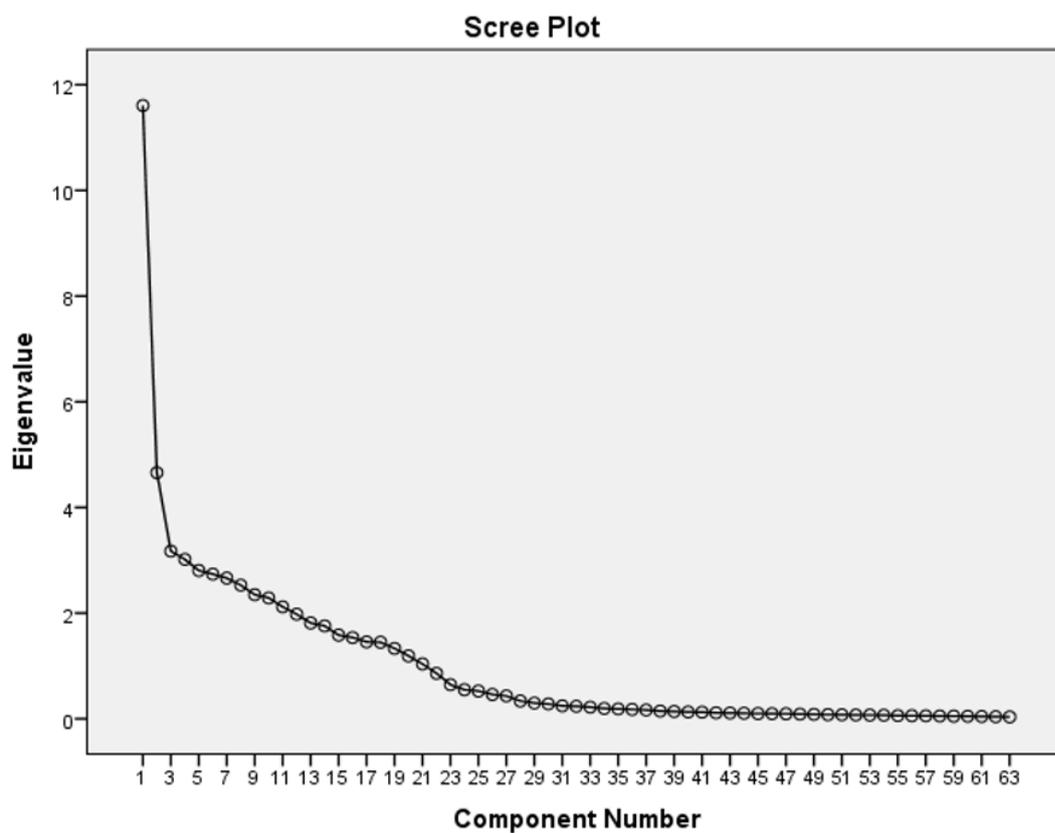
Factor	(Initial Eigenvalues)			Total Factor Loadings			Rotated Totals of Factor Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	11,606	18,422	18,422	11,606	18,422	18,422	5,264
2	4,659	7,395	25,817	4,659	7,395	25,817	4,591
3	3,171	5,034	30,851	3,171	5,034	30,851	3,812
4	3,017	4,790	35,641	3,017	4,790	35,641	3,633
5	2,805	4,453	40,094	2,805	4,453	40,094	4,309

6	2,738	4,346	44,439	2,738	4,346	44,439	4,497
7	2,662	4,226	48,665	2,662	4,226	48,665	3,942
8	2,529	4,014	52,679	2,529	4,014	52,679	3,849
9	2,348	3,727	56,407	2,348	3,727	56,407	3,987
10	2,287	3,630	60,036	2,287	3,630	60,036	4,049
11	2,117	3,361	63,397	2,117	3,361	63,397	4,283
12	1,978	3,140	66,538	1,978	3,140	66,538	3,497
13	1,813	2,877	69,415	1,813	2,877	69,415	3,435
14	1,757	2,789	72,204	1,757	2,789	72,204	5,235
15	1,583	2,512	74,716	1,583	2,512	74,716	3,590
16	1,537	2,439	77,155	1,537	2,439	77,155	3,764
17	1,455	2,309	79,464	1,455	2,309	79,464	5,142
18	1,447	2,298	81,762	1,447	2,298	81,762	3,286
19	1,331	2,113	83,875	1,331	2,113	83,875	4,217
20	1,190	1,889	85,764	1,190	1,889	85,764	2,495
21	1,038	1,647	87,411	1,038	1,647	87,411	4,141
22	,861	1,366	88,777				
23	,646	1,025	89,802				
24	,549	,872	90,674				
25	,526	,834	91,508				
26	,460	,729	92,238				
27	,431	,685	92,923				
28	,337	,535	93,457				
29	,298	,474	93,931				
30	,280	,444	94,375				
31	,244	,387	94,762				
32	,235	,373	95,135				
33	,220	,349	95,483				
34	,195	,310	95,793				
35	,186	,296	96,089				
36	,177	,280	96,369				
37	,166	,263	96,632				
38	,146	,232	96,864				
39	,138	,219	97,084				
40	,128	,203	97,287				
41	,124	,198	97,484				
42	,113	,179	97,663				
43	,109	,174	97,837				
44	,104	,165	98,001				
45	,098	,155	98,157				
46	,097	,154	98,311				
47	,095	,150	98,461				
48	,088	,140	98,600				
49	,084	,133	98,733				
50	,078	,124	98,858				
51	,075	,120	98,977				
52	,071	,112	99,089				

53	,070	,111	99,200
54	,067	,106	99,306
55	,060	,095	99,402
56	,057	,091	99,493
57	,055	,087	99,579
58	,052	,082	99,662
59	,049	,077	99,739
60	,047	,075	99,813
61	,043	,068	99,881
62	,039	,061	99,943
63	,036	,057	100,000

Figure 1

The Scree Plot of PDI-21 after EFA.



The confirmatory factor analysis confirmed this structure's 21 sub-dimensions after the exploratory factor analysis. The results obtained are given in Table 2.

Table 2

Sub-Dimensions Determined as a Result of Peters Delusion Inventory Factor Analysis and Items Loading from These Dimensions

Factor	Number of items	Item numbers
1. Insinuation from people	3	1,2,3
2. Implications from electronic devices	3	4,5,6
3. Not being what you think it is	3	7,8,9
4. To be tormented	3	10,11,12
5. Conspiracy	3	13,14,15
6. Being important	3	16,17,18
7. Being special	3	19,20,21
8. Being close to God	3	22,23,24
9. Telepathic communication	3	25,26,27
10. Effects of electronic devices	3	28,29,30
11. Being God's chosen one	3	31,32,33
12. Magic	3	34,35,36
13. Infidelity	3	37,38,39
14. Being a sinner	3	40,41,42
15. Distinctive Appearance	3	43,44,45
16. Losing thoughts	3	46,47,48
17. The end of the world	3	49,50,51
18. Being alienated from one's own thoughts	3	52,53,54
19. Vivid thought	3	55,56,57
20. Echo of thought	3	58,59,60
21. Losing willpower	3	61,62,63

Validity Analysis

Criterion Validity

In order to ensure the criterion validity of the Peter's Delusion Inventory, the EPQR-A scale, which is thought to measure similar structures, was used, and both scales were administered to 100 individuals. As a result of the normality tests showing the normality of the distribution, the significance of the relationship between both scales was tested by applying parametric correlation tests. As a result of the Pearson correlation analysis, it was seen that there was a significant positive relationship between the two scales ($r=.35$; $p<.001$). As a result of the statistically significant relationship between the Peter's Delusion inventory and the EPQR-A scale in this process, where the criterion validity was tested, it was concluded that this scale is a measurement tool that provides criterion validity.

Confirmatory Factor Analysis Results

The fit index values obtained as a result of confirmatory factor analyses are given in Table 3.

Table 3

Fit Index Values for Peter's Delusions Inventory

Scale	χ^2/sd	RMSA	SRMR	NFI	CFI
PDI-21	2,08	0.057	0.03	0,92	0,96

The fit indices obtained as a result of the analysis showed that the data conformed to the established model. It was seen that the ratio of Chi-square to degrees of freedom ($\chi^2 /sd = 2.08$), which was examined in order to evaluate the overall fit of the model, fell within the appropriate range. It was seen that the RMSA value of the model was 0.057, and in this context, it was seen that the model had a good fit to the covariance matrix. When the SRMR value was examined, it was seen that it took the value of 0.03 and had a very good agreement with this value. It was observed that the 0.92 NFI value in the model was above 0.90, and it showed a very good fit. It has been seen that the model has a perfect fit with a CFI value of 0.96.

Reliability Study

While the reliability study of the Peter's Delusion Inventory, which was adapted to Turkish culture, was conducted, the Alpha value was taken into account since it is a preferred method among psychological tests (Daniel & Witta, 1997). The reliability analysis conducted in this particular study revealed a Cronbach's Alpha coefficient of .929 for the Turkish version of the Peter's Delusion Inventory total score. Based on this coefficient, it can be inferred that the scale demonstrated a good level of dependability. The alpha coefficients for the subscales of the Turkish version of the Peter's Delusion Inventory ranged from .725 to .980.

Test-Retest Scores

The reliability of the Turkish version of the scale was assessed by calculating internal consistency coefficients and test-retest reliability coefficients. The results of the analysis, including the Cronbach Alpha internal consistency coefficients for both the factors and the overall scale, are displayed in Table 4.

Table 4

Reliability Analysis Findings for Internal Consistency of PDI-21

Factors	Number of items	Cronbach α
1	3	.740
2	3	.801
3	3	.877
4	3	.868
5	3	.850
6	3	.737
7	3	.734
8	3	.850
9	3	.855
10	3	.804
11	3	.788
12	3	.735
13	3	.845
14	3	.863
15	3	.875
16	3	.841
17	3	.872
18	3	.706
19	3	.765
20	3	.753
21	3	.758
Total	63	.870

Discussionand Results

The objective of this study was to culturally adapt the Peter's Delusion Inventory, a measurement instrument used to assess delusional ideation in a population that included individuals without clinical diagnoses, for the Turkish context. In the present setting, for the purpose of serving as a legitimate and dependable instrument of measurement within the Turkish cultural milieu, it is imperative to conduct a comprehensive investigation of language equivalence as well as an examination of the individual items.

Following the translation of the scale into Turkish, an assessment is conducted to evaluate the compatibility of the scale's structure with Turkish culture. In contrast, it has been observed that the structure of the scale varies across different cultural contexts, as the content of delusional beliefs may be organized differently. Consequently, the Turkish structure of the scale is being examined with the author's consent.

In the exploratory factor analysis study, the scale was found to have a structure with 21 sub-dimensions. Delusion is defined as a structure that shows cultural differences in its content (Ndetei & Vadher, 1984; Suhail & Cochrane, 2002). In other words, although

delusion types receive general definitions in terms of content, it is known that culture has an impact on the formation of these definitions (Bhavsar & Bhugra, 2008; Campbell, et al., 2017; Gaines, 1995).

The factor structure indicates that specific variations are influential in the creation of factors. The scale possesses a framework that elucidates analogous notions within distinct sub-dimensions. The intricate variation is believed to stem from Turkey's historical context and geographical position, which foster an atmosphere conducive to the development of microcultures (Çelik, 2008; Özensel, 2013). The cultural variations within Turkey are evident, as well as the distinct distinctions among comparable cultures, which can be attributed to factors such as geographical variations, individual characteristics, and evolving patterns of migration (Doğan, 2020). Hence, it is believed that the scale is divided into 21 sub-dimensions due to the numerous micro-cultural elements that can influence delusional thinking

When we evaluate it in the context of the contents, it is seen that the religious content sub-dimensions are not collected in a single latency dimension. Considered as a cultural structure, being close to God is a situation that every individual can experience, while being chosen by God is a situation that is only attributed to saints or special people (Karamustafa, 2014; Mohr, et al., 2010; Rudalevičienė, et al., 2008). While the sub-dimension of being chosen by God has a definition closer to grandiose-type delusion, being close to God corresponds to having a more conservative mindset and explaining the experience through a belief system. Similarly, the sub-dimension of being a sinner appears as a latency dimension that differs from the spiritual belief system because it is evaluated from a more negative experience, emphasizing the negativities of being a sinner. Peters and his friends state that they think that the creator's conscious or unconscious use of punishment or arousal in the process of the subject figuring out what happened affects how well the content is shaped. To clarify, the effectiveness of this thought formation can be attributed to the cultural transmission of this concept to individuals, regardless of their adherence to the specific religious or spiritual belief system that promotes it (Peters, Day, McKenna & Orbach, 1999).

The confirmatory factor analysis of the scale revealed the presence of two distinct sub-dimensions: the impact of electronic devices and the content of communications received through electronic devices. The lack of consolidation of these sub-dimensions into a single sub-dimension is believed to be linked to the growing notion that the human body is influenced and regulated by electronic devices beyond direct or subliminal messages,

particularly in the context of 5G conspiracy theories (Bruns, Hurcombe & Harrington, 2022; Mahl, Schäfer & Zeng, 2023; Samory, & Mitra, 2018).

It can be seen that the concept of magic is a sub-dimension in the form of a scale adapted to Turkish culture. The prevalence of magic as a culture and belief system is believed to influence the manifestation of this idea as a sub-dimension. Research has demonstrated that in civilizations where beliefs in magic and sorcery are prevalent, these cultural norms exert a greater influence on the content of delusions (Ndetei, & Vadher, 1984).. The emergence of this sub-dimension as a distinct entity within spiritual belief systems is believed to be attributed to its ability to sustain its existence across both the belief system and the cultural framework (Haarman & Marler, 2008; Siddiq, 2018; Ünal, 1984)

In the confirmatory factor analysis applied after the factor structure of the scale was determined, it was found that the factor structure of the scale showed high fit. It has been observed that culture-appropriate sub-dimensioning increases the reliability of the scale in other cultures to which the scale has been adapted.

The EPEQ-A form was used when performing the criterion validity analysis of the scale, and it was observed that there was a significant positive relationship between the two scales. EPQ-A form is a sub-form that measures a person's delusional thoughts. In this context, it would be correct to say that the scale can give an idea about the delusional structure.

There is no measurement tool in society that measures structures that are not called pathological but are similar in content to delusional thinking. PDI-21 differs from other scales developed for delusions because it is a scale that allows delusional thoughts to be measured without pathological definition. BAs a self-reported scale, it is also a dependable instrument, as individuals may be hesitant to openly disclose their delusional ideas to avoid social stigma or being perceived as mentally unstable. They should exhibit greater transparency and candor regarding their delusional ideations when they are capable of self-assessing their severity. Particularly among those who are not clinically diagnosed, as they do not possess the same level of conviction as someone with delusions, the utilization of a self-assessment instrument could perhaps alleviate their apprehension about social disapproval.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

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Compliance with Ethical Standards

The techniques conducted in research studies involving human subjects adhered to the ethical standards set by the institutional and/or national research committee, as well as the 1964 Helsinki Declaration and its subsequent revisions, or other comparable ethical norms. The privacy of all participants was ensured, and complete adherence to confidentiality rules for data collection and analysis was maintained. Therefore, this research study adheres to the principles of research publishing ethics. The authors assert that they have no conflicts of interest.

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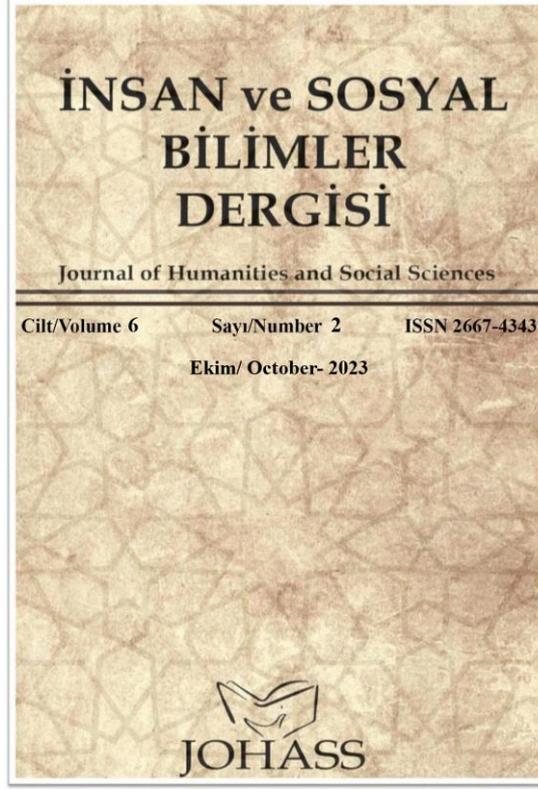
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Determining the Needs for Classroom Management Course in Associate Degree Child Development Departments

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Determining the Needs for Classroom Management Course in Associate Degree Child Development Departments

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Abstract

The aim of this study is to determine the needs for the classroom management course in associate degree child development departments. The research was conducted using the case study method. In this context, 5 experts were included in the study group using criteriyinon sampling technique, and 201 students were included using appropriate sampling technique. Data were collected through a semi-structured interview form developed by the researchers and the classroom management competency scale. Additionally, studies conducted nationally and internationally on the subject were also reviewed for data collection. The data were analyzed using content analysis, percentage, frequency, and mean analyses. According to the results of the research, the classroom management competencies of child development department students are at a moderate level. Experts state that since graduates mainly work in the education sector, there is a need for a classroom management course in these departments. Moreover, experts mentioned that in addition to professional knowledge such as planning, knowing classroom management strategies, knowledge of methods and techniques, using instructional technologies, and designing materials, students also need to have personal characteristics such as being open to development, friendly, empathetic, and having communication skills to succeed in their professional lives. The findings obtained from the research can be used for program development or updating studies for the classroom management course in associate degree child development departments.

Keywords: Child development, classroom management, needs analysis

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Introduction

Education in the field of child development is founded on understanding the cognitive, physical, social, and emotional changes that occur during childhood, one of the most critical phases of an individual's life, and developing educational approaches suitable for these changes. The experiences children acquire during this period form the foundation for many fundamental skills and attitudes in their future lives. Therefore, the knowledge and skills that professionals who will work directly with children need to possess are of great importance.

Students trained in Child Development undergraduate and associate degree programs can work in various fields after graduation. One of these fields is educational institutions. Especially those who work as teachers/assistant teachers in private educational institutions providing preschool education, the child development undergraduate and associate degree students need to know the group dynamics they may encounter in their advancing careers, individual differences, and how to cope with these differences. However, it is observed that detailed and systematic training on classroom management is not given in the current child development undergraduate and associate degree curriculums. In this article, a needs analysis is presented with the aim of drawing attention to the existing deficiency and emphasizing the necessity of the classroom management course in child development departments. Firstly, a general overview of the definition and importance of classroom management, and then, in light of the interview and survey results with field experts and child development students, the article focuses on what kind of deficiencies exist in the current curriculum in this field and how these deficiencies can be addressed. This study aims not only to raise awareness on the subject of classroom management in the field of child development education but also to guide educational institutions and relevant stakeholders.

Classroom Management and Its Importance in the Preschool Period

The preschool period refers to a phase where children continue their social, emotional, physical, and cognitive development and where the foundations of education are laid; it is also a time of many first experiences for children. In this period, children are introduced to the school environment, friends, teachers, rules, and routines. This period is a significant time in which rapid changes and developments are experienced from an individual's perspective. (Temizyürek & Akyüz, 2020). During this process, educators who have close and intense interaction with children need to possess effective classroom management skills to support

both academic and social skill development of the children, facilitate their adaptation to the new environment, and ensure their learning in a safe and supportive setting. Classroom management plays a critical role in organizing the educational environment and providing an effective learning atmosphere to support students' learning process.

Classroom management is defined as directing classroom dynamics like an orchestra by encompassing factors such as organizing resources in a planned manner, making the environment productive, tracking student progress, and identifying potential student difficulties in advance (Terzi, 2002). In other words, classroom management is expressed as a process of creating a positive educational atmosphere in the classroom and enhancing the opportunities for students to express themselves freely and demonstrate their abilities (Turan, 2004).

Classrooms, which are the spaces where educational-teaching processes are conducted and where teachers interact directly with students, represent a certain structural order, especially in terms of student learning (Başar, 2000). It is an undeniable fact that this structural order needs to be supported by a successful teaching process. Effective classroom management encompasses comprehensive direction of education programs, physical conditions, time management, emotional relationships, and all kinds of activities within the classroom. In this context, it is expected that the teacher is familiar with both the characteristics of the student and teaching methods. However, it is not enough for the teacher to be knowledgeable in this area only; they also need to be proficient in classroom management. This is because the relationship between teaching and management is mutual, and the success of one positively affects the other. Management knowledge is essential for an effective teaching process, and teachers need to be aware of this (Ming-tak and Wi-shing, 2008; Pretorius and Lemmer, 1998; Cited: Eren, 2018).

While the types of communication vary, every interaction involves certain objectives, whether intentional or unintentional. These objectives, evident in the message exchange between the sender and receiver, provide certain benefits to the participant(s) in the communication process. Recognizing the physical, psychological, and sociological functions of communication is crucial to achieve these specified objectives. (Ata & Oğuz, 2021). In this context, a teacher must be a successful manager and communicator beyond being a competent educator (Saritaş, 2003). Classroom management is necessary to create an atmosphere conducive to learning because it includes techniques and processes that encourage both teaching and learning (Karwan and Hussein, 2023). For a teacher to conduct an effective

teaching process and to increase active student participation in lessons, it is essential to have in-depth knowledge of classroom management and dealing with unwanted student behaviors and the ability to apply this knowledge in practice (Erol, 2006). Creating a positive atmosphere in the classroom and achieving the intended results in education depend on the teacher's classroom management skills. An effective educational process is directly related to strong classroom management skills. The foundation of success in education and teaching lies in the proper guidance of the classroom (İlgar, 2005). Similarly, Wahdah et al., (2023) stated that classroom management and student success cannot be separated from each other. In this context, when child development undergraduate and associate degree students take positions in educational institutions, they will be professionals interacting directly with children. Therefore, they need to possess the ability to manage a group of children, direct interaction among children, cope with negative behaviors, impart self-control skills to students, organize the learning environment, and guide students' learning processes. The classroom management course is of great importance in imparting this competence.

On the other hand, there is no classroom management course in associate degree child development departments in Türkiye. In the literature, no studies have been found to determine the needs for classroom management courses in child development departments. In this respect, the study is capable of filling this gap in the field. For this reason, the study aimed to determine the needs for classroom management course in child development departments. In this context, one general research and three sub-problems have been identified in this study.

Problem Statement

Is there a need for a classroom management course in associate degree child development programs?

Sub-problems

1. According to the opinions of the students, is there a need for a classroom management course in their programs?
2. According to the opinions of experts, is there a need for a classroom management course in child development programs?
3. Based on the literature in the field, is there a need for a classroom management course?

Method

Model

In this study, it is aimed to identify the needs for a classroom management course in child development departments. In line with the objective, data triangulation has been used through employing different data collection tools such as literature review, expert interview form, and scale. In this context, the study has been conducted with the case study method. Case studies are studies that describe events and situations occurring in their natural conditions in detail using different data collection tools and are based on deep foundations (Hancock & Algozzine, 2006). In the study, the embedded multiple case study design has been used as the design. The embedded multiple case study design is a study where there are different units of analysis within itself and more than one case is addressed in a study (Yin, 2014).

Sample and Population

In the scope of the research, two different sampling techniques have been used for two different participant groups. Criterion sampling has been used for experts, and convenience sampling technique has been used for students. Criterion sampling is a type of sampling in which the sample is formed according to certain criteria determined by researchers (Büyüköztürk et al., 2011). In the criterion sampling technique, the criteria sought are that the participants have taught courses in child development departments and have taken a classroom management course. Convenience sampling is a technique where participants are those that researchers can easily reach and include in the study, which accelerates the research and the probability of participants being selected is unknown (Dawson & Trapp, 2001). The number of experts participating in the study is five. 20% (n:1) of the experts are Associate Professors, 40% (n:2) are Assistant Professors, 20% (n:1) are Lecturers with PhDs, and 20% (n:1) are Lecturers and PhD students. The number of students participating in the study is 201. 64.1% of the students are 2nd grade and 35.9% are 1st grade.

Data Collection Tool

In the study, an attempt has been made to diversify the data by using different data collection tools to collect data. In this context, data has been obtained by conducting semi-structured interview forms, scales, and literature reviews.

Semi-Structured Interview Form: Within the scope of the study, a semi-structured interview form, consisting of four questions and developed by the researchers, has been used. The questions included in the interview form address the need for a classroom management course, knowledge and skills related to classroom management, what is needed in professional life regarding classroom management, and the responsibilities of stakeholders. After the questions were prepared, opinions were received from two field experts, and the appropriateness of the questions was decided by the experts. No additions or deletions were made to the interview questions after the expert opinion.

Classroom Management Competency Scale: Within the scope of the study, the scale developed by Elçiçek, Kinay, and Oral (2015), consisting of five sub-dimensions and 30 items of the 5-point Likert type, has been used. The KMO value of the scale was calculated as 0.90, the X^2/df ratio as 1.67, and the RMSEA value as 0.047. They also found the Cronbach's alpha reliability coefficient to be 0.87. The Cronbach's alpha reliability coefficient for the sample in this study is 0.882.

Data Analysis

After the opinions obtained from the experts were transcribed into text, they were analyzed with content analysis. Content analysis is to organize data that resemble each other within certain codes and themes and present them in a way that readers can understand (Yıldırım & Şimşek, 2012). The data obtained from child development students with the scale were analyzed with percentage, frequency, and average. Since the questions in the scale are of the 5-point Likert type, the scores that can be obtained for each question vary between 1-5, and overall in the scale, it varies between 30-150. The responses in the scale are listed as very insufficient, insufficient, intermediate, sufficient, and very sufficient. This classification was taken into account when determining the levels for the overall scale and sub-dimensions of the students.

Validity – Reliability

Some measures have been taken to ensure validity and reliability in the research. To ensure validity; opinions were taken from experts and participants, and these opinions were given in the form of direct quotations. In addition, measures have been taken such as explaining the method, design, study group, the reason for selecting the sample, the preparation processes of data collection tools, and analysis of the research.

To ensure reliability in the research; measures such as calculating the concordance of opinions and the Cronbach's alpha reliability coefficient have been taken. For opinion concordance, the opinion concordance formula of Miles and Huberman (1994) has been used. According to this formula $[G.U = G.B / (G.B + G.A) * 100]$, it is sufficient for the opinion concordance to be 70% and above (Miles & Huberman, 1994). In the study, the opinion concordance rate between two coders used in content analysis in the analysis of data obtained from expert opinions is 81.8%. The reliability coefficient for the scale used to determine students' classroom management competencies for the study group is .882.

Compliance with Ethical Standards

For this study was received ethics decision by Hatay Mustafa Kemal University Social And Humanities Scientific Research And Publication Ethics Committee. (Date:05.05.2023 Decision:04).

Findings

1. Is There A Need for A Classroom Management Course According to the Students of The Child Development Department?

The averages of the students were checked to determine the sub-dimensions of the scale and their levels in the whole scale, and the results are given in Table 2.

Table 1

Descriptive Values Obtained from the Scale

Sub-dimension	N	Min.	Max.	Mean	S. Deviation	Level
Relationship management	201	9	45	28.60	6.24	Moderate
Instruction management	201	7	35	20.55	5.53	Moderate
Behavior management	201	6	30	12.62	5.25	In sufficient
Physical arrangement management	201	5	25	19.35	3.06	Sufficient
Time management	201	3	15	11.29	2.34	Sufficient
Total	201	30	150	96.24	15.36	Moderate

According to the data in the table, the score ranges for the five levels for the overall scale are as follows: 30-53 very insufficient, 54-77 insufficient, 78-101 intermediate level, 102-125 sufficient, and 126-150 very sufficient. Due to the average score of the students from the overall scale being 96.24, their classroom management competencies are at an

intermediate level. For the relationship management sub-dimension, the score ranges for levels are: 9-15 very insufficient, 16-22 insufficient, 23-30 intermediate, 31-37 sufficient, and 38-45 very sufficient. The average score for this dimension is 28.60, which is at an intermediate level. In the instruction management sub-dimension, the levels are: 7-12.5 very insufficient, 12.6-18.1 insufficient, 18.2-23.7 intermediate level, 23.8-29.2 sufficient, and 29.3-35 very sufficient. The average score for this dimension is 20.55, placing it at the intermediate level. In the behavior management sub-dimension of the scale, the score ranges for levels are: 5-9.8 very insufficient, 9.9-14.7 insufficient, 14.8-19.7 intermediate, 19.8-24.6 sufficient, and 24.7-30 very sufficient. The average score for this dimension is 12.62, placing it in the insufficient level. In the physical arrangement management sub-dimension, the score ranges for levels are: 5-8 very insufficient, 9-12 insufficient, 13-16 intermediate, 17-20 sufficient, and 21-25 very sufficient. The average score for this dimension is 19.35, which is at the sufficient level. In the time management sub-dimension, the score ranges for levels are: 3-5.3 very insufficient, 5.4-7.7 insufficient, 7.8-10.1 intermediate, 10.2-12.5 sufficient, and 12.6-15 very sufficient. The average score for this dimension is 11.29, placing the students at the sufficient level.

2. Is There A Need or A Classroom Management Course in Child Development Departments according to Experts?

The answers given by the experts to the question, "Is there a need for a classroom management course in child development departments? Why?" are provided in Table 2.

Table 2

Expert Opinions Regarding the Question, "Is There A Need for A Classroom Management Course in Child Development Departments?"

Theme	Code	f
Need	Working in the field of education	5

According to Table 2, experts have expressed their opinion under the theme of the need for a classroom management course in child development departments as working in the field of education (f:5). Some sample opinions of the experts related to the determined code are as follows;

"Graduates of the Child Development department predominantly work in the field of education. Special education and rehabilitation centers and kindergartens are their main areas of work. In some schools, they work as teachers and in others, as assistant teachers. However, since there is no classroom management course in child development departments, they might have to work as if lacking in this aspect. Especially since the age group is 4-6 years, there can constantly be unwanted situations, and due to the sensitivity of the children and their families, they should know what to do in the face of these unwanted situations. Therefore, it should definitely be taught as a course." (U4)

"Yes. I think they need it. For example, the fact that a student graduating from a vocational high school child development department cannot be directly appointed as a teacher through KPSS should not mean that they do not need this course. Because students and graduates of this department serve as teachers in many areas, especially in the private sector. Students and graduates of child development are in direct contact with preschool children, and I think their numbers are noteworthy. I believe that action should be taken in this real context, and I think they need to take a classroom management course." (U1)

The responses given by the experts to the question, "What kind of knowledge and skills should a graduate of the child development department have in terms of classroom management?" are included in Table 3.

Table 3

Expert Opinions on the Question, "What Kind of Knowledge and Skills Should Graduates of The Child Development Department Have in Terms of Classroom Management?"

Theme	Code	f
Professional competence	Field knowledge	4
Individual competencies	Personal characteristics	4

According to Table 3, experts have expressed their opinions under the theme of professional competence as field knowledge (f:4) and under the theme of individual competences as personal characteristics (f:4) for students who are graduates of the child development department. Some example opinions of the experts related to the identified codes are as follows;

"Like in every profession, these students also need to have some features both professionally and personally. Firstly, they need to love children and their jobs.

Professionally, they need to be able to plan, know classroom management strategies, teaching methods and techniques, and especially design materials. Since children of this age are in the concrete operational stage, everything can be material for them. Personally, they should be open to development, cheerful, able to become a child with children, and have empathy and communication skills." (U5).

"Firstly, they need to know the children. Therefore, they should have knowledge about child development. After knowing the children, they should have the knowledge and skills to plan and implement the educational process that will respond to their interests and needs, appeal to children, keep children's attention at a high level, and motivate children. They should have the knowledge and skill to solve problems that may occur during the educational process. They should have knowledge of methods and techniques that will keep the motivation of children high. They should have creative problem-solving knowledge and skills to resolve problems encountered during the implementation of the plans. To start, maintain, and conclude the process healthily, they should be patient, tolerant, understanding, disciplined, good role models, and have advisory roles." (U2).

The answers given by the experts to the question, "What do students of the child development department need in terms of classroom management in their working life? What should be taught?" are included in Table 4.

Table 4

Expert Opinions on the Question: What Do Students of the Child Development Department Need In Terms of Classroom Management in Their Working Life?

Theme	Code	f
Pedagogical knowledge	Developmental psychology	4
Field knowledge	Planning and implementation knowledge	3
Technological knowledge	Instructional technologies	1

According to Table 4, experts have expressed their opinions on what the graduate students of the child development department will need in their working life under the theme of pedagogical knowledge as developmental psychology (f:4), under the theme of field knowledge as planning and implementation knowledge (f:3), and under the theme of technological knowledge as instructional technologies (f:1). Some sample opinions of the experts related to the identified codes are as follows;

"For effective and lasting learning and behavior change, within the scope of classroom management, they first need information about the developmental characteristics, levels, interests, and needs of the children. With this knowledge, they will be able to plan and implement the educational process that suits and addresses the children. Education according to the child will focus the child's attention on the educational process and also motivate them to the process. Thus, children will not be apart from the process but will be a part of the process and even the main element shaping the process in the advanced stages."(U2).

"The plans made due to children in the preschool period can vary a lot. Therefore, students of child development should also be able to apply by making changes to the plans in practical terms. In addition, primarily the developmental characteristics, interests, and needs of the children, methods of increasing motivation in the classroom, ways of including children in the educational process, and methods for enabling children to plan, implement, and manage their own educational processes should be taught to the students of the child development department." (U1).

"Today is the age of technology, and preschool students are getting acquainted with technology even before they start school. Students of child development need to know instructional technologies both to inform children and their families about technology use and to benefit from technology during teaching."(U4).

The answers given by the experts to the question, "Are there any responsibilities for YÖK, Universities, Academicians, and other stakeholders for the classroom management course in the child development department?" are included in Table 5.

Table 5

The Expert Opinions Regarding the Question, "Are There Any Responsibilities on the Part of YÖK, Universities, and Academicians for the Classroom Management Course in Child Development Departments?"

Theme	Code	f
YÖK	Curriculum development	3
Universities	Incorporating it as a course	3
Academicians	Following innovations	2

According to Table 5, experts have expressed their opinions regarding the responsibilities that fall to YÖK, Universities, Academicians, and other stakeholders for the

classroom management course in child development departments under the themes of curriculum development (f:3) for YÖK, incorporating it as a course (f:3) for Universities, and following innovations (f:2) for Academicians. Some example opinions from the experts relating to the specified codes are as follows;

"YÖK: Should make the necessary adjustments for the renewal of the curriculum and the addition of the classroom management course. Universities: By emphasizing application courses and internships, they should provide students with practical experience. Academicians: They should follow current approaches in classroom management and teach students the best and most effective methods. Other Stakeholders: Institutions with practical application areas, especially schools, kindergartens, and special education institutions, should cooperate with universities and teach students solutions to problems they may encounter in real life (U3).

"There is a need for such a course, so considering the characteristics of the department, the classroom management course taught in education faculties can be updated through needs assessment studies, and programs can be developed, YÖK can lead these studies. It is important for Universities to include it as a course and if possible as a compulsory course. I can say that Academicians have the most responsibility. They can contribute to curriculum development and evaluation studies with their academic studies and can also instill strategies and approaches related to this course in students."(U5).

3. According to the Literature, is There A Need for A Classroom Management Course in Child Development Departments?

Within the scope of the research, studies at national and international levels have been examined to determine whether there is a need for a classroom management course.

Dönmez (2007) has emphasized that teachers should have effective classroom management skills, stating that teacher behaviors are the most important determinant in creating an effective and positive classroom atmosphere. Similarly, Ercoşkun and Ada (2013) have also mentioned insufficiency in this field as a reason for teachers not being able to establish effective classroom management. In the study where Paliç and Keleş (2011) received opinions from teachers about classroom management, they have recommended implementing pre-service and in-service training programs related to the subject to ensure that all teachers are equipped with contemporary approaches and proficiency in classroom management. Öztürk et al., (2014) have emphasized in their study with teacher candidates that

cooperation between family and teacher is important against unwanted behaviors in the classroom, but the education that the teacher has received regarding classroom management, and the knowledge, skills, and attitudes they possess are more effective in shaping the behaviors of the children. Erdoğan, Kurşun, Tan Şişman, Saltan, Gök, and Yıldız (2010) in their study on classroom management and reasons for in-class problems and their prevention, have listed one of the reasons as teacher management inadequacy and one of the preventive measures as improving teacher competencies. Parpucu, Yıldırım Polat, and Akman (2018) in their study have examined the opinions on relationships and communication in classroom management of participants working in kindergartens as preschool teachers and assistants. As a result of the research, they observed that teachers with associate degrees and high school diplomas were distinctly limited in terms of classroom management and the factors affecting classroom management. From this point, they pointed out the importance of the classroom management course and suggested that the course should be taught by a relevant field expert. Uyanık Balat, Bilgin, and Ünsal (2017) in their study examining the relationship between preschool teachers' attitudes towards the profession and classroom management, have stated that teachers' democratic attitudes positively affected classroom management skills while negative attitudes adversely affected these skills. Aküzüm and Altunhan (2017) have revealed that the classroom management skills possessed by preschool teachers predict their inclusive education competencies. Güder, Alabay, and Güner (2018) in their study examining the behavioral problems encountered by preschool teachers in the classroom and the strategies they applied, have stated that there is a need to enhance teachers' competencies related to classroom management approach.

O'Neill and Stephenson (2012) have stated in their study with teacher candidates in Australia that the situation they feel most inadequate in is dealing with challenging students. Burden (2003) has emphasized that teachers need to possess the necessary knowledge and skills related to classroom management to facilitate positive social interaction, active participation, and self-motivation. Wang, Haertel, and Walberg (1993) have expressed in their study that the most important factor affecting students' learning and academic achievement is classroom management. Wait and Warren (2001) have compared teachers receiving traditional undergraduate education with those graduating from a program containing effective classroom management strategies and determined that teachers receiving effective classroom management strategies were more successful in managing the classroom. Carlson, Bender, Benson, and Tired (2011) have implemented a 16-week program aimed at enhancing

cooperative structures of children, facilitating their adaptation to school, reducing aggressive behaviors, and strengthening classroom management strategies on 24 preschool teachers. At the end of the research, positive changes were observed in the use of effective classroom management strategies by preschool teachers. Chun-Ting (2023) has suggested that teachers working in active aging learning centers in Taiwan base their interactions and interpersonal harmony on traditional Chinese methods; therefore, they should be trained in classroom management and encouraged to have positive interpersonal interactions inside and outside the classroom. Zhang (2023) has noted that classroom management problems are more prevalent in online education and highlighted the need for teachers to learn effective classroom management methods in online education.

Studies show that the way to create a positive classroom atmosphere is through teacher behavior. For this, teachers must have the necessary knowledge and competence. The way to create a positive classroom environment is through effective classroom management. Classroom management also positively affects academic achievements by improving the quality of education.

Discussion and Results

Classroom management not only provides students with theoretical knowledge but also prepares them for the challenges they may face in practice. This preparation both increases individual awareness and facilitates finding effective solutions to problems that may be encountered in professional life. The aim of this study is to determine whether there is a need for a classroom management course in child development departments. In line with this purpose, the study has been conducted using the case study method. The data obtained through literature review, expert opinions, and student views have been analyzed and interpreted.

The classroom management competencies of child development students have been determined to be at a medium level. Şahin Sak (2015) has conducted a study supporting this finding, examining the self-efficacy beliefs of pre-school teacher candidates regarding classroom management. She interviewed 52 teacher candidates who had taken the classroom management and school practice course, determining that 51.9% of the participants were partially competent. Due to the students' level being medium, it can be said that they need education in the field of classroom management. In pre-school, classroom management is a

composite of knowledge, skills, and behaviors related to child-centered, multifaceted development, and the use of play as the fundamental teaching method (Küçükahmet, 2012). These components are included in the sub-dimensions of the scale used in the study. The students' level has been identified as medium in relationship management and instruction management dimensions, sufficient in physical order management and time management dimensions, and insufficient in behavior management dimension. Students feel competent only in physically organizing the classroom environment and in terms of time. They are not sufficient in the dimensions of relationship, instruction, and behavior, which have a significant place in classroom management strategies. Ming-Tak and Wai-Shing (2008) have stated that the purpose of classroom management is to facilitate effective and meaningful learning by creating a positive classroom atmosphere to support students' developmental areas and boost their self-confidence. To achieve this goal, it can be argued that students need to be proficient in other dimensions of classroom management as well. This is because Early et al. (2006) have found that the education received by teachers has an impact on children's cognitive and general skills. There are some studies indicating that students graduating from vocational high schools in child development and associate degree child development programs need a course in classroom management. In a study conducted by Parpucu, Yıldırım Polat, and Akman (2018), it was determined that assistant teachers, who are graduates of associate degree programs and vocational high schools, did not include teaching methods and techniques, material usage, the physical environment of the classroom, and the developmental characteristics of learners while defining classroom management. It was reported that this situation might be due to not taking a course in classroom management. Contrary to these studies, Yeşilyurt and Çankaya (2008) found in their research with 225 teachers that the classroom management skills of associate degree graduates were higher than those of bachelor's degree graduates. Denizel Güven and Cevher (2005), in their study with 93 preschool teachers, found significant differences in favor of preschool teaching and child development associate degree graduates, and Sadık and Dikici Sığırtmaç (2016) found a significant difference in favor of associate degree graduates between bachelor's and associate degree graduates. The results of these studies could be attributed to the fact that associate degree graduates and vocational high school graduates in the study group have more work and application experience compared to bachelor's degree graduates due to the data collection tool used.

In the research, experts have stated that students graduating in child development predominantly need a course in classroom management as they work in the field of education. They have emphasized that, in order for students to be successful in their professional lives, they need to have personal qualities such as being open to development, cheerful, empathetic, and communicative, in addition to professional knowledge such as planning, knowing classroom management strategies, knowledge of methods and techniques, and designing materials. Bulut (2020) has stated that in order to be a teacher in the preschool age group, students need to know developmental characteristics and use various methods to provide classroom management. Experts have emphasized that students need to be able to use developmental psychology, planning and implementing, and instructional technologies, which have become a necessity of today, to establish effective classroom management. Prensky (2001) refers to today's students as digital natives. Therefore, teachers need to concretize and facilitate teaching by using instructional technologies in various ways within the classroom (Arabacı and Polat, 2013). Additionally, experts have mentioned that tasks such as developing and updating programs related to the course for higher education institutions, making it a mandatory course for universities, and keeping abreast of innovations for field experts to know contemporary classroom management strategies fall on the institutions. Teachers who do not have sufficient knowledge and skills in classroom management will not be able to instill the behaviors they want to impart to their students (Terzi, 2002).

Within the scope of the study, 132 vocational colleges with child development programs in 80 universities, excluding foundation universities, have been examined. It has been observed that in 21 of these schools, a classroom management course is offered, being mandatory in 8 and elective in 13 (YÖKATLAS, 2023). In other words, in 65.6 % of universities offering an associate degree in child development program, no classroom management course is offered. This value indicates that the classroom management course is largely not included in the child development programs at the associate degree level, and this is a deficiency for students who mostly work in the education sector after graduation.

The findings obtained show that education in classroom management plays a critical role in creating effective learning environments contributing to the cognitive, social, and emotional development of children. At the same time, classroom management education imparts critical skills to students such as understanding group dynamics, preventing or solving potential conflicts and problems, and increasing student motivation.

In conclusion, it is recommended that the curriculum of the child development department be updated with more comprehensive and practical training on classroom management. This update is thought to be able to increase both the academic success of department students and enrich their field experiences after graduation; moreover, it can serve as a guiding reference for universities, educational institutions, and other relevant stakeholders regarding the addition of classroom management education to the program. Especially in the curriculum development process, it is hoped that the findings obtained from the study will contribute to making child development education more compliant with international standards. Lastly, the addition of the classroom management course to the curriculum will be a step that supports the vision and mission of the child development department, equips students with the skills required by the 21st century, and makes them more competent in the field. Therefore, based on the results of this study, it is recommended to add a classroom management course to the curriculum of the child development department.

Compliance with Ethical Standards

For this study was received ethics decision by Hatay Mustafa Kemal University Social And Humanities Scientific Research And Publication Ethics Committee. (Date:05.05.2023 Decision:04)

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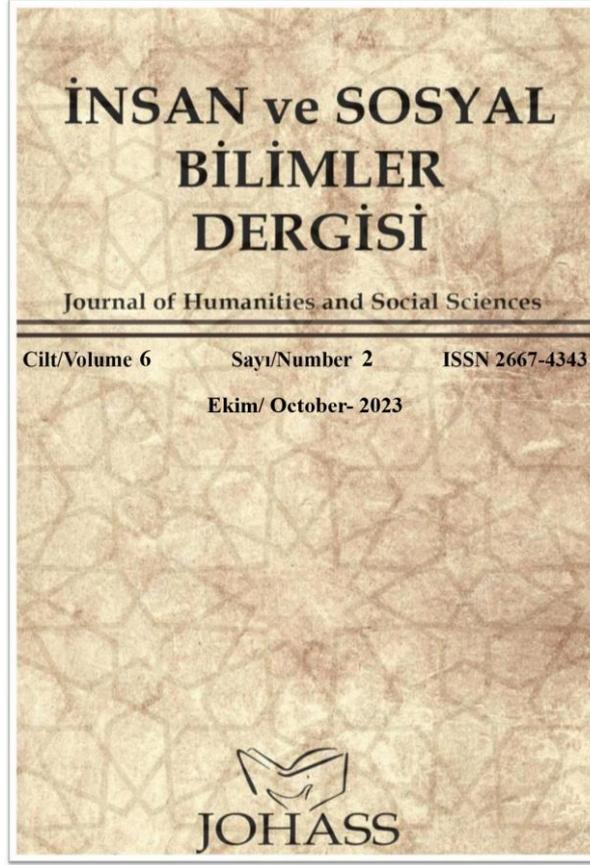
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Investigation of Preschool Teacher Candidates' Views on Zero Waste

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Investigation of Preschool Teacher Candidates' Views on Zero Waste

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Abstract

Individuals' perspectives and views on zero waste are important in terms of minimizing the damage to the environment and a sustainable world. At this point, especially the level of educators' understanding of sustainability and zero waste will directly affect the worldview of students, who are the individuals of the future. The aim of this study is to determine and examine the views of pre-service preschool teachers on the concept of zero waste. Within the scope of the study, the views of 83 pre-service preschool teachers on zero waste were examined in depth using an interview form, and the data were analyzed by creating codes and categories. Phenomenology, one of the qualitative research methods, was used in the process. As a result of the study, it was determined that pre-service preschool teachers have limited knowledge about zero waste and sustainability. In addition, the fact that most pre-service teachers defined zero waste as recyclable waste indicates that there is an incomplete learning. It was determined that pre-service preschool teachers have limited knowledge and experience about reduce and reuse, which are recommended for a sustainable environment, and which take place before recycling in the zero waste hierarchy. Another important result was that pre-service preschool teachers prioritized especially plastic wastes in terms of recycling. In line with these results, it is recommended that these issues should be included in the education programmed for pre-service teachers.

Keywords: Preschool education, preschool teacher candidates, science education, environmental education, zero waste

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Introduction

People pollute the environments that they live in with the wastes that they leave to the environment. Although this pollution seems to be limited to that area where the individual lives, it actually directly affects the world. In the world where the carbon footprint is an average of 7 tonnes per year, it shows that the increasing human population creates a great pollution (Tezel & Yıldız, 2020). The result of atmospheric and marina pollution due to emission of various wastes in the world, various disasters related to global warming such as floods and droughts are encountered. These problems are among the main causes of climate change, which is called "red alert" for humanity in the United Nations Circular (Intergovernmental Panel on Climate Change [IPCC], 2021; Onuoha, Ngobiri, Ochekwub & Onuoha, 2022). Numerous ways to contribute to the solution of the climate crisis are put forward by researchers, policy makers and non-governmental organizations (Schouten, 2021; Geden, 2018). Although countries make some commitments from their upper legislative bodies, the public's opinion and opinion on this issue directly affects environmental change and can create solutions for problems. There are some ways to produce personal solutions to these problems around the world. Among these, there are suggestions such as reducing the use of fossil fuels, reducing meat and milk consumption, reducing the use of aircraft, using public transport in transportation, reducing energy consumption, respecting green areas, reducing consumption and waste (Bhoyar et al., 2014). In order to promote these solutions, countries carry out some studies in certain periods. At the beginning of these, studies on energy saving and then increasing green areas come first. In order to reduce waste and consumption by increasing energy saving and green areas, the issue of "Zero Waste" comes to the agenda. Zero waste is a project that includes ensuring efficient use of resources, preventing waste, minimizing waste generation processes by addressing them, and ensuring the recovery of the waste generated by separating them (Bagui, & Arellano, 2021; Song, Li & Zeng, 2015). The concept of zero waste includes the stages of reduce, reuse and recycle known as the "3R rule" to create a sustainable living space. These stages aim to create waste management awareness in the society and to produce solutions to global environmental problems in the distant goal (Yu, Zhang, Li, Montenegro-Marin & Kumar, 2021). Zero waste was implemented for the first time in Türkiye in 2017 and in this sense, steps were taken to prevent waste and use resources efficiently. Zero waste project started to be implemented for the first time according

to the Zero Waste Regulation published in the Official Gazette in 2019 and the project started to be implemented all over Türkiye in 2023 (Gül & Yaman, 2021).

Social acceptance is important for environmental initiative activities to be effective in solving environmental problems. These initiative activities become possible with the education of individuals. At this point, preservice preschool teachers who will educate future individuals who have the power to change societies and the world should have environmentalist goals and learning areas for a sustainable society (Atasoy & Ertürk, 2008; Gülersoy, Dülger, Dursun, Ay & Duyal, 2020). There is a compulsory course called "Early Childhood Environmental Education" in the undergraduate program for preschool teachers in Türkiye. In preschool teaching undergraduate programs and other teacher training undergraduate programs, course materials, outcomes and subject contents should be related to the environment and zero waste (Kowasch, 2022; Özel & Erdaş Kartal, 2022). At this point, the thoughts, opinions and prior knowledge of teachers, who are the primary practitioners in the teaching of learning outcomes, are very important. In the literature, studies on this subject have come to the forefront in recent years and studies have been conducted especially for science and social studies teachers and prospective teachers. In these studies, awareness levels towards basic concepts were generally examined (Altınok, 2021; Dal & Okur Akçay, 2021; Harman & Yenikalaycı, 2020; Önal, Kaya & Çalışkan, 2019). In addition, in the international literature, it is seen that the concept of zero waste is addressed at the point of reducing environmental problems (Álvarez-García, Sureda-Negre & Comas-Forgas, 2015; Kowasch, 2022; Mónus, 2022; Murley, Gandy & Huss, 2017). Although these studies mostly include field-based evaluations, they do not contain sufficient information about lower age groups and their teachers. In the current study, it was aimed to determine the views of pre-service preschool teachers on the concept of zero waste.

Method

The research aims to determine the views of preservice preschool teachers on zero waste. In this context, analyses of common experiences and experiences towards a phenomenon or phenomenon (zero waste) were discussed. In this process, the opinions of individuals were revealed with the phenomenological design, one of the qualitative research methods. In this design, the aim is to understand a particular phenomenon in depth based on the experiences of individuals. At this point, it is expected to reveal the cognitive structures of

each pre-service teacher by looking closely at their experiences and comments on the zero waste issue that they perceive and focus on in their own world with the primary data collection method (Christensen, Johnson & Turner, 2015; Creswell & Poth, 2016). In this study, in accordance with the nature of the phenomenological research design, questions were asked about the perception/experience of pre-service preschool teachers on zero waste, answers were received and analyses were made on the subject or phenomenon of zero waste.

Working Group

Convenient sampling technique was used to determine the study group of the research. Convenient sampling technique is frequently used in qualitative sampling because it provides advantages to the researcher in terms of economic, practical and easy accessibility. Here, convenient sampling occurs when individuals are invited to the study. Convenient sampling also provides speed to the researcher for the realization of the study. The disadvantage of convenience sampling is that the universe cannot be represented because the sample is small or limited to a certain area. Here, generalization to a larger population remains limited (Creswell & Poth, 2016; Yıldırım & Şimşek, 2013). In this study, 63 undergraduate students studying at Kastamonu University, Faculty of Education, Department of Preschool Education were included in the study group. The participants were given codes as K1 , K2 ,K63 .

Data Collection

The data were collected in spring semester of 2023. The interview form developed by the researchers was used as a data collection tool. Participants were asked 12 open-ended questions and answers were received. The questions in the interview form are as follows: “What is waste? Explain.”, “Can you list five wastes that come to mind?”, “How many types of waste do you think there are? Explain.”, “What is zero waste? Explain.”, “What is your opinion on the feasibility of zero waste? Please explain.”, “Which practices can be done in our faculty for zero waste? Explain.”, “What do you think about the relationship between zero waste and recycling? Explain.”, “How do blue caps and similar campaigns affect the use of plastic and pet bottles? Explain.”, “Where would you like recycling bins to be placed in our faculty?”, “Is the mask medical waste? Explain.”, “Should waste mask bins be placed in a different area from recycling bins?” and “What do you think about epidemic and waste management? Explain.”. The validity and reliability of the data collection tool were ensured by taking expert who worked on preschool opinion while creating the data collection tool.

Analyzing the Data

In the study, data were collected by researchers. The interview form was distributed to the preservice teachers and then the preservice teachers were asked to answer and fill the interview forms without any time limit. The forms were collected from the pre-service teachers who completed the interview form. In the study, it was also paid attention that the participants were volunteers. Content analysis and descriptive analysis were used to analyse the data. The data were analyzed according to predetermined codes and themes and the analyses were interpreted. Direct quotations were also used to increase reliability in the study. The reliability in data analysis was calculated using Miles and Huberman's (1994) formula of consensus/ (consensus + disagreement) x 100 and 92.92% was found. This reliability coefficient should be at least 80%. The reliability coefficient of 92.92% in the study shows that the analyses are reliable (Miles & Huberman, 1994; Patton, 2002).

Compliance with Ethical Standard

Ethical rules were complied with at all stages of this study, and effective approval of the study was received as a result of the decision of Izmir Bakırçay University Ethics Committee dated 24.08.2023 and numbered 1142.

Findings

In the research, preschool teachers were asked questions in the interview form prepared in line with the purpose of the research and their answers were received. In this direction, the findings were presented according to the sub-problem situations in the research. Pre-service preschool teachers were asked the question "What is waste?" and the data obtained were analyzed and presented in Table 1.

Table 1

Analysis of Pre-Service Preschool Teachers' Views on The Definition of Waste

Themes	f	%	Examples
Material discarded after use.	21	33.3	It is any kind of material that has been used and generally cannot fulfill the same function again in the same way (P5).
A substance that has lost its function.	21	33.3	Dysfunctional substances remaining after the use of a functional substance (P11).
A substance that is harmful to the	14	22.2	All materials that are used and left to the

environment.			environment and are harmful for the environment are called waste (K60).
Any kind of used material.	3	4.8	Used materials are called waste (P34)
Any recyclable used material.	3	4.8	All products that are no longer used but can be recycled are waste. Glass, packaging, fabric, etc. (P31).
Non-recyclable material.	1	1.6	Non-recyclable materials (K13)

The analysis of Table 1 has shown that pre-service preschool teachers mostly answered the question of “what is waste?” as a substance that is discarded after use (33.3%), has lost its function (33.3%) and is harmful for the environment (22.2%). 4.8% of the pre-service teachers defined waste as any kind of used material and recyclable material. Only one of the teachers defined waste as a non-recyclable substance.

Pre-service preschool teachers were asked the question "Can you list five wastes that come to your mind?". Pre-service preschool teachers suggested 320 words related to waste. The keywords suggested by pre-service preschool teachers with waste types and the themes covering those keywords are presented in Table 2. While creating the themes, zero waste "<https://sifiratik.gov.tr/>" address was used.

The analysis of Table 2 has shown that the theme covering the most suggested keywords by pre-service preschool teachers was plastic waste (25.3%). After plastic waste, paper waste (18.4%), glass waste (16.3%), waste battery (9.4%) and metal waste (7.2%) are among the themes covering the most suggested and most prominent keywords. The themes covering other suggested waste words remain below 5 per cent of the total words.

Table 2

Analysis of Pre-Service Preschool Teachers' Views on Keywords about Waste

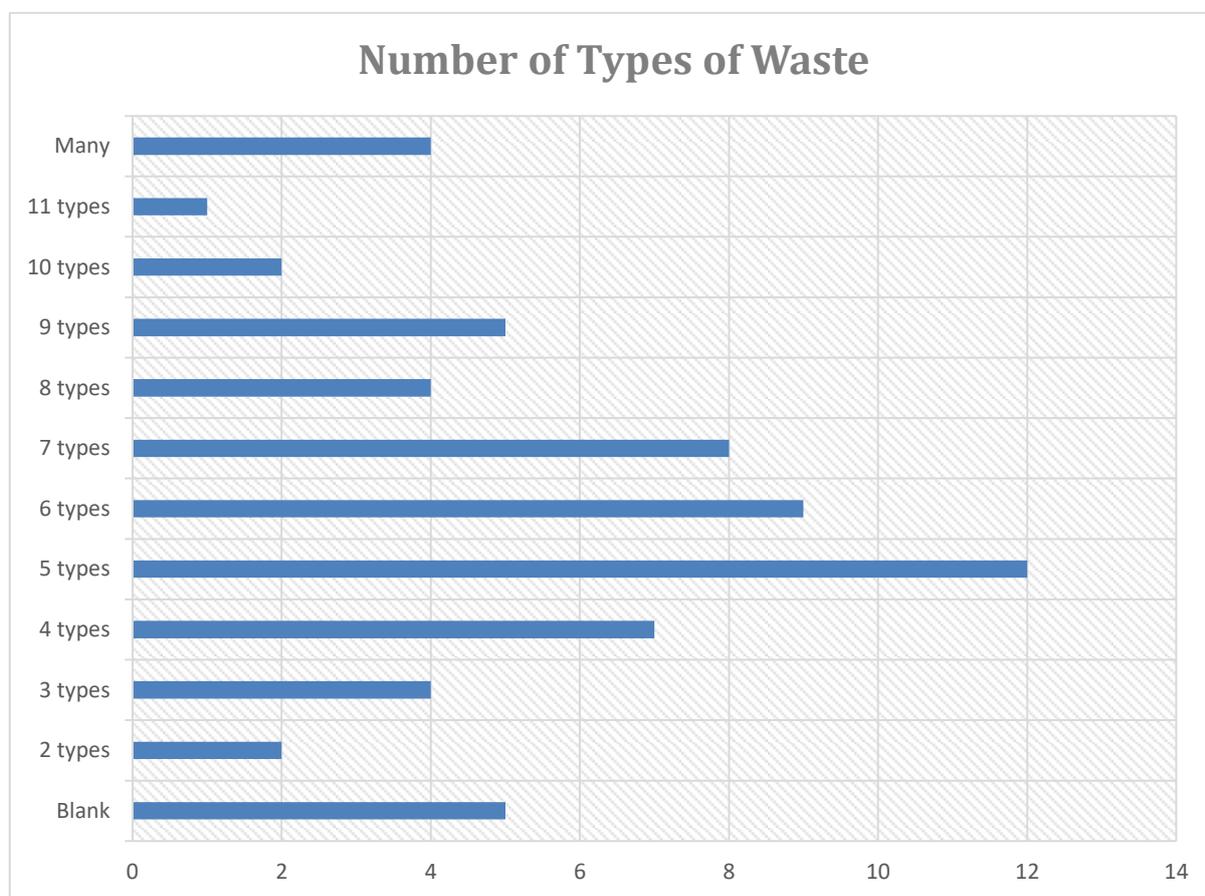
Themes	f	%	Codes
Plastic waste	81	25,3	Plastic (41), bags (15), plastic bottles (12), packaging (7), nylon (4), bottle caps (2).
Paper waste	59	18,4	Paper (41), cardboard parcel (8), toilet paper and roll (8), notebook (1), newspaper (1).
Glass waste	52	16,3	Glass (30), beverage bottle (17), glass jar (3), glass (1), perfume bottle (1).
Waste Battery	30	9,4	Battery (28), waste battery (2).
Metal waste	23	7,2	Metal (12), tin (4), tin cans (3), iron (2), oil drums (2).
Organic waste	15	4,7	Fruit and vegetable waste (9), organic waste (3), vegetable waste (2), composite (1).
Vegetable waste oil	10	3,1	Waste oil (10).
Textile Waste	9	2,8	Fabric (6), clothes/garments (3).
Medical Waste	9	2,8	Medical waste (6), mask (1), syringe (1), gloves (1).
Electronic waste	5	1,6	Electronics (2), light bulb (1), charger (1), technological waste (1).
Composite waste	2	0,6	Juice and milk packaging (2).

Wood waste	2	0,6	Toothpick (1), board (1).
Other	23	7,2	Food and catering waste (6), chemical waste (3), garbage (3), industrial and industrial waste (3), butts (1), faeces (1), agricultural waste (1), waste motor oil (1), construction (1), broken objects (1), polluted water (1), chewing gum (1).

Preschool teachers were asked the question "How many types of waste do you think there are?" and answers were received. The number of waste types is presented in Figure 1.

Figure 1

Analysis of Pre-Service Preschool Teachers' Views on the Number of Waste Species



The analysis of Figure 1 has shown that pre-service preschool teachers stated that there are five, six, seven and four types of waste respectively. In addition, it was also determined that there were pre-service teachers who left this question blank and said that there were many types of waste.

Preservice preschool teachers' codes and themes that include codes and codes related to the type of waste type are presented in Table 3.

Table 3

Analysis of Pre-Service Preschool Teachers' Views on the Type of Waste

Waste Type	f	%
Plastic waste	38	60.3
Glass waste	33	52.4
Paper waste	32	50.8
Metal waste	29	46.0
Organic waste	21	33.3
Waste Battery	19	30.2
Medical Waste	14	22.2
Vegetable waste oil	14	22.2
Wood waste	11	17.5
Composite waste	9	14.3
Electronic waste	7	11.1
Textile Waste	3	4.8

The answers to the type of waste is analysed; 60,3% of the pre-service preschool teachers stated that plastic, 52,4% glass, 50,8% paper, 46% metal, 33,3% organic, 30,2% waste battery, 22,2% medical and vegetable waste oil, 17,5% wood, 14,3% composite, 11,1% electronic and 6,3% textile waste types. In addition, 10 of the pre-service preschool teachers evaluated domestic waste, seven of them evaluated chemical, four of them evaluated food and catering, construction, radioactive, industrial, and industrial waste, two of them evaluated hazardous, liquid and recyclable and non-recyclable waste, one of them evaluated environmental, mixed with nature and not mixed with nature, solid, gas, agricultural, zero, non-harmful waste, garbage and oil as waste types.

Pre-service preschool teachers were asked the question "What is zero waste?" and the answers were analyzed. The results of the analysis are presented in Table 4.

The analysis of Table 4 has shown that 46% of pre-service preschool teachers defined zero waste as recycling. 27% of the pre-service teachers defined zero waste as minimizing waste by reusing it, 15.9% defined it as efficient use of resources by preventing waste, and 3.2% defined it as materials that are thrown away without being used. One teacher stated that he had no information on the subject.

Table 4

Analysis of Pre-Service Preschool Teachers' Views on Their Definitions of Zero Waste

Themes	f	%	Examples
Recycling of waste	29	46.0	Zero waste is to utilise leftover materials and prevent them from being rubbish. It is to transform (P35). Preventing

Minimising waste through reuse.	19	30.1	waste generation and recycling (P14). Efforts are made to minimise waste by preventing waste generation and ensuring their recycling (P62). The idea of preventing or minimising waste generation (P53). Minimising the level of waste in order not to harm the nature (P4).
Efficient use of resources by preventing waste	10	15.9	Making wastes suitable for reuse and not wasting them (P58). Preventing waste and using resources more efficiently (P29).
Materials thrown away without being used	2	3.2	Materials thrown away without being used (P48).
No information	1	1.6	I have no knowledge (P57).

Pre-service preschool teachers were asked the question "What is your opinion on the applicability of zero waste?" and the answers were analyzed. The results of the analysis are presented in Table 5.

Table 5

Analysis of Pre-Service Preschool Teachers' Views on the Applicability of Zero Waste

Themes	f	%	Examples
Can be implemented by raising awareness of individuals	20	31.7	I think that the applicability of zero waste can be implemented on a wider scale by raising people's awareness (P5).
Applicable to waste reuse and recycling	11	17.5	It can be done if recycling practices are increased (P52).
Zero waste can be implemented.	10	15.9	It is definitely feasible and very useful and is essential to reduce the consumption of the world's resources and increase renewability (P17).
It can be implemented if people are responsible and sensitive about zero waste.	7	11.1	If our society can be very sensitive about waste, I think zero waste can be implemented (P60).
Zero waste is difficult to implement.	6	9.5	Although it seems a little difficult in today's conditions, it is not impossible. It is necessary to create awareness and raise awareness on this issue (P41).
Minimalist living is important	2	3.2	Individuals should learn and adopt the minimalist life philosophy (P56)
No information	2	3.2	I have no knowledge (P57)
Other (Importance, public service announcements, municipalities should be active)	3	4.8	Not enough importance is given. More importance should be given, public service announcements should be made, It is a very important target and project (P26)

31,7% of pre-service preschool teachers stated that individuals should be aware of the implementation of zero waste, 17,5% stated that zero waste can only be realized through reuse and recycling, 11,1% stated that it can only be implemented if people are sensitive and responsible. While 15.9% of pre-school teacher candidates stated that zero waste can be implemented, 9.5% stated that it is difficult to implement. In addition, two teachers

emphasized the importance of minimalist life in the implementation of zero waste and two other teachers stated that they had no knowledge on this subject.

Pre-service preschool teachers were asked the question " Which practices can be done in our faculty for zero waste?" and the answers were analyzed. The results of the analysis are presented in Table 6. Since the answers given by pre-service teachers in this question were included in more than one theme, the number of units given by pre-service teachers was taken into consideration in the analyses, not the number of pre-service teachers.

Table 6

Analysis of Pre-Service Preschool Teachers' Views on the Implementation of Zero Waste in Faculties

Themes	f	%	Examples
Brochures, posters, and animations can be prepared, events such as seminars, conferences and theatre can be organized.	31	49.2	Due to the geographical location and demographic characteristics of our faculty, I think more than one project can be implemented, I think the important thing is the desire and intention (P26). Conferences can be organized to raise people's awareness, and cooperation can be made with the municipality (P23).
Can be implemented by recycling.	22	34.9	Recycling bins for plastic bottles, paper, batteries and glass waste can be placed in various places (P46).
Recycling bins can be increased and made widespread.	13	20.6	Recycling bins should be diversified and widespread throughout the faculty, posters indicating color scales should be hung, informative banners and posters about recycling should be placed in our faculty (P29).
Waste can be exchanged for money or other reinforcement.	3	4.7	If the person who brings the waste is paid a very small amount of money, if there is a machine for this purpose, if there is a machine that gives money in return when plastic bottles are thrown there, such a vending machine provides a large amount of recycling of plastic waste (P11). Vending machines that give certain things in return for recycling, as some municipalities do (P15).
I don't know	3	4.7	I have no knowledge (P57).

Regarding the implementation of zero waste in their faculties, 49.2% of pre-service preschool teachers stated that brochures, posters, and animations can be prepared, seminars, conferences and theatre can be organized, 34.9% stated that recycling bins can be placed in various parts of the faculty, 20.6% stated that recycling bins can be made widespread, 4.7% stated that money or other reinforcement should be given in return for waste. 4.7% of pre-school teacher candidates stated that they did not have any knowledge.

Pre-service preschool teachers were asked the question "What do you think about the relationship between zero waste and recycling?" and the answers were analyzed. The results of the analysis are presented in Table 7.

Table 7

Analysis of Pre-Service Preschool Teachers' Views on The Relationship Between Zero Waste and Recycling

Themes	f	%	Examples
Zero waste can be achieved through recycling.	27	42.9	Zero waste means that no waste is thrown away and we can achieve this by recycling (P3). To achieve zero waste, waste must be recycled (P11).
There is a positive relationship between zero waste and recycling.	16	25.4	It enables the reuse of zero material wastes with one material recycling. So, I think there is a positive relationship (P23). There is a positive correlation (P50).
The two are almost identical concepts.	6	9.5	I know that they are both similar and almost the same concepts (P37).
They're both useful.	2	3.2	Zero waste; to prevent waste is to prevent it. Waste that cannot be prevented can be collected for recycling. Both are very useful projects (P4).

The examination of Table 7 has supplied that almost half of the pre-service preschool teachers stated that they could reach zero waste through recycling. In addition, 25.4% of the pre-service teachers stated that there is a positive correlation between zero waste and recycling, 9.5% stated that the two concepts are the same and 3.2% stated that both are useful.

Pre-service preschool teachers were asked the question "How do blue caps and similar campaigns affect the use of plastic and pet bottles?" and the answers were analyzed. The results of the analysis are presented in Table 8.

Table 8

Analysis of Pre-Service Preschool Teachers' Opinions on the Effect of Blue Caps and Similar Campaigns on the Use of Plastic and Pet Bottles

Codes	f	%
It has not changed.	27	42.9
Increased.	20	31.7
Reduced.	15	23.8
Leaving Empty	1	1.6

The analysis of Table 8 has shown that 42.9% of pre-service preschool teachers stated that such campaigns did not change the use of plastic and pet bottles and 31.7% stated that

they increased it. Considering the total rate in these two answers (75%), pre-service teachers stated that these campaigns either did not work or increased the use of plastic and pet bottles. On the other hand, only 23.8% of the pre-service teachers stated that these campaigns reduced the use of plastic bottles and plastics.

Pre-service preschool teachers were asked the question "Where would you like recycling bins to be placed in our faculty?" and the answers were analyzed. The results of the analysis are presented in Table 9.

Table 9

Analysis of Pre-Service Preschool Teachers' Opinions on the Location of Recycling Bins in the Faculty

Themes	f	%
It should be placed at entrances and exits.	34	54
It should be placed in the canteen.	26	41.3
It should be placed in the garden.	11	17.5
It should be placed wherever students can see it.	8	12.7
It should be placed in school corridors.	7	11.1
They should be placed in classrooms.	5	7.9
Must be placed on each floor	5	7.9
It should be placed in areas where students spend time collectively.	3	4.8
It should be placed next to the security booth.	3	4.8
They should be placed in places accessible to everyone.	3	4.8
It should be placed next to the rubbish.	2	3.2

The analysis of Table 9 has revealed that more than half of the pre-service preschool teachers stated that recycling bins should be placed at entrances and exits. In addition, 41.3% of the pre-service teachers stated that recycling bins should be placed in the canteen, 17.5% in the garden, 12.7% in places where students can see, 11.1% in the corridors and 7.9% in the classroom and on each floor, There is one teacher indicating that they should be placed at the transition points between blocks, near the seating areas, in the administrative department, in social activity centres, outside the classroom and school, next to the pool, everywhere, in the sports hall, in each block, on the edge of the cafeteria hall and in common areas.

Pre-service preschool teachers were asked the question "Is a mask medical waste?" and the answers were analyzed. The results of the analysis are presented in Table 10.

Table 10

Analysis of Pre-School Teacher Candidates' Opinions on Whether the Mask is Medical Waste or Not

Themes	f	%
Yes	57	90.5
No.	4	6.3
Leaving Empty	2	3.2

While 90.5% of the pre-school teacher candidates stated that the mask was medical waste, 6.3% stated that the mask was not medical waste.

Pre-service preschool teachers were asked the question " Should the waste mask bins be placed in a different area from the recycling bins?" and the answers were analyzed. The results of the analysis are presented in Table 11.

Table 11

Analysis of Pre-School Teacher Candidates' Opinions on The Locations of Waste Masks and Recycling Bins

Themes	f	%
Yes	48	76.2
No.	9	14.3
Doesn't matter	5	7.9
Leaving Empty	1	1.6

While 76.2% of pre-service preschool teachers stated that waste mask bins should be placed separately from recycling bins, 14.3% of them disagreed with this view. Five of the pre-service preschool teachers stated that they did not notice.

Pre-service preschool teachers were asked the question "What are your opinions about epidemic and waste management?" and the answers were analyzed. The results of the analysis are presented in Table 12.

Table 12

Analysis of Pre-Service Preschool Teachers' Views on Epidemic and Waste Management

Themes	f	%	Examples
As consumption increased with the pandemic, the amount of	15	23.8	With the pandemic, people's consumption needs have also increased, so the number of waste materials has increased

waste increased.			(P5)
People should be made aware of the pandemic and waste management.	13	20.6	People should be made aware of this issue and information seminars should be organised and everyone should do their part and set an example (P52).
If waste management is done well, a clean environment is ensured, and outbreaks can be prevented.	8	12.7	When waste management is provided, environmental cleanliness is also ensured. This leads to a decrease in epidemics and a clean environment (P43).
With the pandemic, the number of harmful items such as masks and gloves increased.	8	12.7	With the pandemic, masks and gloves that we ruthlessly throw around us were also added (P40).
I don't have an opinion.	3	4.8	I do not know (P14).
There is no work on this issue.	3	4.8	I think it is something done to prevent waste production (P58).
Increasing the amount of waste may increase the spread of the epidemic.	3	4.8	Waste materials may increase the epidemic rate and cause new outbreaks (P46).
Studies on waste management should be carried out.	2	3.2	Waste management should take a more active role in this issue and serious work should be done to prevent the epidemic. The pandemic has already negatively affected human health and the environment, and the inclusion of waste will worsen the situation (P55).
The pandemic was beneficial for the environment. There has been progress in waste management.	2	3.2	I think that the amount of waste has decreased due to the pandemic and that it is a beneficial process for the environment. I think that certain steps have been taken in waste management stages (P41).

Regarding the epidemic and waste management, 23.8% of pre-service preschool teachers stated that there was an increase in the amount of waste with the epidemic, 20.6% stated that people should be aware of waste and epidemic management, 12.7% stated that if waste management is done well, a clean environment is provided and epidemics can be prevented, and that there was an increase in the number of harmful items such as masks and gloves with the epidemic. In addition, there are also pre-service teachers who stated that they have no opinion, that the increase in the amount of waste increases the epidemic, that studies should be carried out with waste management and that the epidemic is positive for the environment.

Discussion and Results

Sustainability is one of the important issues necessary to provide a livable world for future generations. It directly affects people such as social norms, cultural diversity and economic activity areas. The teaching of concepts related to sustainability terms in the education system will accelerate the change of individuals and society. Especially, the education given at young ages will be more permanent in the individual. Providing this education in the sensible and wise perspective is another important issue. Examining the

knowledge, skills and opinions of preschool teachers and pre-service teachers on these issues in order to support their individual competencies contributes positively to the process. Within the framework of the findings obtained, it was seen that pre-service teachers did not have sufficient knowledge about the concept of waste and zero waste. In addition, the fact that the majority of pre-service teachers defined zero waste as recyclable waste shows that an incomplete learning has occurred. At this point, it was determined that pre-service preschool teachers do not have sufficient knowledge and experience about reduce and reuse, which are recommended to be done before recycling (recycle) for a sustainable environment. In addition to these, it is another important result that pre-service preschool teachers prioritize especially plastic wastes.

Pre-service preschool teachers defined waste as a substance that is discarded after use, has lost its function and is harmful to the environment. In addition, some of the teachers defined waste as all kinds of used materials and recyclable materials. Here, while the pre-service teachers defined waste as a substance that is discarded after use, i.e. a disposable substance of a product, some of the pre-service teachers defined waste as a substance that has lost its function. These two situations show that pre-service teachers have different knowledge levels and habits in terms of sustainability and zero waste. The fact that a product has lost its function means that it is used until the last stage for its purpose. This situation supports both the dimension of reuse and reducing use. However, these situations are not valid for those who express disposable use. In the literature, it was found that pre-service science teachers mostly aim to reduce use and reuse (Harman & Yenikalaycı, 2020; Keleş & Aydoğdu, 2010). The study conducted by Sivrikaya (2018) on pre-service science and Turkish language teachers, the ecological footprints of the candidates were evaluated in different dimensions and it was determined that there was a significant difference in favor of pre-service science teachers in the management of waste and especially in the reduction dimension. This result shows that especially pre-service teachers studying in social fields do not have sufficient knowledge in this field. This situation is similar to the result of this study. Günşen (2023) stated that environmental trainings that will create awareness in pre-service preschool teachers affect the process positively. In addition, pre-service teachers stated that disposable wastes were related to the epidemic in the past.

Pre-service teachers listed the keywords plastic, paper, glass, battery and metal waste the most. Pre-service teachers mostly gave five, six and seven answers as waste types. In addition, there were also candidates who left the waste type blank or stated that there were

many waste types. Apart from those who left it blank, pre-service teachers who indicated the number of waste types stated that there were mostly plastic, glass, paper, metal, organic, battery, medical and herbal, wood, oil and composite waste types. This situation shows that pre-service teachers associate waste with the materials they encounter in daily life. The study conducted by Erdaş Kartal and Ada (2019) with pre-service preschool teachers supports this result. In addition, this situation is also valid for pre-service science teachers (Harman & Çeliker, 2016). Almost all of the pre-service preschool teachers stated that the mask was medical waste. The vast majority of pre-service teachers (76.2%) stated that waste mask boxes should be placed separately from recycling boxes. Regarding the epidemic and waste management, pre-service preschool teachers stated that there was an increase in the amount of waste with the epidemic, people should be aware of waste and epidemic management, if waste management is done well, a clean environment is provided and epidemics can be prevented, and there was an increase in the number of harmful substances such as masks and gloves with the epidemic.

Approximately half of the pre-service preschool teachers defined zero waste as recycling. After that, they defined it as minimizing waste by reusing it, using resources efficiently by preventing it, and materials that are thrown away without being used. In addition, one teacher stated that he had no knowledge on this subject. When the literature is examined, it is seen that there are parallel results to this situation (Dal & Okur Akçay, 2021; Harman & Yenikalaycı, 2020). From this, it can be inferred that pre-service teachers' thoughts on the definition of zero waste are limited. This may be due to the novelty of the concept of zero waste. At the point of implementation of zero waste, pre-service teachers stated that individuals should be raised awareness, zero waste can only be implemented through reuse and recycling, individuals being sensitive and responsible, and the importance given to minimalist life. In addition, it was determined that there were two teachers who stated that they had no knowledge on the subject. The prospective teachers stated that brochures, posters and animations can be prepared, ethical events such as seminars, conferences and theatre can be organized, recycling bins can be placed in various parts of the faculty, recycling bins can be made widespread, money or other reinforcement can be given in return for waste. On the other hand, there were also pre-service teachers who stated that they had no knowledge on the subject. Regarding the applicability of the concept of zero waste, preservice preschool teachers stated that media and animations should be used to raise awareness from near to far. There is a similar situation in the literature regarding this result. Altınok (2021) stated that

social studies teachers stated that the content related to zero waste is insufficient. This situation is similar not only at the university level but also at the basic education level. Studies have stated that these issues are not sufficiently covered in textbooks, which are the basic teaching resource tools at this level (Erten & Köseoğlu, 2022; Önal, Kaya & Çalışkan, 2019). In addition, it was also stated by pre-service teachers that recycling bins should be in areas where people create waste. It is thought that this will contribute to both awareness and active processing of the process.

The almost half of pre-service preschool teachers assumes that zero waste can be achieved through recycling. Some of the candidates stated that there is a positive relationship between zero waste and recycling and that the two concepts are the same and useful. The majority of the prospective teachers stated that blue caps and similar campaigns did not change or increase the use of plastic bottles. Regarding the placement of recycling bins in the faculty, more than half of the candidates stated that bins should be placed at the entrance and exit of the faculty. In addition, they stated that the boxes should be placed in the canteen, garden, places where students can see, corridors, classrooms and floors respectively.

In line with the results of the research, courses on zero waste and sustainability can be added to the preschool teaching program and activities can be prepared for this purpose.

Compliance with Ethical Standard

Ethical rules were complied with at all stages of this study, and effective approval of the study was received as a result of the decision of Izmir Bakırçay University Ethics Committee dated 24.08.2023 and numbered 1142.

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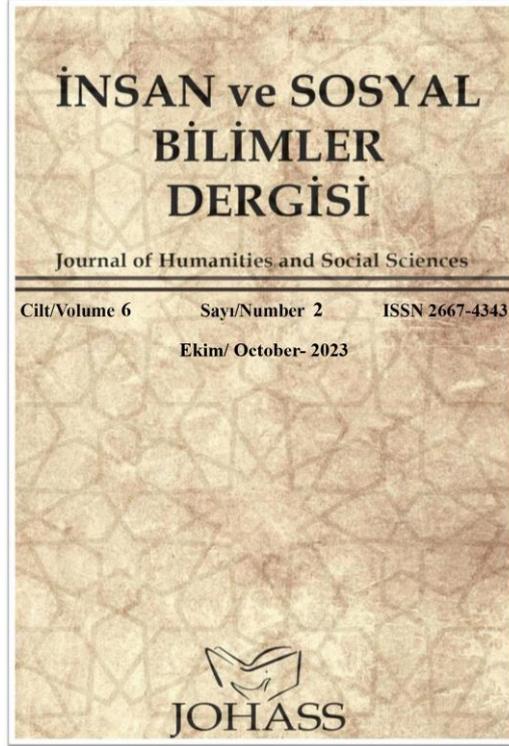
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The Effect of Vincent Van Gogh's Psychopathology on His Works

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The Effect of Vincent Van Gogh's Psychopathology on His Works

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Abstract

Vincent van Gogh, whose life was summed up in the phrase "Sorrow will last forever", opened the door to a new era and led his successors to question art in a process that evolved from the abstract to the concrete, from style to substance, from nationality to universality. The artist, who personally considered himself a failure, did not stop working, despite his increasing pathological disorders, and became a great beacon of hope for the painters who would be his successors. Many competing claims have been made about Vincent van Gogh's physical and mental health, but no consensus has yet been reached. After his death, in addition to the old diagnoses, discussions inspired by his writings and letters continued about depression, bipolar disorder, borderline personality disorder, paranoid schizophrenia, schizoaffective disorder, sunstroke, self-harm, anxiety disorder, etc. Vincent van Gogh's rejection of Impressionist art, his refusal to submit to the artistic authority of the time, his disregard for academic rules and his declaration of his own manifesto on art in France, the cradle of art, are either an expression of the artist's spirit or a reflection of his pathological condition. In the context of many conflicting claims about Vincent van Gogh's physical and mental health, this study proposes an alternative interpretation of his work. It concludes that an interdisciplinary study of Vincent van Gogh's work is important for understanding him and making sense of his work.

Keywords: Vincent van Gogh, art, psychopathology, work of art

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Introduction

Vincent van Gogh did not make any progress in painting until he was 27 years old, due to the difficult years he had lived through. The painter's life, as we know it today thanks to the letters he wrote to his brother Theo, was a life of searching, and until the age of 27, his search for a profession and his efforts to start a family continued throughout his life. Coming from an aristocratic and authoritarian family, Vincent van Gogh did not find what he was looking for at school and suffered from loneliness in boarding schools. In the later years of his life, Vincent van Gogh's inability to pursue the professions he wanted and the fact that he was being courted by women led him to a state of mind where he could no longer tolerate the life he led with his friend Gauguin.

Many conflicting claims have been made about Vincent van Gogh's physical and mental health, but no consensus has yet been reached. After his death, in addition to the earlier diagnoses, discussions inspired by his writings and letters continued about depression, bipolar disorder, hypomanic episodes, borderline personality disorder, paranoid schizophrenia, schizoaffective disorder, sunstroke, lead poisoning, Meniere's disease, substance abuse, post-traumatic stress disorder, self-harm and anxiety disorder. Vincent van Gogh wrote the following in a letter to his brother Theo:

"Work is going very well, I'm finding things that I've sought in vain for years, and feeling that I always think of those words of Delacroix that you know, that he found painting when he had neither breath nor teeth left. Ah well, I myself with the mental illness I have, I think of so many other artists suffering mentally, and I tell myself that this doesn't prevent one from practising the role of painter as if nothing had gone wrong (van Gogh, 1889/1996)."

Vincent van Gogh's rejection of Impressionist art, his refusal to submit to the artistic authority of the time, his disregard for academic rules and his declaration of his own manifesto on art in France, the cradle of art, was either an expression of his artistic spirit or a reflection of his pathological state. There is still no clear answer to this question.

In the context of many conflicting claims about Vincent van Gogh's physical and mental health, this study proposes an alternative interpretation of his work. The conclusion of the study is that interdisciplinary research on van Gogh's artworks is important for understanding him and making sense of his work. In this interdisciplinary approach, I believe that it would be healthier to evaluate Vincent van Gogh's works from a multidimensional perspective as a result of collaborative research that brings together experts in the fields of

social psychology, psychiatry, child psychology and clinical psychology, experts in the field of art history and experts in the field of art therapy.

The Effect of Vincent Van Gogh's Psychopathology on His Works.

Art, as a phenomenon that has existed in every period of human history, has continued its existence in close connection with man, society and human life; abstract and concrete, style and essence, nationality and universality, sensuality and intellectuality have evolved to the present day depending on the world view formed by the historical period and the conditions in which they are intertwined.

Today, art is a form of aesthetic expression in which imagination and creativity are blended, while the creative process, which is a component of art, involves intuition-based analysis, holistic perception of the cosmos, and a dissociated state of mind. When Plato defined the artist as "*a man to whom the gods have given a sacred madness*", he was explaining an ancient tradition that goes back thousands of years. From primitive art on cave walls to the priests who led the cult of faith in societies dominated by religious rituals, the first known artists were privileged individuals respected by society in a state of dissociation. In a subjective sense, this involved the creative individual's transition to another reality, his or her detachment from reality, and the visualisation of unconscious thoughts and processes.

Rollo May, while defining the creative person, stated that creative people do not submit to mediocrity and authority and therefore they prefer not to interfere with society. He also said, "*These artists are the bearers of the ongoing defiance of humankind. They like to sink into chaos, just as God created form out of chaos in creation* (May, 1988)." He also used the expression. When R. May's discourse on creativity is analyzed, it is possible to see many signs of the Dutch painter Vincent van Gogh. Likewise, Nancy Andreasen, in her interviews with people engaged in creative activities, has obtained the information that the time of creativity is outside the earthly reality. "Recent, more systematic biographical research suggests that the higher incidence of mental disorders in creative people may not be a coincidence (Soygür, 1999)."

According to N. Andreasen, "*Creative people are as prone to dissociative states and concentration as they are to non-participatory, cold-blooded observation*(Andreasen, 2013)." In the same way, it is possible to see this ability to observe in the work of Vincent van Gogh. Creative artists like Vincent van Gogh have a much higher fear quotient than other people. A.M. Ludwig found that suicide attempts, psychosis, substance abuse and mental disorders

are two to three times higher in the group of artists than in people engaged in creative activities and other professions (Ludwig, 1992).

"Every creative individual is a duality, or a synthesis of contradictory qualities." (Jung, 2017, p.135). Therefore, artists like Vincent van Gogh are a synthesis of a human being with a subjective life on the one hand and a dissociated state of mind, intuitive analysis and holistic perception of the cosmos in a creative process on the other.

From the beginning of his artistic career, Vincent had a desire to study and a passion for the use of colour. For him, colour was the primary symbol of emotional and spiritual expression. Vincent van Gogh expressed these symbolic colours in his works with his individualistic style, intuitive and subjective feeling, and these methods and practices became the defining elements of many modern art movements from Impressionism to Expressionism. Personally, the artist considered himself a failure, and despite his increasing pathological disorders, he did not stop working, thus providing a beacon of hope for the painters who would follow him, especially the Expressionists.

In 1879, Vincent van Gogh "returned to his parents' home after being expelled from Borivage, a mining town in Belgium, and began to paint flowers as an amateur (Turani,1997)" For a long time Vincent van Gogh was torn between religion and art. Impressed by Millet's art¹ and its social content, Vincent decided to become a painter and befriended the painter Ridden van Rappard in Brussels, from whom he took lessons in perspective and anatomy.

Vincent met Sien Hoornik (Clasina Maria Hoornik), a sex worker on the streets of The Hague, and painted some of her nudes. He named Sien Hoornik's most important drawing 'Verdriet' (Sorrow). After living with Hoornik for twenty months, the artist returned to the Netherlands when she fired him. He told his father that he wanted to be a painter and, despite his father's objections, decided at the age of twenty-seven that it was best to devote his life to painting and passionately resumed his studies.

Through his brother Théo, Vincent van Gogh became acquainted with the Impressionist painters in Paris. In the later years of his artistic endeavours, Vincent seems to have absorbed the pointillist teachings of both Impressionism and Seurat and reflected them in his work. Vincent van Gogh used pure colours, especially yellow and blue, with flat brush

¹ *François Millet, who wanted to follow Constable's teaching and look at nature with new eyes, decided to extend this understanding by moving from landscapes to figures. He wanted to faithfully reproduce scenes from village life and paint men and women working in the fields. In the painting 'Women Picking Spikes', instead of an idealised rural landscape, he did his best to emphasise the slow and painstaking work of peasant women, their strong bodies and determined behaviour.*

strokes, dotted strokes and thick layers on the canvas, and this technique, which he preferred, reached a very different dimension from what the Impressionist artists wanted to do because of the pathological elements he experienced, without ignoring his talent. Van Gogh used every brushstroke he applied to his canvas not only to mix colours, but also to express his own enthusiasm. His brushstrokes also give us some clues about his state of mind. His works reflect his state of mind and the excitement in his head: "*I paint in my dreams and then I paint my dream*". He said that he was not much interested in the exact representation of reality, using colours and styles, through his dreams or creativity, he transferred what he felt and what he wanted others to feel into his works. "He did not care much about what is called 'three-dimensional reality', the representation of nature like a photograph" (Gombrich, 2002). Vincent van Gogh, who did not hesitate to exaggerate and even change the appearance of objects, abandoned the goal of "imitating nature" in painting and did not hesitate to metaphorise some forms to achieve his goal. Freud, who described art as "*the symbolism of a repressed sense of satisfaction*", emphasised that this symbolism is not specific to dreams but is typical of unconscious thought.

Vincent van Gogh had a passionate and exciting temperament that surprised his contemporaries and successors. Above all, he believed in his art and the path he had chosen. On the other hand, he was a character who was ostracised by the society in which he lived and failed in social relationships. Vincent van Gogh is one of the few people who have reached the stage of self-actualisation, the fifth level of Abraham Maslow's Hierarchy of Needs (the most extreme point of the pyramid), by attaining virtue and creativity, but for him the area between the physiological needs and the need for esteem is a huge void and an enigma. It is possible to see this sense of emptiness in some of his works. In this context, we need to pay attention to the environment, the objects and the expressions on the faces of the figures in Vincent van Gogh's "*De aardappeleters*" (The Potato Eaters), which can be seen in Figure 1. This work does not depict a family of five gathered around a table under a lamp, eating potatoes and drinking coffee. Vincent van Gogh, who paints the figures in this work, consisting of two men and two women and a girl with her back turned, with great seriousness, transfers the family environment and the warmth of this family environment onto his canvas against the feelings of exclusion, loneliness and abandonment that he felt. The only portrait we do not see in this work is the girl with her back to us. Vincent van Gogh left the expression on this little girl's face to the viewer's imagination, hiding the only source of hope in this little girl's face despite her difficult life (E. & Newel, 2005).

Figure 1

His' painting 82 x 114 cm, painted in Nuenen in 1885. Van Gogh Museum, Amsterdam



His understanding of art and the fact that his works received much criticism was due to his disregard for academic rules and his use of dark colours. -At the time, such a painting was unacceptable- as in Figure 1. However, in this work, which depicts a group of people eating potatoes around a table in a very realistic way, the breaking of the known rules, the deformation of the figures and the free use of colour would later influence the Expressionists and their successors in contemporary and modern art. Van Gogh, who turned to vivid colours in the company of the Impressionist understanding, later broke away from this understanding and developed a new artistic technique. The colours in the works of the artist, who struggled with his new understanding of art in the later years of his life, lost their intensity and his lines became harsh and pessimistic, reflecting his restlessness. Vincent van Gogh began to apply thicker and more violent layers of paint to his canvases, depicting swirling suns, twisted cypresses and swelling mountains. On the other hand, as his illness worsened and he was admitted to the Saint-Paul-de-Mausole asylum, Vincent van Gogh began to use bright, vivid colours in his most famous work, *The Starry Night*, and in other works (Figure 2).

Figure 2

His' 1889 Oil Painting Measuring 73.7 Cm×92.1 Cm. Museum of Modern Art, New York City



Vincent van Gogh's life-altering illness(s) were both the creator of his masterpieces and the murderer who turned his life upside down. Van Gogh's self-portrait of himself after the incident of cutting off his ear is a summary of this painful process, and the bandaged self-portrait of his severed right ear under his dark green beret appears as an expression of the mental and physical change that had taken place in him. With this self-portrait (*Zelfportret met verbonden oor*), Vincent van Gogh wanted to share and confront himself with the traumatic event he had experienced. In this self-portrait, with its dramatic use of colour, contrast, harmony and composition, we see a man trying to recover in spite of everything. This work depicts the artist's life between the deep predicaments of his spiritual world and the dilemma of the real world. “After this incident, we see the painter in a mental hospital. Despite his temporal epilepsy and the resulting psychosis, Van Gogh continued to work with ambition (Aktay, 2009)”

Meissner (1993) hypothesised that Vincent van Gogh's self-portraits are seen as repeated and unresolved efforts at self-discovery and self-definition, aimed at giving a sense of continuity and integrity to a fragile and fragmented self-awareness.

Realising that he could not risk living alone, Vincent, with the support of his brother Théo, voluntarily entered the Saint-Paul-de-Mausole lunatic asylum in Saint-Rémy in May

1889. Here he continued to paint the landscapes he saw and depicted, first from the window of his room and then in the open air. In the later stages of his illness, the feeling of nature dancing with fluctuations began to dominate his work. He used short, thick brushstrokes side by side, one on top of the other. During his hospitalisation, the artist began to use brush strokes, spatula marks, paint tube marks -sometimes finger marks- and curved lines in his works, and these paintings became an indicator of his mental variability.

Van Gogh searched for something that reflected his personality in the iris flower¹ painting he did in this hospital a year before his death, and he drew a single white iris flower in the middle of the purple iris flowers, making a reference to his loneliness with the expression "In the middle of all the purple flowers, a white iris remains, the symbol of the lonely painter". As far as the Post-Impressionist period is concerned, the painting 'Starry Night' occupies a privileged place among Vincent van Gogh's works. Painted at dawn in June 1889 in the Saint-Paul-de-Mausole lunatic asylum, it is Vincent van Gogh's unique interpretation of the city of Saint-Remy-de-Provence as seen from his room. Although there were iron bars on the window of the artist's room, Vincent did not reflect them in his painting. For this reason, it is possible to interpret that he was reflecting his longing for freedom in his painting. Furthermore, although the houses and the church of the town of Saint-Remy-de-Provence were not visible from the window he was looking out of, he used his imagination and creativity to depict them in this painting. In this painting, which is dominated by blue and yellow tones, there is a cypress tree² in dark brown and dark green tones, and Vincent van Gogh's reflection of the cypress tree in his painting is an expression of his pain, restlessness, eternal loneliness and melancholic state. This tree is a symbol that connects heaven and earth in Greek mythology, and while this symbol embodies sadness and death, artists such as Vincent van Gogh were able to reflect their own thoughts about death in their works. For this reason, the painting 'De sterrennacht' (The Starry Night) is a representation of Vincent van Gogh's ongoing preoccupation with death and the afterlife through his religious beliefs³.

¹ *The iris flower symbolises wisdom, optimism and trust in Dutch culture. It also means 'friendship with you means a lot to me'. (Symbolic meaning of flowers, plants, trees. (2022, 01 07). De groene kruidhof: Retrieved from <https://www.degroenekruidhof.nl/symbolische-betekenis-van-bloemen-en-planten-bomen-en-vruchten>), whereas many western painters reflected the iris flower in their paintings to symbolise death.*

² *The cypress tree symbolises death and mourning in the West and endurance and immortality in the East. In Greek mythology, the cypress tree is identified with Kyparissos: Kyparissos accidentally shoots a deer sleeping on the grass while shooting a spear one day, and the deer dies on the spot. Kyparissos regrets what he has done and is so sad that he dies of sadness. The gods turn him into a cypress known as the "tree of sorrow"*

³ *Noting that Vincent van Gogh's father, Theodorus van Gogh, was a priest of the Dutch Reformed Church and his uncle was an important theologian and biblical commentator in the same church, researchers suggest that the famous painter was influenced by the religious atmosphere around his family during his childhood and youth.*

Vincent's preference for the colour 'yellow Vincent van Gogh's predilection for the colour yellow in his works has attracted the attention of many researchers, most notably Paul Wolf. In the last years of his life, Vincent van Gogh's paintings were characterised by halos and yellow, and critics attributed his obsessive passion for colour to a variety of causes, including chronic sun damage, glaucoma and cataracts.

After moving to Arles, the artist developed an obsessive weakness for the colour yellow and used it extensively in many of his works, notably 'Yellow House' and 'Sunflowers'. In 2001, Wolf suggested in a study that the artist's fondness for the colour yellow was due to the use of foxglove (*digitalis*) in the treatment of epilepsy. It is true that Vincent van Gogh was given large quantities of foxglove for therapeutic purposes, but the treatment began after his illness. However, Vincent van Gogh used yellow in his paintings in all shades and in much greater quantities than other colours before he started taking medication.

Dr Michael Marmor and Dr James Ravin have claimed that Van Gogh painted 'Night Coffee' and 'Starry Night' under the influence of glaucoma, or intraocular pressure (Marmor, Michael. J.G, Ravin. 2009). Their argument is based on the swelling of the cornea in glaucoma and the appearance of circles of light similar to the halos seen around the moon. Similar halos can be seen in the paintings entitled 'Night Coffee' and 'Starry Night'. There are also many arguments in Van Gogh's letters about light emanating from a source and the divinity of light.

The repetitive harmonious brushstrokes in the form of moiré mentioned by Drs. Ravin and Marmor and the linking of objects with these repetitive brushstrokes is a technique used by Vincent Van Gogh in his last period. Marmor and Ravin's hypothesis is far from understanding Vincent Van Gogh's state of mind, the meaning he attached to art and his inner world. Therefore, it would not be the right approach to reduce a technique unique to Vincent Van Gogh to an optical illusion.

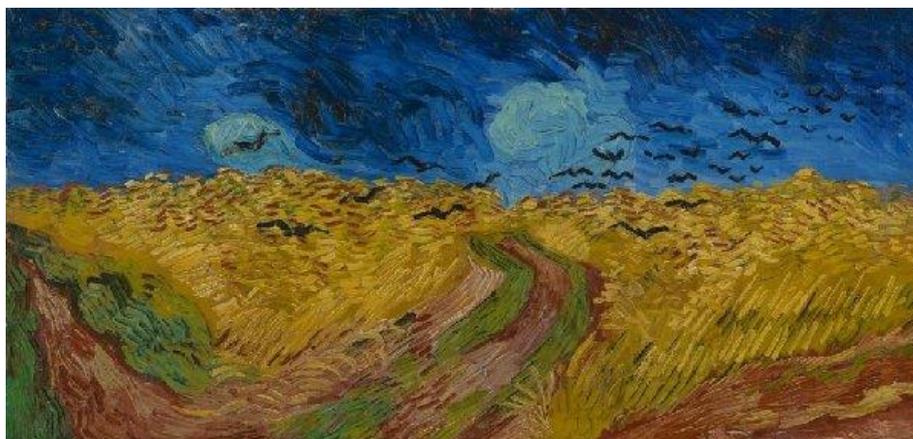
Another hypothesis is that Van Gogh used the colour yellow intensively because he was a wormwood (absinthe) drinker. According to the biochemist Dr Arnold, who claims that Vincent van Gogh suffered from wormwood-induced toxic brain poisoning, one of the side effects of drinking absinthe was that it caused jaundice in his eyesight. These and many other hypotheses are not sufficient to explain why van Gogh was obsessed with the colour yellow, and "there is no single answer to his obsession with the colour yellow (Shelly, 2021)."

Van Gogh's art not only reflected his struggles, but also helped him to stave off the illness that overwhelmed him and led to his suicide. Vincent's suicidal gestures are depicted in

his last paintings, which show his loneliness and sadness in vast wheat fields under a dark and stormy sky. He painted his last work, 'Korenveld met kraaien' (Wheatfield and Crows), in July 1890. Vincent van Gogh, who used wheat fields as a theme in many of his works, did the same in his Wheat Field and Crows, painting the field and the paths with an intense use of yellow, where he found serenity and peace. While a path in the centre of the work divides to the left and right, it is unclear where these paths lead and what their purpose is. Some critics have suggested that this reflects the uncertainty of the artist's own life up to that point. It is unclear where the third road in the middle leads. Does it lead to a new horizon? Or does it lead to an inevitable end? Van Gogh left the answer to these questions to the viewer. It is also possible that this path represents the feeling of emptiness in Vincent van Gogh's heart. In the same work, the crows flying in the same direction, which have been the subject of debate for many years, have led to different interpretations of this work. For Vincent van Gogh, who was a keen observer of nature and passionate about all that it contains, these crows could also symbolise the freedom, peace and hope he sought (Figure 3). R. Pickvance writes, *Crows Over the Wheat Field* has attracted a great deal of critical commentary. Interpretations of its symbolism and meaning have varied enormously. It has been interpreted as Christian iconography, from Crucifixion to Last Judgment; as an image of cosmic chaos projected through van Gogh's inner torment; as a psychic graph of his imminent suicide. Many of these interpretations are linked to the assumption that it was van Gogh's last painting (Pickvance, 1986: 274-276).

Figure 3

"Wheat Field with Crows", 50.5x103cm, Auver-sur-Oise, June 1890, Van Gogh Museum Amsterdam



Discussion and Results

The phenomenon of art, which has existed in every period of human history, opened the door to a new era in Vincent van Gogh's time and allowed his successors to question art in a process that evolved from the abstract to the concrete, from style to substance, from nationality to universality. His rejection of the Impressionist understanding of art, his refusal to submit to the artistic authority of the time, his disregard for academic rules and his declaration of his own manifesto on art in France, the cradle of art, are either an expression of his artistic spirit or a reflection of his pathological condition. There is still no clear answer to this question. The works and the life of Vincent van Gogh, who, in the face of the feelings of exclusion, loneliness and abandonment he felt, transferred the family environment and the warmth of this family environment to his canvases, using the colour yellow carefully, are still being discussed in the sciences of art psychology, psychiatry, psychology and so on. If the illness or illnesses that ruined his life lie behind his works, it is possible to think that these pathological elements were both the creator of his masterpieces and an assassin who turned his life upside down.

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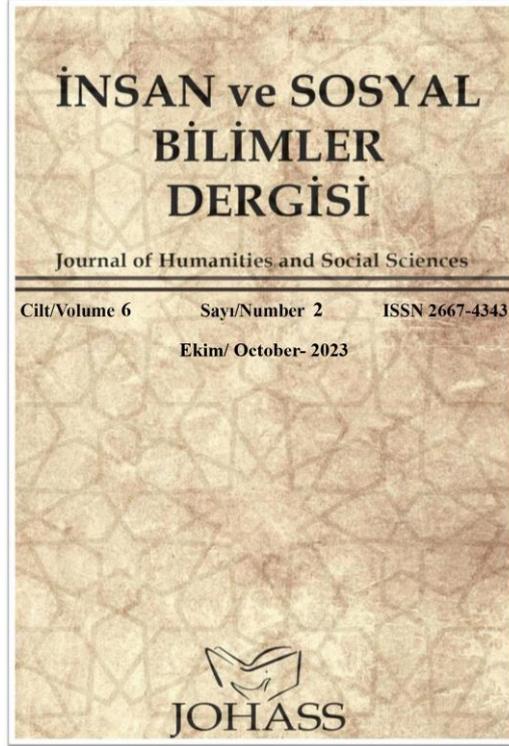
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The Impact of Virtual Museum on Learning Achievement: A Meta-Synthesis Study^{*,}**

* This study was presented as an oral presentation at the 10. International Eurasian Educational Research Congress (EJER) in Ankara on June 8-11, 2023.

**This research was conducted as part of the preliminary field study of the project under the Scientific and Technological Research Council of Turkey (STRCT; TÜBİTAK) 3005 Innovative Solutions Research Projects Support Program in Social and Humanities Sciences.

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The Impact of Virtual Museum on Learning Achievement: A Meta-Synthesis Study^{*,}**

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Abstract

This meta-synthesis study aims to explore the impact of virtual museum on learning achievement. With the advancements in technology, virtual museum and augmented reality museum applications have gained popularity in the field of education and museum studies. However, there is a need to examine their effectiveness in enhancing learning outcomes. This research reviews examines 17 studies to evaluate their effects on learning achievement. The findings reveal that virtual reality (VR) and augmented reality (AR) are frequently used in science, art, and history museums to support the acquisition of conceptual knowledge. These technologies are commonly employed for purposes such as integrating additional materials with physical exhibits, animating complex events or concepts, and simulating virtual exhibitions and story scenarios. However, the study also highlights some challenges and limitations of these applications. Technical issues, such as hardware requirements and connectivity problems, can hinder the effectiveness of the learning experience. Additionally, the availability of high-quality content and the need for instructional guidance are important factors to consider for successful implementation. Overall, this meta-synthesis study suggests that virtual museum and augmented reality museum applications have a positive influence on learning achievement. It emphasizes the potential of these technologies in enhancing the educational experience and recommends further research in this area to explore their long-term effects and address the identified challenges.

Keywords: Virtual museum, augmented reality, learning achievement, meta-synthesis, educational technology

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Introduction

The International Council of Museums (ICOM) defines museums as public entities dedicated to the procurement, preservation, investigation, dissemination, and display of both material and immaterial aspects of human civilization and its surroundings (ICOM, 2007). They serve as platforms showcasing a wide array of objects, exhibitions, and programs that correspond to various disciplines including but not limited to science, history, archaeology, and art. Visitors of museums partake in educational experiences that enable them to comprehend the significance of historical artefacts, gather insights about science, history, and art, and acknowledge diverse cultures. Moreover, it is well documented that museum learning can spark interest and foster cognitive capabilities. Nevertheless, contemporary museums are grappling with a dwindling engagement and a drop in the number of young visitors. Thus, the crafting of captivating educational experiences is crucial to revive and maintain interest (Crowley et al., 2014; Hassan & Ramkissoon, 2016; Guzin et al., 2017).

Literature regarding museum learning often spotlights the role of technology within these institutions. As illustrated by Wang et al. (2017), location-based learning activities within museums, conducted using mobile devices, were assessed based on the usefulness of the system and activity, as well as the enjoyment derived from the activity. The study established that location-based systems, used alongside mobile devices, encouraged collaboration within student groups. The analysis by Lin et al. (2021) delved into the trends in museum-based mobile learning research, tackling subjects such as research methodologies, learning fields, location-based technologies, learning tactics, and research subjects. Furthermore, Xu et al. (2021) carried out a meta-analysis that evaluated 42 experimental or semi-experimental studies from the period between 2011 and 2021, and concluded that technological applications have a significant, and often substantial, impact on museum learning. In light of recent developments, virtual reality (VR) and augmented reality (AR) technologies are being progressively harnessed to devise impactful activities for learners.

Numerous empirical studies have investigated the application of AR and VR in the scope of museum learning, spanning various fields like science, art, archaeology, medicine, and military. Oh et al. (2018) created a multi-user simulation named ARfract employing optical see-through AR glasses, projection-based AR, and gesture technology. This innovative simulation empowers visitors to delve into intricate notions such as light refraction by leveraging the capabilities of optical glasses and projection-based AR. In a different study,

Yoon et al. (2017) integrated an AR device within a science museum to aid students in gaining a more profound understanding of fluid dynamics, a complex subject linked to the Bernoulli principle. Additionally, AR and VR technologies are employed extensively across an array of museums, such as art, history, and archaeology museums, to enrich or simulate art pieces and artifacts. For instance, Chang et al. (2014) presented paintings through a mobile AR guide system in a highly interactive manner, which resulted in elevated interest among university students. Moreover, AR has been utilized within medical museums to showcase virtual labels, images, and natural interfaces that can enable students to gain a more in-depth understanding of medical specimens.

Learning outcomes derived from AR/VR-assisted museum learning, as evaluated in the pertinent literature, show variability and often encompass aspects such as knowledge attainment, thought processes, and individual perceptions. For instance, Yoon et al. (2017) found that when granted a brief review period within a science museum, students who used AR demonstrated considerably higher knowledge acquisition compared to those who did not. It has been reported by some studies that AR/VR-assisted museum learning amplifies higher-order cognitive abilities, such as creativity, inquiry, and critical thinking (Guazzaroni, 2013; Hsiao et al., 2016; Poce et al., 2019; Hammady et al., 2020). Other studies have also scrutinized learners' motivation and emotional responses. Dieck et al. (2018) and Puig et al. (2020) found that these technologies amplify visitor satisfaction and pleasure, and wearable devices contribute towards personalizing the learning experience. Additionally, Nechita and Rezeanu (2019) reported that a multisensory AR-assisted museum environment, which provides a firsthand experience of historical events, can foster empathetic skills. However, some studies have also identified negative implications of AR/VR-assisted museum learning. For instance, Savela et al. (2020) determined that AR games within science centers did not enhance learning performance or social interaction compared to traditional learning methods employing pen and paper. Learners have also reported feelings of nausea and vertigo with VR devices, and some gadgets, such as headsets, have led to physical discomfort for visitors (Oh et al., 2018; Rhee, 2019; Sugiura et al., 2019). Consequently, the degree and specific advantages of AR and VR applications within museum learning remain largely undefined, and additional research is warranted.

In recent years, AR and VR have become a key area of interest in educational research, particularly within formal educational contexts. Akçayır and Akçayır (2017) provided a comprehensive review of AR applications within primary and secondary

education, exploring the benefits and challenges of AR and asserting its potential to support learning and teaching. Bacca et al. (2014) carried out a review of AR's application within educational settings and determined that AR is predominantly used within science, humanities, and art education. Radianti et al. (2020) conducted a review that examined VR applications within university settings, focusing on learning content, design elements, and learning theories. Saltan and Arslan (2017) offered a holistic overview of the evolution of AR research on pedagogical and educational outcomes, presenting evidence of improved academic performance and perceptions. Goff et al. (2018) examined AR within exhibition-based informal science education settings and reported the STEM-focused topics covered by AR applications, the array of devices used, and the positive learning outcomes.

The aforementioned reviews synthesize the trends, benefits, and challenges of employing AR and/or VR within educational settings, primarily focusing on formal contexts. However, a meta-analytic review of experimental studies on the application of AR/VR within the context of museum learning is yet to be conducted. Specifically, it remains unclear as to which contexts AR and VR technologies are deployed within museum learning and how learning activities involving AR and VR are devised (i.e., design elements). Moreover, while some studies report positive effects of AR/VR-assisted museum learning, others report negative effects.

The objective of this study is to offer a comprehensive meta-analytic review of AR/VR-assisted museum learning. Firstly, educational researchers and museum professionals might be interested in the information on the contexts in which AR and/or VR are used, the learning domains, and the learning content. Secondly, it is crucial to gain a more profound understanding of the opportunities offered by AR and VR and their associated design elements. Thirdly, ascertaining the overall effects of AR and VR on museum learning is of paramount importance. Therefore, the research questions are as follows:

1. In which contexts are AR and VR technologies deployed within museum learning?
2. What design elements are incorporated alongside AR and VR technologies within museum learning?
3. What are the effects of AR and VR technologies on museum learning?

This study holds significant importance for several reasons. First and foremost, it addresses the growing interest in the use of AR and VR technologies in the field of museum learning. While there is an increasing number of empirical studies exploring the application of AR and VR in various educational contexts, there is a lack of comprehensive meta-analytic

reviews specifically focusing on their use in museum learning. This study aims to bridge this gap by synthesizing existing research and providing a comprehensive understanding of the application and effects of AR and VR in the context of museums. Secondly, understanding how AR and VR technologies can be effectively utilized in museum learning is crucial for enhancing the educational experience for visitors, particularly in the face of declining interest and decreasing visitor numbers among the younger generation. By designing engaging and immersive learning experiences, museums can attract and engage a wider audience, foster a deeper understanding and appreciation of cultural heritage, and promote lifelong learning.

Moreover, this study addresses the need for a deeper exploration of the design elements and contexts in which AR and VR technologies are applied in museum learning. By examining the different approaches and techniques employed in previous studies, researchers, museum professionals, and educators can gain insights into effective strategies for incorporating AR and VR technologies into museum environments. Furthermore, the findings of this study can contribute to the ongoing discourse on the effectiveness of AR and VR technologies in enhancing learning outcomes. By synthesizing the existing research on the effects of AR and VR in museum learning, this study can provide a clearer understanding of the impact of these technologies on knowledge acquisition, thinking skills, motivation, and other learning outcomes. This knowledge can inform future research, guide the development of best practices, and support evidence-based decision-making in the integration of AR and VR technologies in museum learning environments. In summary, this study's significance lies in its contribution to the field of museum learning by providing a comprehensive meta-analytic review of the application and effects of AR and VR technologies. The findings can inform educational researchers, museum professionals, and educators in their efforts to create engaging and impactful learning experiences, thereby promoting the preservation, communication, and appreciation of cultural heritage in museum settings.

Method

Model

The present study utilizes a meta-synthesis approach to examine the impact of virtual museum and augmented reality museum applications on learning achievement in the context of museum learning. Meta-synthesis is a systematic and rigorous method for integrating findings from multiple empirical studies to generate new insights and develop a

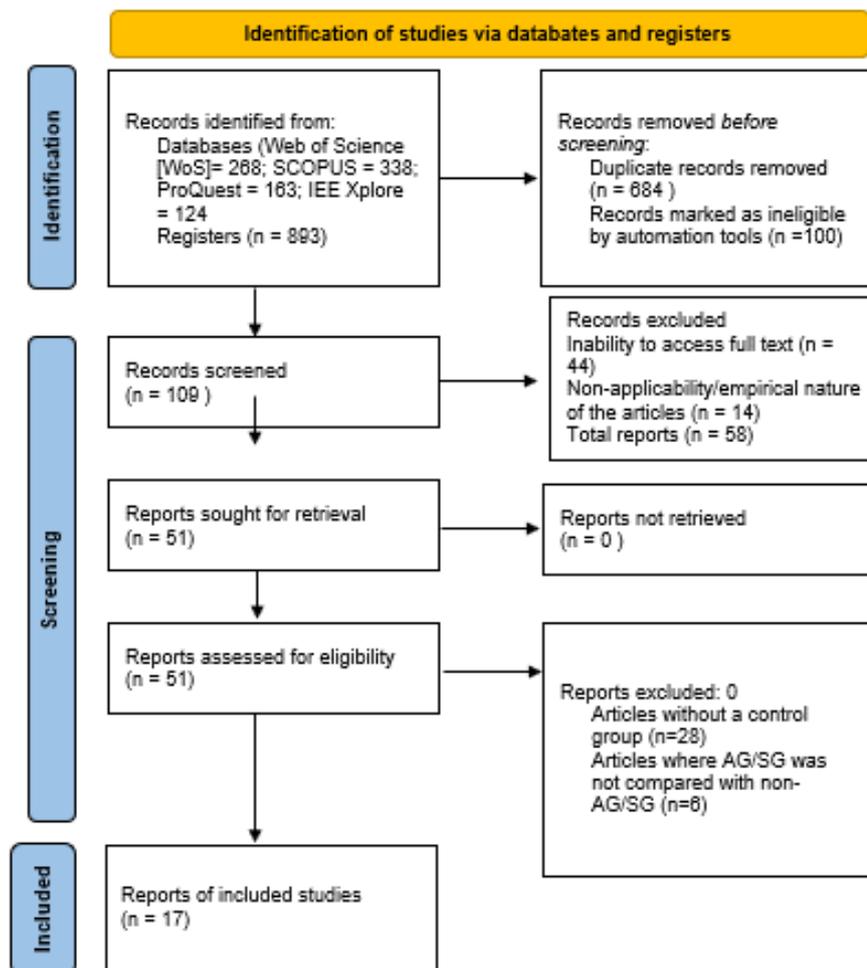
comprehensive understanding of a specific research topic (Noblit & Hare, 1988). In this study, a meta-synthesis of the existing literature was conducted to identify relevant articles on the topic.

Inclusion and Exclusion Criteria

The literature search was performed in various academic databases, including Web of Science (WOS), Scopus, IEEE Xplore, and ProQuest, using relevant keywords such as "virtual museum," "augmented reality," "virtual reality", "3D", "AR", "VR", "museum learning," and "learning achievement". The final search was conducted on April 30, 2023, without any limitations on the start date (Figure 1).

Figure 1

PRISMA (2020) Flow Diagram



As seen in Figure 1, a total of 893 studies were identified with the specified keywords/keyword groups from Web of Science (WoS) (n=268), SCOPUS (n=338), ProQuest (n=163), and IEE Xplore (n=124). The identified articles were transferred to an Excel file, and duplicate articles were removed. After removing 684 duplicate articles and 100 records marked as ineligible by automation tools, 109 articles remained for title and abstract screening. The titles and abstracts of these 109 articles were read by the researchers. After reading the titles and abstracts, 44 articles were excluded due to inability to access full text, and 14 articles were excluded due to non-applicability/empirical nature of the articles, leaving only the studies that the authors explicitly mentioned using relevant keywords in their titles and abstracts. This resulted in a total of 51 records remaining for full-text screening. After reading the full texts of the remaining 51 articles, 28 were excluded due to non-applicability/empirical nature, and 6 were excluded because AG/SG was not compared with non-AG/SG, resulting in a total of 17 eligible records.

The comprehensive breakdown of the selected articles, encompassing the distribution across years, country representation of first authors, and types of publications, is presented in Table 1. This tabulated information provides an insightful overview of the research landscape, shedding light on the temporal patterns, international collaboration, and scholarly outputs within the field of AR and VR technologies applied in museum learning.

Table 1

Distribution of Selected Articles

Distribution of selected articles		n (Frequency)	% (Percent)
Year	2012	2	3.92%
	2013	3	5.88%
	2014	5	9.80%
	2015	3	5.88%
	2016	3	5.88%
	2017	2	3.92%
	2018	5	9.80%
	2019	12	23.53%
	2020	5	9.80%
	2021	5	9.80%
	2022	11	21.57%
	2023	5	9.80%
	Country	United States	11
Taiwan		7	13.73%
United Kingdom		7	13.73%
Other European countries		15	29.41%
Publication Type	Journal Articles	32	62.75%
	Conference Papers	11	21.57%
	Book Chapters	6	11.76%

Table 1 presents the distribution of selected articles. The selected articles were published between 2012 and 2023. From 2012 to 2017, there were a maximum of five articles each year, while from 2018 to 2023, there were approximately ten articles per year. These results indicate an increasing research interest in the application of AR and VR technologies in museum learning. The first authors of the selected articles were predominantly from the United States (11 articles), Taiwan (7 articles), and the United Kingdom (7 articles). The remaining 15 articles were published by authors from other European countries. The distribution of the 51 selected publications is as follows: 32 journal articles (62.75%), 11 conference papers (21.57%), 6 book chapters (11.76%), and 2 theses (3.92%). All 51 articles were published in English.

Data Analysis

The selected research papers underwent a thematic analysis process to unearth prevalent themes and discoveries within the literature. This entailed a systematic method of coding and categorizing the information derived from the studies. The identified and analyzed themes were related to the applications of virtual museum and augmented reality museum, learning outcomes, teaching strategies, and technological considerations. The results were combined to provide a comprehensive picture of how these technologies influence learning outcomes in a museum environment.

It is crucial to acknowledge that the constraints and potential biases of the included studies were factored into the analysis process. The studies were scrutinized for their quality and rigor, and any inconsistencies or conflicting results were addressed. The approach of meta-synthesis permitted the integration of varied viewpoints and findings, thereby offering a thorough understanding of the topic. A coding framework was established to identify, distinguish, and extract pertinent information from the chosen studies. The coding parameters encompassed the timeframe and field of publication, types of learners, types of museums, learning domains, learning content, design elements or technological capabilities, technological devices, and learning outcomes.

Reliability

In this study, the coding framework was developed by the first two authors and validated by the third author. Two coders independently conducted the entire coding process.

Initially, each coder coded a subset of the studies and then underwent an intercoder coding to assess coding consistency. High consistency was found between the coders, and discussions were held to resolve any discrepancies. Subsequently, all data were fully coded, and the results were analyzed. This process follows a standard practice to ensure coding reliability.

Findings

Research Question (1): In which Contexts are AR and VR Technologies Used in Museum Learning?

This study aims to investigate the application of AR and VR technologies in the domain of museum learning, specifically addressing Research Question 1:

The participants in the selected articles mainly consisted of K-12 students (40%) and general public visitors (34%) who visit museums on a daily basis. Other studies focused on higher education students (17%) and adults (7%). Two studies included both university and K-12 students (Bossavit et al., 2018; Nechita & Rezeanu, 2019). Some researchers also paid attention to conversations among family members (Wang, 2014).

The majority of the selected studies (35.3%) were conducted in science museums (including science centers) and solely utilized AR technologies. Some studies focused on the use of AR and VR in art museums (25.5%), history museums (27.4%), archaeology museums (7.8%), and one study employed AR to deepen the understanding of medical specimens in a medical museum (Sugiura et al., 2019). Two studies involved the combined use of AR and VR in a history museum (Bell & Smith, 2020; Jung et al., 2016). In summary, AR and VR technologies are primarily utilized to support learning in science, history, and art museums.

AR and VR have found the most prevalent use in the domain of art education among the selected studies. In the museum context, these technologies have been primarily employed for enhancing art learning with 8 articles emphasizing AR applications and 5 focusing on VR applications. In the field of art education, AR and VR enrich the learning experience by introducing additional multimedia content to art collections, showcasing artistic talents in innovative ways, and providing a more enriched learning journey for visitors. Furthermore, these technologies find considerable use in the disciplines of history (11), biology (9), and physics (8). In historical education, these tools help recreate historical scenarios, such as the simulation of ancient Egyptian warfare or the recreation of the lives of ancient inhabitants of Brasov, Romania (Nechita & Rezeanu, 2019; Hammady et al., 2020). In scientific education,

they aid in visualizing abstract concepts or phenomena not usually visible to the naked eye, such as demonstrating the correlation between the velocity of moving air and pressure using virtual arrows. Certain articles did not specify a particular domain (Jung et al., 2016; Salmi et al., 2017; Moorhouse et al., 2019; Haryani & Triyono, 2020). More information regarding the learning topics in the selected experimental studies can be found in the supplemental file. Jung et al. (2016) created two historical learning activities utilizing AR and VR technologies, while Bell and Smith (2020) facilitated biology and mathematics learning using both AR and VR.

AR and VR are primarily leveraged tools to boost declarative knowledge learning within museum environments. Examples include their use for imparting foundational knowledge on subjects such as rheumatoid arthritis, the principle of Bernoulli, or ancient civilizations (Wang, 2014; Yoon et al., 2017; Kosa et al., 2019; Khan et al., 2020). Additionally, they've been employed to hone thinking skills, including analytical and problem-solving capacities within gaming or adventure contexts, or for the study of the internal anatomy of a baleen whale. A mere pair of studies aimed at procedural-practical knowledge, such as sculpting, or intended to modify visitor behavior by presenting potent emotional narratives related to the Nazi Holocaust ((Takahashi et al., 2013; Guazzaroni, 2013; Hsu et al., 2018; Koutsabasis & Vosinakis, 2018; Poce et al., 2019; Borovanska et al., 2020). Two studies fostered emotional experiences by reenacting historical events, like ancient Egyptian warfare (Hammady et al., 2020). A single study sought to change visitor behavior through demonstrating the detrimental effects of smoking (Borovanska et al., 2020). There are, respectively, 1 and 7 studies that can be categorized under "Other" and "Not specified".

Research Question (2): What Design Elements Are Used in Conjunction With AR and VR Technologies in Museum Learning?

The second research question seeks to delve into the application of design elements in conjunction with AR and VR technologies for museum-based learning. It specifically investigates the ways these technologies are deployed to enhance the museum learning experience, with a particular focus on the integrated design elements and the specific technology devices used for their execution.

Drawing from the coding framework, studies implemented AR or VR to supplement physical exhibits with additional information, thereby enriching their content. The supplementary information was delivered via labels or texts, visual and auditory media or

three-dimensional models, serving a function akin to labels found in traditional exhibitions (Damala et al., 2016; Ghouaiel et al., 2017; Juan et al., 2017; Connaghan et al., 2019; Borovanska et al., 2020; Tabone, 2020). Eight instances involved the use of these technologies to simulate or dynamically illustrate phenomena that would otherwise remain invisible, like the path and refraction of light or the pattern of electric currents across the visitor's body (Yoon et al., 2012; Oh et al., 2018). In scenarios where no physical objects or exhibits were available, AR and VR were utilized to recreate exhibitions, such as simulating floral patterns on a gallery floor via HMDs or presenting narrative scenarios like an underwater archaeological world for a more comprehensive understanding of marine life (Li & Chang, 2017; Harrington et al., 2019). Besides amplifying visitors' perspectives, a distinct advantage of AR and VR is the potential for interaction with virtual entities. From the examined studies, visitors had the opportunity to manipulate virtual objects which included interacting with 3D objects to observe climatic shifts via an AR application performing tasks as part of an examination (4), and facilitating content creation (4) like sculpting Kykladid figurines using traditional stone tools. Certain studies incorporated multiple design elements within a single article, using different design components to support a variety of learning activities (Jung et al., 2016; Hsiao et al., 2016; Dudzik, 2018; Koutsabasis & Vosinakis, 2018; Puig et al., 2020)

Mobile devices, comprising primarily of smartphones and tablets, emerged as the most frequently utilized technology in this context, appearing in 28 instances. The next most prevalent were Head-Mounted Displays (HMDs), featuring in 15 studies, with examples of such devices being Google Cardboard, HTC VIVE, and Microsoft HoloLens. Six studies leveraged desktop devices for this purpose, while projectors were employed in five instances. In two cases, the specific type of device used was not explicitly disclosed. It is worth noting that the total tally of devices surpasses 51 as certain studies opted to use multiple devices either for crafting diverse activities or to establish a more effective learning environment (Jung et al., 2016; Dudzik, 2018; Nechita & Rezeanu, 2019; Sugiura et al., 2019).

Primarily, portable devices such as smartphones and tablets were the tools of choice for Augmented Reality (AR), mainly aiming to enhance the understanding of physical exhibits (19). Visitors were able to utilize AR functionalities by scanning exhibits or QR codes, or even by overlaying digital enhancements onto real-world objects using their mobile devices. To illustrate, users could scan a table using their mobile camera, subsequently gaining access to related commentary and information (Chang et al., 2014). The next stage

involved creating visualizations of intangible or hidden events, using a range of tools including desktop computers (4), projection systems (2), and head-mounted displays or HMDs (1). In the context of exhibitions lacking physical artifacts, simulations were brought to life via HMDs (3) and mobile devices (3). One particular example is the creation of immersive narrative experiences using HMDs, such as underwater archaeological sites, enhancing the visitor's understanding of marine life (Li & Chang, 2017).

A unique aspect involved the use of mobile devices (4) for running quiz-based games. For instance, the study by Savela et al. (2020) utilized mobile AR applications where users could visualize hovering question marks above related exhibits and then navigate the exhibition area to address all the quiz items. Lastly, the opportunity for visitors to craft their own content was facilitated through the use of mobile devices (1), projectors (1), or stationary computers (1). To exemplify, visitors were able to simulate the work of an ancient craftsman using a kinesthetic application for sculpture making, allowing them to replicate Kykladid figurines using prehistoric stone tools (Koutsabasis & Vosinakis, 2018).

The findings show that mobile devices, such as smartphones and tablets, are predominantly utilized for AR, with visitors able to view digital augmentations through apps installed on their devices. Head-mounted displays (HMDs) were employed equally for both AR and VR. AR HMDs, like Google Cardboard and Google Glass, are typically low-immersion devices that allow users to interact with the physical world while viewing digital overlays. In contrast, VR HMDs, like HTC VIVE or Samsung Gear VR Glasses, offer a high degree of immersion, fostering a sense of full presence within a virtual environment (Connaghan et al., 2019; Borovanska et al., 2020). Desktop devices, which include stationary computers or equipment located within the museum, were primarily used for AR, displaying digital augmentations once visitors interacted with exhibits. The solitary VR instance involving a desktop device included the use of a handheld device named Leap Motion Orion (Yoon & Wang, 2014; Koutsabasis & Vosinakis, 2018; Yoon et al., 2018). Projectors in AR applications were used to provide feedback or to display physical events in conjunction with desktop devices. Projectors in VR applications were paired with a Kinect device, facilitating full immersion for learners (Yoon et al., 2013; Bossavit et al., 2018; Dudzik, 2018).

Research Question (3): What are the Effects of AR and VR Technologies on Museum Learning?

The effects of AR and VR technologies on museum learning, addressing research question 3 "What are the effects of AR and VR technologies on museum learning?", are multifaceted. These technologies impact learners' academic achievement and foster positive perceptions of the learning experience, illustrating the potential of these tools in a museum context.

The investigation reveals that the application of AR and VR in museum learning environments leads to promising results. These technologies facilitate immersive and enriching learning scenarios, adhering to the principles of experiential and situated learning, which have been established as effective educational methods. Through AR and VR technologies, learners are encouraged to actively participate in cognitive processing, constructing coherent mental representations based on their personal experiences. Although the learning content remains similar across groups, learners exposed to AR and VR tend to outperform their peers in the non-AR/VR control group. This difference can be traced back to the dynamic visualization and rich informational content provided by AR and VR, offering additional stimuli that enhance learning outcomes (Kolb, 2014; Mayer, 2014).

The noted effects on academic achievement align with prior reviews that underscored the effectiveness of AR technologies in general educational contexts. Beyond that, the influence of AR and VR transcends mere knowledge acquisition, affecting changes in visitors' interests, beliefs, attitudes, and even their behavior during museum visits. The innovative nature of AR and VR captivates visitors' attention, stimulates their engagement, and fosters persistence in the learning process, thereby contributing to more favorable perceptions of the museum experience (Bacca et al., 2014; Schwan et al., 2014; Bettelli et al., 2020).

In conclusion, the impact of AR and VR technologies on museum learning is multifaceted, promoting academic achievement and positive perceptions among learners. These technologies create immersive and interactive learning environments, enabling learners to actively partake in cognitive processes and construct significant mental representations. The integration of AR and VR in museum contexts has the potential to facilitate efficient and captivating learning experiences, thereby advancing the field of museum education and boosting the overall learning outcomes for visitors.

Discussion and Results

The meta-synthesis review reflects a growing interest in the implementation of AR and VR technologies in museum education, especially within the last three years. Predominantly, studies have targeted K-12 students. This trend is unsurprising given the significant role museums traditionally play in the informal education of this demographic, facilitating various activities and enriching their life outside school. However, there's a dearth of studies involving teachers who could provide valuable insights on improving AR and VR integration in museum learning based on firsthand experiences.

In the realm of learning domains, AR and VR technologies find common use in art, science, and history education. For items like artworks, historical exhibits, collections, and artifacts which often necessitate a more engaging presentation, AR and VR technologies offer digitally augmented visual enhancements to the details of artworks. Previous studies have suggested that learners can better grasp abstract and challenging scientific concepts, for instance, Bernoulli's principle, with the help of AR. AR can make the underlying, often invisible mechanisms of complex phenomena more understandable. Regarding learning content, most studies have concentrated on the development of factual or conceptual knowledge, somewhat overlooking the potential of AR and VR to support learning. AR and VR can provide simulation environments for learners to master practical skills such as sculpting, enhance higher-order thinking skills, or foster an emotional connection or experience (Cai et al., 2013; Chang et al., 2014; Chiu et al., 2015; Yoon et al., 2017). However, the number of studies on how AR/VR-supported museum learning can facilitate the acquisition of these outcomes is comparatively scarce.

Research findings indicate that AR technologies are more prevalent in museum learning compared to VR technologies, likely due to the ease of access to necessary devices. Advances in mobile technologies like smartphones and tablets have made AR applications available to the general public through built-in cameras, global positioning systems, and internet connectivity. Additionally, AR devices are more cost-effective and user-friendly compared to VR devices which have not yet gained widespread acceptance in museums (Sommerauer & Müller, 2014). The technological potential of AR and VR for museum learning includes placing information on physical exhibits or objects (23 studies), simulating complex phenomena or abstract concepts (8 studies), simulating exhibits (7 studies), and simulating narrative scenarios (6 studies). Enhancing understanding of exhibits like historical

artifacts and gaining detailed information are fundamental aims of museum visits. However, in cases where adding paper labels to exhibits is impractical, like observing tumor structure and development in a medical museum, digitally placing information on physical exhibits becomes possible. Moreover, digitally simulating phenomena, exhibits, and narrative scenarios is ideal for immersive and experiential learning (especially in science museums) and enhancing scientific literacy. But few studies have explored how AR and VR can be implemented to enhance visitor interaction with exhibits or enable visitors to generate virtual content in immersive environments suggesting that the application of AR and VR mainly takes place in low-immersion modes (Crowley et al., 2014; Hsiao et al., 2016; Koutsabasis & Vosinakis, 2018).

The rich and immersive learning environments fostered by AR and VR can be attributed to the facilitation of experiential or situated learning, as learners actively engage in cognitive processing when constructing a coherent mental representation of their own experiences. Moreover, even with nearly identical learning content, learners in the AR and VR experimental group often benefit from dynamic visualizations containing more information, resulting in superior performance. These findings align with a previous review emphasizing the effectiveness of AR technologies in general educational settings. While museum visits' learning outcomes involve knowledge acquisition in a strict sense, they also encompass shifts in visitors' interests and beliefs. Museum visits are hoped to impact visitors' attitudes and even their behavior. The technical novelty of AR and VR can attract visitors, capture their attention, and inspire persistence in learning, leading to more positive perceptions (Bacca et al., 2014; Kolb, 2014; Mayer, 2014; Schwan et al., 2014; Bettelli et al., 2020).

The study presents some limitations. Firstly, the review only considered articles from four databases, namely Web of Science, Scopus, IEEE Xplore, and ProQuest, potentially overlooking relevant studies not included in these four databases. Secondly, this study focuses on traditional museums, neglecting various informal learning environments like zoos, aquariums, arboretums, and historical sites that have broadened the concept of "museum". The application of AR and VR to these types of museum learning environments was not covered in this study. Hence, future research should extend to these types of museums to comprehensively evaluate the impact of AR and VR on museum learning. Thirdly, this review did not examine barriers to AR and VR usage in museum learning, as some articles reported

common disadvantages like dizziness and device burden, which could influence the learning impact.

The existing empirical studies also pose some issues. Firstly, some studies merely provided a cursory background introduction and lacked detailed explanations of AR and VR implementation in museums. Secondly, the majority of studies did not include control groups to investigate the impact of AR and VR in museum learning. Thirdly, the real impact of museum visits might not be evident, as the typical museum learning experience with AR and VR lasts a few hours or less, and current studies have mainly evaluated immediately observable learning outcomes of visitor participants, excluding distal outcomes like long-term interest in science or art among youth (Bell & Smith, 2020).

This study provides a meta-analysis on how AR and VR technologies are employed to support museum learning, their integration into learning activities, and their effects on academic achievement. Firstly, the results indicate that AR and VR are commonly utilized by K-12 students in science and art museums, primarily for acquiring declarative knowledge. Secondly, AR and VR are frequently employed to add supplemental information to physical exhibits, dynamically visualize typically invisible phenomena or concepts, and simulate virtual exhibitions and narrative scenarios. Only a handful of studies have employed AR and VR to enhance visitor interaction with exhibits. Lastly, this meta-synthesis research demonstrates the positive effects of AR and VR applications on both academic achievement and learner perceptions. These findings can contribute to a deeper understanding of AR/VR-supported learning in museums.

Recommendations

1. Broadening the scope of educational content in museums: A notable majority of extant studies have primarily centered on the procurement of factual knowledge, such as rudimentary information on artists and their works. The acquisition of procedural or practical knowledge and analytical thinking abilities, on the other hand, has been given relatively less focus. Consequently, prospective research should aspire to include these elements as educational objectives.

2. Offering genuine immersive experiences: In order to fully harness the potential of VR technologies, museum education environments ought to endeavor to provide authentic immersive learning experiences. Merely displaying animations on less immersive desktop

devices does not fully utilize VR's capabilities, calling for a joint effort between museum education designers and tech experts.

3. Accounting for cognitive abilities across varying age groups: Museum visitors of differing age groups demonstrate a range of cognitive skills, technology usage habits, and museum visit preferences. Therefore, it is critical that future research recognizes these variations and accommodates the wide-ranging needs of visitors.

4. Employing controlled experimental designs: To effectively evaluate the impacts of AR and VR technologies on museum education, such as knowledge acquisition and skill development, there is a pressing need for an increase in experimental or quasi-experimental research.

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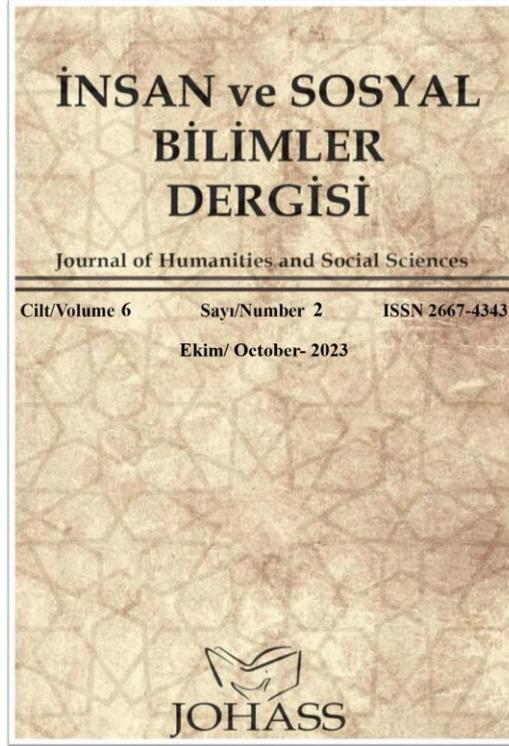
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**How Was the Science Literacy Demonstrated in Primary Science Textbooks
in Early Republican Türkiye?**

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How Was the Science Literacy Demonstrated in Primary Science Textbooks in Early Republican Türkiye?

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Abstract

In this research, the investigation aimed to determine whether there was a balanced distribution among the science literacy dimensions in science textbooks and whether these textbooks could prepare scientifically literate citizens in the early Turkish Republic (1926-1948). Additionally, the research sought to compare the distribution of science literacy in the textbooks of that period with those of the present day. The research used the content analysis method to examine three textbooks for the 4th and 5th grades, prepared according to the 1926 and 1936 curricula. Among the books examined, a balance is seen in the dimensions of science literacy only in the object textbook prepared according to the 1926 program. The fact that most of the content in the books related to the 1936 program is in the dimension of science as knowledge shows that there is no balance in the dimensions of science literacy. The dimension of science as a way of thinking is the least seen dimension in the textbooks examined. In general, it has been concluded that science literacy has yet to be balanced since the 1936 curriculum. This situation coincides with current research.

Keywords: History of education, science education, science literacy, textbooks, science

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Introduction

In today's rapidly advancing world, achieving and continually honing one's science literacy (SL) skills is paramount. Proficiency in these skills not only enables individuals to comprehend and scrutinise complex scientific data effectively but also facilitates meaningful discussions on science-related topics. This competence extends to understanding evidence-based information sources, vital for navigating fields like technology, healthcare, and broader societal issues. Moreover, cultivating a society of critical thinkers enriched with these skills fosters a deeper appreciation for evidence-based approaches to address global challenges (Sadler & Zeidler, 2004; Wang et al., 2023). The primary objective of today's education system is to offer robust educational opportunities, equipping future generations with the capacity for systematic, research-driven decision-making and ultimately steering our world toward an ethical and equitable transformation guided by the principles of science and technology. In pursuing this goal, SL plays a pivotal and indispensable role.

SL is specifically essential in science education as it plays a crucial role in achieving science education reform goals and enhancing students' understanding and engagement in scientific practices (DeBoer, 2000). SL entails the ability to critically comprehend and evaluate scientific information, as well as the proficiency to apply scientific knowledge and skills in practical, real-world scenarios. Within science education, a vital component of SL revolves around nurturing the skills of scientific reasoning and argumentation in students. It is imperative that students scrutinise and assess scientific evidence, construct cogent and well-founded arguments, and actively participate in scientific discourse (Christenson et al., 2011). Through the cultivation of SL, science education empowers students to actively engage in scientific processes and make judicious decisions grounded in empirical evidence. Additionally, SL in science education is intricately connected to grasping scientific advancements' societal and ethical ramifications. Students must develop an awareness of the influence of science on society, encompassing matters pertinent to genetics, the environment, and technology (Kampourakis et al., 2013). This comprehension empowers students to systematically assess the advantages and drawbacks of scientific progress, facilitating well-informed decisions that consider the broader societal milieu. Moreover, incorporating SL within science education augments students' perception and involvement in scientific subjects. The way teachers perceive integrated science education and SL carries significant weight in shaping students' encounters and attitudes towards the field of science (Rubini et al., 2019).

By integrating SL into the curriculum, educators can assist students in recognising the pertinence and utility of scientific knowledge in their everyday lives and prospective careers.

Framework of Science Literacy (SL) and Science Curriculum

Curricula are the product of their time and reflect the characteristics of the age (Kantekin & İrez, 2021). In this context, in contemporary societies, educational institutions and programs mediate raising the type of people needed by age (Arslan et al., 2014). The Ministry of National Education (MoNE, 2018, p. 9) emphasises that The Science Curriculum aims to make all individuals SL. A given definition of SL is:

A combination of science-related skills, attitudes, values, understandings and knowledge necessary for individuals to develop research-inquiry, critical thinking, problem-solving and decision-making skills, to become lifelong learners, and to maintain a sense of curiosity about their environment and the World. (MoNE, 2005, p. 5)

In line with the definition of SL, it has been a matter of curiosity about how students will acquire SL in the curriculum. In this context, studies have emerged to investigate how SL is included in the curriculum, in textbooks, course activities and course contents, which reflect the curriculum. Research began in 2004 and has continued until today, with a significant increase by 2012 (Kılıçaslan & Dökme, 2022).

Kılıç, Haymana and Bozyılmaz (2008) analysed the 2004 Science Curriculum with respect to aspects of SL and science process skills. According to the results, there was no balance among the four dimensions of SL. Cakici (2012) investigated the four upper primary level science textbooks (4th and 5th grades) were analysed to determine the inclusion of four dimensions of SL. Cakici's study reveals an imbalanced coverage of SL dimensions in Turkish science textbooks. Candaş (2019) tried to find out if Turkish 5th, 6th, 7th and 8th-grade science textbooks provide a balance of SL dimensions. The results revealed that the science textbooks at all grades provided an unbalanced distribution of SL dimensions. In their 2021 study, Kantekin and İrez sought to determine whether Turkish high school physics, chemistry, and biology curricula maintain a balanced representation of SL dimensions. Results revealed that all three curricula at all grades provided an unbalanced distribution of SL dimensions. The study of Kılıçaslan and Dökme (2022), which is a field survey study, has the objective of specifying the current situation by compiling the research and putting forward suggestions regarding the deficiencies of SL in Türkiye. In the studies on SL in curriculum

and instructional materials, it was reported that the curriculum emphasised the dimensions of the nature of science and key science concepts more and the dimension of science-technology-society-environment interaction less.

Research conducted in Türkiye in the last 20 years shows that Science Curriculum and textbooks do not have a balanced structure of SL. Remembering the crucial role of SL in science education, the need to examine whether the units included in science textbooks provide students with opportunities to develop these abilities holds a strong argument (Sideri & Skoumios, 2021).

The purpose of this study is to investigate the balance of scientific literacy dimensions in the early period of the Republic of Türkiye (1926-1948) science textbooks used in science education in an attempt to find out whether or not these textbooks have the potential to prepare scientifically literate citizens and the continuity between past and present. Given that schools, curricula, and textbooks constituted the primary means of reaching students during that era, the textbooks used in our research can provide insight into the approach to SL within science education. When considered alongside contemporary studies in the field, this analysis can offer valuable insights into the progression of SL in science education in Türkiye, spanning from the past to the present. In light of these objectives, the study aims to address the following inquiries:

1. Was there a balanced distribution among the SL dimensions in science textbooks in the early Turkish Republic?
2. Did science textbooks have the potential to prepare scientifically literate citizens in the early Turkish Republic, and is there continuity with the present in this sense?

Method

Research Design

The study utilised the content analysis method, which enables researchers to aggregate akin data based on specific concepts and the reduction of phenomena or events into defined categories to better analyse and interpret them (Harwood & Garry, 2003; Neuendorf, 2017). This approach is commonly employed in evaluating educational materials like school textbooks, enabling researchers to derive insights through systematically classifying or coding textual content (Krippendorff, 2013).

Framework to Analysis

In the analysis, the framework developed by Chiappetta et al. (1993), which addresses SL under four dimensions and is finalised with the contribution of various researchers (Chiappetta et al., 2006), was used. Four dimensions of SL are (1) science as a body of knowledge (SBoK), (2) science as a way of investigating (SWoI), (3) science as a way of thinking (SWoT), and (4) the interaction among science, technology, and society (STS). These aspects of SL were used to investigate the balance of SL dimensions in science textbooks used in the Republic of Türkiye.

1. SBoK: This dimension includes principles, facts, concepts, hypotheses, laws, theories and science models necessary for a scientifically literate individual (Boujaoude, 2002; Chiappetta et al., 1991; Cakici, 2012).

2. SWoI: Within the scope of this dimension, using methods and processes of science such as measuring, observation, classifying, inferring, recording, data analysing, communicating, making calculations, using formulas and experimenting skills are expected (Boujaoude, 2002; Chiappetta et al., 1991; Cakici, 2012).

3. SWoT: Science as a way of thinking: This dimension emphasises reasoning, thinking, and reflection in the construction of scientific knowledge and the work of scientists (Boujaoude, 2002; Chiappetta et al., 1991; Cakici, 2012).

4. STS: This dimension consists of understanding the impact of science on society and the inter-relationships between science, society, and technology.

Following the procedures portrayed by Chiappetta et al. (1993), every unit of examination in this study was relegated to a unique dimension in light of the most grounded accentuation given to that unit. For instance, a few units of analyses began with 1st dimension as SBoK, going on with an accentuation on the 2nd dimension as SWoI. In this case, the unit was assigned to 2nd dimension.

In the examination of several units comprising of simply questions or finishing up with an inquiry were classified as dimension 1 due to the way that there were answers not long previously or after the inquiry in the text. It would not lead students to reasoning or investigating.

The analysis and categorisation were performed on the following components of the science books: complete paragraphs, figures-pictures-tables with captions or short statements, marginal comments or definitions, questions and each complete step of a laboratory or hands-on activities. Goal or objective statements, title pages, titles in the units, bibliography,

prefaces, glossary and vocabulary lists excluded during analysis. A total of 1247 units were analysed, 259 of which were included in the textbook of the 4th-grade nature (tabiat), whereas 333 were in the textbook of the 5th-grade nature (tabiat) and 555 in the 5th-grade object (eşya).

Reliability

In the data analysis, the two researchers coded the first unit in the 5th-grade nature (tabiat) textbook together. At this stage, the aim was to minimise the differences between the researchers by developing a common understanding. In the decision-making process, the statement was read, and it was decided which dimension of SL it aimed to develop in students. The units were then analysed independently by two researchers (coders). As a result of the independent analysis, the Cohen Kappa coefficient was calculated to determine the reliability between the coders, and it was determined as 0.81.

Framework to Textbook Selections

This study investigates science textbooks used in Türkiye between 1926 and 1948. To provide a holistic understanding of the science education of that time, the analysis centred on the 5th-grade object (eşya) textbook, aligned with the 1926 primary school curriculum, and the 4th and 5th-grade nature (tabiat) textbooks, which followed the 1936 primary school curriculum. The 1926 primary school curriculum is one of the most comprehensive curricula developed following the establishment of the Republic of Türkiye. Under this curriculum, the science course for 4th and 5th graders is divided into two distinct lessons: object (eşya) and nature (tabiat), with each lesson receiving two hours of instruction per week. Following the 1926 curriculum, a new primary school curriculum was prepared in 1936. This curriculum was introduced during the 1936-1937 academic year and remained until the 1948-1949 academic year. Under the 1936 primary school curriculum, the object (eşya) lesson was eliminated, and all subjects were combined into the nature (tabiat) lesson, which was taught for three hours per week. While the 1926 program leaned toward a more liberal approach, the 1936 program adopted a more authoritarian stance. Under the 1926 curriculum, textbooks were chosen from various authors' books as long as they aligned with the curriculum's guidelines. However, in 1936, a new practice was introduced where the state selected authors to write the textbooks. Consequently, the influence of the prevailing ideology and scientific views of the time became more evident in textbooks after 1936. Hence, in this study,

textbooks aligned with both the 1926 and 1936 curricula were selected to examine the impact of these differing approaches.

Table 1 presents the imprint and content information of the selected books. Naime Halit's 5th-grade object (eşya) textbook, which was designed following the 1926 curriculum, remained in use until the adoption of the new curriculum in 1936. Following the 1936 curriculum change, nature (tabiat) textbooks authored by Tarık Emin Bilgen and Suphi Rıza Doğukan were introduced. The activities included in these science textbooks for primary school grades of 4th and 5th constituted the study's sample. The reason for choosing these grade levels is that students are introduced to science more regularly and systematically in these grades.

Table 1

The Imprint and Content Information of the Selected Books

	4th grade nature (tabiat)	5th grade nature (tabiat)	5th grade object (eşya)
Author	Tarik Emin Bilgen & Suphi Rıza Doğukan	Tarik Emin Bilgen & Suphi Rıza Doğukan	Naime Halit
Date of publication	1937	1936	1936
Publisher	Ministry of culture of the republic of Türkiye	Ministry of culture of the republic of Türkiye	Ministry of culture of the republic of Türkiye
Place of publication	Istanbul	Istanbul	Istanbul
Page number	161	160	160

Findings

Table 2 presents coverage of the four dimensions of SL in grade 4 and 5th-grade science textbooks for the units. A total of 1247 units as complete paragraphs, figures-pictures-tables with captions or short statements, marginal comments or definitions, questions and each complete step of a laboratory or hands-on activities in science books were analysed. In the early republican period of Türkiye, science textbooks appear to devote the most coverage to dimension 1 as SBoK. As shown in Table 2, about half of the units (51%) analysed are in the dimension of SBoK.

Table 2

The Distribution of the Dimensions of SL.

Dimensions of Scientific Literacy							
SBoK		SWoI		SWoT		STS	
f	%	f	%	f	%	f	%
635	51	247	20	140	11	225	18

Table 2 shows the distribution of the dimensions of SL in the science textbooks used in the 4th and 5th grades of primary education in the early period of the Turkish Republic. In these textbooks, it is seen that SBoK is the most common dimension of SL, while SWoT is the least common dimension. The distribution of the 2nd and 4th dimensions is similar to each other. It is seen that there is a similarity with other studies in the literature. The conclusion that SBoK is the most frequently identified SL dimension in science textbooks is supported. It can be stated that a balanced education in terms of SL was not demonstrated in science education at the primary level in the early republican period.

Table 3

The Scientific Literacy Dimensions According to Book Type

SL Dimensions	4 th Grade Nature		5 th Grade Nature		5 th Grade Object	
	f	%	f	%	f	%
SBoK	228	64	198	59	209	38
SWoI	50	14	63	19	134	24
SWoT	18	5	27	8	95	17
STS	63	17	45	14	117	21
Total	359	100	333	100	555	100

One of the study's essential findings emerges when the textbooks are analysed according to their type. Table 3 presents the results of analysing these three books regarding SL. When Table 3 is examined, it is seen that the SL dimensions in the 5th-grade object textbook show a more normal distribution than the other textbooks. It can be said that the most significant difference is in the transition from the SBoK dimension to the different dimensions. While this dimension is 64% and 59% in the 4th and 5th-grade nature textbooks, it is 38% in the 5th-grade objects textbook.

Similar studies in the literature state that the most intensive SL dimension in both textbooks and curricula is SBoK. Cakici (2012) examined science textbooks used in 4th and 5th grades in terms of SL and found that this dimension was between 42% and 47%, while

Candaş (2019) found that the frequency of this dimension in 5th-grade science textbooks was around 66%. In this study, it is seen that this rate is 51% in the general evaluation. On the other hand, it is revealed that this rate decreased to 38% in the 5th-grade objects textbook. As this decrease is reflected in the increase in other dimensions, the 5th-grade objects textbook demonstrates more balanced structure.

SWoI dimension is more common in the 5th-grade objects textbook (24%) than in the 4th-grade nature textbook (14%) and the 5th-grade nature textbook (19%). While scientific knowledge such as concepts, facts, theories and hypotheses are presented with direct explanations in nature courses where biology, health, and nature subjects are predominant, scientific knowledge is presented with scientific processes such as experiments and observations in objects courses where physics and chemistry are predominant. The reason for this may be related to the educational philosophy of the 1926 curriculum and the content of the courses. This curriculum aims to enable students to work in groups, learn by doing and experiencing, make inquiries, engage in mental activities and relate what they learn to daily life (Akdağ &, Çiydem, 2021; Ulubey & Aykaç, 2017). It can be seen that the emphasis in teaching physics and chemistry subjects is more on applied science in the objects textbook. It was determined that each topic had at least one experiment or observation. In addition, it is noteworthy that many questions are based on high inquiry in the textbooks. For example, questions asked to students in the textbook on gravity and buoyancy are as follows;

You know that the earth has a north pole and a south pole. Let's say we drill a hole from the North Pole to the South Pole to pass through the earth's centre. Now, let's throw a stone from the North Pole and a stone from the South Pole. How far will these stones fall? (Naime Halit, 1936, p. 12)

A water buffalo or a dog that enters the water can swim with no difficulty, just by moving its feet. Let's throw one of the quadruped animals that are not used to such water, for example, a cat, into the water. Although this animal shows signs of alarm, it still swims quite quickly and comes to the edge. Mice are also good swimmers. Humans, on the other hand, if they do not know how to swim, they immediately sink and drown when they fall into the water. What is the reason for this? (Naime Halit, 1936, p. 101)

SWoT is the least common dimension in all three textbooks analysed. While this dimension remained at low rates of 5% in 4th grade and 8% in 5th grade in the nature textbooks, it increased to 17% in the objects textbook. These findings related to SWoT show

that 4th and 5th-grade science textbooks do not offer Turkish students a balanced perspective on SL. Lots of studies on the subject in the literature emphasised that the dimension of SWoT is not sufficiently included in textbooks and curricula (Cakici, 2012; Candaş, 2019; Kantekin & İrez, 2021). In the textbooks examined, it was possible to see sentences attributing the dimension of SWoT.

The most brilliant example of this is seen in the Suleymaniye Mosque, the highest work of Turkish architecture, built by Mimar Sinan. In this mosque, there is a barred place around the dome. If you go up there and hold your watch, your friend standing in front of the wall on the opposite side will hear it very well. The return of sound in this way is called echo. (Naime Halit, 1936, p. 93)

The gramophone, invented by Edison, was created with the idea of sound being transmitted through air. (Naime Halit, 1936, p. 93)

The interaction among STS dimension is 17% and 14% in the 4th and 5th grade nature books and 21% in the 5th grade object book. This dimension is more balanced among the books analysed than the other dimensions. The 1926 primary school curriculum aims to educate children about modernisation, a thrifty economic life and a healthy life (Tuğluoğlu & Tunç, 2010). Many examples of the social and modernisation issues aimed by the curriculum were encountered in the textbooks examined.

The twentieth century is an era in which science and society have reached a point they have not reached since the world began. Europe and America are competing to go further in this progress. One of the most significant duties of every Turkish child is to work with all his/her might to not fall behind Europeans and Americans in this progress. Tomorrow, great openers and inventors will emerge among you, and on that day, our beloved Türkiye, the most beautiful country in the world, will have attained true happiness. (Naime Halit, 1936, p. 160)

As socialization progresses, people's needs increase. A hundred years ago, people lit their rooms with kindling, candles, and other things; today, they are looking for electric lamps. Horse-drawn trams are a thing of the past; electric trams run everywhere. Where we used to send letters a hundred years ago in six months, today, we can send news by telegraph in five or six minutes. We can listen to what people in places days away from us are talking about, what concerts they are giving, and what theatres they are playing by wireless telephone (i.e. radio). (Naime Halit, 1936, p. 136)

Another reason may be due to the pragmatic principles in the 1926 curriculum. This curriculum requires that information be given with examples from the environments in which students live, encouraging learning by doing and experiencing. In fact, the principle of "close place" in the 1936 program, especially the principle of students learning in the context of their environments, is more dominant. "Close place" principle, the topics to be covered in the courses will always be given in the context of their relationship with people. In other words, according to the 1936 program, all subjects related to physics, chemistry and biology will be covered in a way that focuses on society and people. As in the examples given in the curriculum, the student is first taught about the animals and objects in his environment and related to his general life, or the student is made to feel more interest and curiosity in the objects they use every day (İlkokul Programı, 1936, pp. 111-113). However, the STS principle dominates the 1926 textbook, not the 1936 textbooks. It can be said that this dominance in the 1926 program was an effect of the reform movements initiated by Atatürk, modernization policies, and the integration of science and technology. It is possible to find the following vital elements in terms of STS in the textbook prepared according to the 1926 curriculum analysed.

X-ray machines, which play the most important role in medicine, work with electricity. Electric stoves, ovens and irons are unmatched by any other means in terms of cleanliness and convenience. In short, electricity is the arm and the wing of the sociality; electricity, which plays such an important role in industry and in all our lives, is not visible to the eye like any other force of nature, but is understood by its works. (Naime Halit, 1936, p. 137)

Today, the radio of telegraphy, that is, wireless telegraphy, has also been invented; it is impossible for a steamer in the middle of the sea to talk to the shore by wire telegraphy. However, it is possible to talk with wireless telegraphy. Today, on ferries traveling between Europe and America, daily newspapers are published as a result of wireless telegraphy. (Naime Halit, 1936, p. 151)

Discussion and Results

This study investigated whether there was a balanced distribution among the SL dimensions in science textbooks, whether science textbooks could potentially prepare scientifically literate citizens in the early Turkish Republic, and whether there is continuity

with the present in this sense. Since the analysed textbooks were used as the only source for a long time in the early republican period, it can be thought that they can reflect how SL was handled in science education. When evaluated with current studies in the literature, it can provide essential clues in revealing the status of SL in Türkiye from the past to the present. Remembering SL's crucial role in science education, the need to examine whether the units included in science textbooks provide students with opportunities to develop these abilities holds a strong argument (Sideri & Skoumios, 2021).

According to the results, it is seen that SL was not balanced in the early period of Türkiye. The common point in analysing three primary science textbooks is that the dimension of SBoK is the most intensive. The fact that more than half of the analysed content is in the dimension of SBoK indicates that this balance is not formed because it shifts towards that dimension. Similar results are also found in studies examining contemporary Türkiye's 4th and 5th-grade science textbooks regarding SL. Cakici (2012) found that SBoK dimension was between 42% and 47.2% in 4th and 5th-grade science textbooks, and Candaş (2019) found that it was 66.2% in 5th-grade science textbooks. In the studies examining SL in secondary school textbooks (Kantekin & İrez, 2021), evaluating SL in terms of curriculum (Cansız & Türker, 2011; Erdoğan & Köseoğlu, 2012; Kılıç et al., 2010), and review (Kılınçaslan & Dökme, 2022), it is emphasised that there is an intensity in SBoK dimension. It shows that science education has remained at the level of conceptual teaching in the past and today. In sum, the SBoK dimension is predominantly present in all textbooks analyzed. It means that scientific process skills, the nature of science and science society technology interaction are not emphasized sufficiently.

The dimension of SWoT is the least common (11%) in the textbooks analysed. This result is in line with many national and international studies. Cakici (2012) emphasises in his study that the dimension of SWoT is almost non-existent in 4th and 5th-grade science books. Candaş (2019) concluded that the dimension SWoT was the least common SL dimension in 5th, 6th, 7th and 8th-grade science textbooks, with an average of 2.84%. In fact, when compared to current research, it is seen that the representation of SWoT has decreased over time. Although SL is stated as the vision of many primary science curricula in Türkiye and worldwide, old current and textbooks devote very little space to SWoT and thus ignore an essential dimension of SL. This study reveals that for nearly a hundred years in Türkiye, a traditional approach to science education has been maintained in which scientific knowledge is taught intensively, and the inquiry is ignored.

Individuals must be scientifically and technologically equipped to keep up with today's technological age. For this reason, the scientific understanding of the individual is also essential for society. In a current study, Candas (2019) concluded that the STS dimension in science textbooks appears between 2.8% and 9.1%, with an average rate of 4.96%. In their literature review on SL, Kılınçaslan and Dökme (2022) mention that the STS dimension is the least emphasised dimension in the results of related studies. In the textbooks analysed in this study, insufficiency is observed in terms of the STS dimension. Compared to current science textbooks, the STS dimension in the early Republican period is noticeable. Considering that access to information and technology was not as easy a hundred years ago as it is today, it can be assumed that the STS dimension has been adequately addressed. In fact, at that time, the principle of close place was intended to enable students to transfer the knowledge they had acquired in lessons and textbooks to the society. Today, adding engineering and design skills to the updated program can be seen as an important breakthrough to close the gap in the STS dimension.

On the other hand, the 5th-grade object book, which belongs to the 1926 curriculum, can be considered as a promising product. The curriculum, which adopts the pragmatic educational philosophy, aims to enable students to work in groups, learn by doing and experiencing, make inquiries, engage in mental activities, relate what they learn to daily life, and be aware of modernisation, economy and healthy life (Akdağ & Çiydem, 2021; Tuğluoğlu & Tunç, 2010; Ulubey & Aykaç, 2017). Considering that the purpose of the curriculum overlaps with SL, it can be understood how the 5th-grade textbook, which is prepared in line with the curriculum, shows a more balanced distribution in SL. Altınok and Tunç (2013) also found that the 1926 science curriculum was rich in scientific process skills, consistent with the results obtained from the 5th-grade object textbook. The textbook gives the impression that the 1926 science curriculum had the potential to prepare scientifically literate citizens, considering that SL was not well known in the past.

Although the 5th-grade object textbook has a more balanced structure and strengths regarding SL, it does not change the general framework. Hence, it can be concluded that science education in early republican Türkiye was inadequate in preparing scientifically literate individuals. The fact that SL has gained popularity since the 1950s can be seen as a reason why SL is not balanced enough in these science textbooks. Based on current research on SL, educational reforms over time have not moved science education and SL forward. At

this point, it must be questioned why SL has not been balanced in science education, textbooks and curricula since the beginning of the Republic.

Recommendations

- It is recommended that textbooks and instructional materials should be published with the support of scientists after being analysed in terms of SL dimensions. In particular, the authors of textbooks should be chosen from among people with adequate knowledge of SL.
- This study analysed 4th and 5th-grade science textbooks at the primary education level in the early republican period. Conducting studies at the secondary education level for the same period will provide a more comprehensive framework for the state of SL.
- Examining the teacher's guidebooks and auxiliary books in early Republican Türkiye used in addition to these sources may provide a different perspective.

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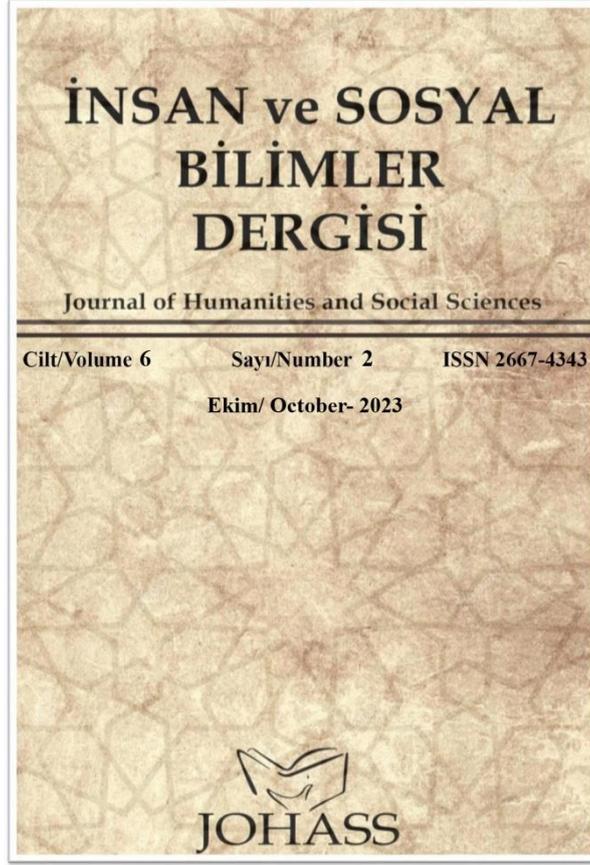
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**Examination of Sports Self-Regulation, Motivational Determination, and
Decision-Making Styles in University Students**

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Examination of Sports Self-Regulation, Motivational Determination, and Decision-Making Styles in University Students

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Abstract

The aim of this research is to examine the sports self-regulation skills and decision-making skills of students studying at sports science faculties. The study was carried out with a sample group of 224 volunteer participants from Aydın Adnan Menderes University Faculty of Sports Sciences. 35.7% (n=80) of the participants were women and 64.3% (n=144) were men. In the study, it was collected with the "Sports Self-Regulation Scale" to measure sports self-regulation skills, the "Motivational Determination Scale" and the "Rational and Decision-Making Styles Scale" to measure decision-making skills. In the analysis of the data, mean, standard deviation, minimum-maximum-median were calculated from descriptive statistics. Mann Whitney U was used in intergroup comparisons and Spearman Correlation analysis was used to examine the relationships between variables. Linear regression analysis was performed with the variables found significant in univariate analyses. According to the results obtained, students' sports self-regulation skills predict their motivational determination. Again, students' sports self-regulation skills predict both rational decision-making and intuitive decision-making styles. While women have a more intuitive decision-making style than men, men have a more rational decision-making style than women. According to the data obtained in the research, it is recommended that self-regulation trainings should be conducted to improve students' decision-making skills.

Keywords: Sporting self-regulation, self regulation, motivational determination, decision-making styles

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Introduction

The concept of 'self-regulation', mentioned by Albert Bandura (1988), one of the founders of 'social cognitive theory' in the literature, is used as 'self-regulation' in our language. 'Metacognition' is the individual's awareness of his own thoughts and knowledge about them. Taking this connection into consideration, Bandura addressed the issue of self-regulation with the Social Cognition approach. 'Social Cognitive Approach' emphasizes a person's belief in his personal abilities (self-efficacy), his ability to self-manage (self-management) and his self-motivation (Aydın & Demir, 2014). Self-regulation is the ability of individuals to control and direct their thoughts, feelings and behaviors in achieving their goals. It is knowing how to learn or do a job. Self-regulation is neither an academic skill like reading-writing-calculating nor a mental ability like intelligence. It is a multifaceted process in which mental abilities are transferred to academic skills and individuals can direct themselves (Zimmerman, 1998). Pintrich (2000) defines self-regulation as "an active and constructive process in which students determine their own learning goals, try to regulate their motivation and behavior, and direct and limit their goals and the contextual features of their environment" (Çiltaş, 2011). Self-regulation is explained by Senemođlu (2009) as observing the individual's own behaviors during the learning process and evaluating, controlling, and directing them according to his own criteria. When the self-regulation process is evaluated in terms of behaviors, people choose the appropriate environment and use time effectively. When evaluated from a cognitive perspective, people make plans, set goals, monitor and evaluate themselves. From a motivational perspective, they value the work they do (Rizemberg & Zimmerman, 1992; Zimmerman, 1990, cited in: Üredi & Üredi, 2007).

Self-regulation skill, which means regulating one's own behavior, can be used in many areas of human life. For example, regulating skills in the academic field is called academic self-regulation. Another example is sports self-regulation, which is the realization of self-regulation skills in the field of sports. Sports are physical activities that people do to be healthy or for competitive purposes (Hoşcan, 2019). Sports are both educational and entertaining pursuits that aim at both physical and mental development (Kılıcığıl, 1985). The effect of sports on humans in terms of psychological development has been examined in many studies. In these studies, it is generally stated that doing sports has positive effects on psychological health, strengthens social relationships, increases self-confidence, and contributes positively to a person's self-oriented skills such as stress management (Küçük &

Koç, 2004; Şahin, Baş & Çelik, 2015; Turkyay & Demir, 2021). In the study conducted by Davies, Coleman & Babkes Stellino (2016) with 206 athletes, it was found that the satisfaction of basic psychological needs of athletes who regulated their behavior increased. In the study of Robazza et al. (2004), the relationship between athletes' emotional regulation skills and athletic performance was examined and it was determined that there was a positive effect.

Decision-making is an important function for all people and the final intellectual stage that shapes their actions (Kıral, 2015). Decision-making is defined as the process of choosing between different alternatives while reaching one's goal (Miller & Byrnes, 2001). Individuals use different decision-making styles when making decisions. Thanks to these different decision-making styles, we can understand why a person uses such different decision processes when faced with seemingly the same situations (Nutt, 1990). Mental processes are used in decision-making. Decision-making involves many cognitive processes (İme & Soyer, 2020). These cognitive actions may sometimes be aimed at evaluating the available data and sometimes at predicting the future. In general, in the decision-making process, the individual determines his goals, collects the necessary information, evaluates this information, and chooses the most appropriate option (Gürçay, 2001). There is a mental regulation in decision-making. Therefore, decision-making is also a regulatory activity (Sağır, 2006). It includes cognitive processes, just like self-regulation.

Determination is the state of having made up your mind about something. In order to achieve the goals, determination must be maintained. It is accepted in the literature that motivational determination is an indicator in achieving a goal or success (Pintrich, 2003; Pintrich & Schunk, 2002). Both determination and self-regulation behaviors have some motivational features. When evaluated from a motivational perspective, people who self-regulate have self-efficacy beliefs and attach high value to their tasks (Rizemberg & Zimmerman, 1992; Zimmerman, 1990, cited in: Üredi & Üredi, 2007). In behavioral sciences, motivation means exposing the individual to certain effects and causing him to act in a different way than he would before these effects occurred. Thus, the fact that an observable change has occurred in the individual's behavior shows that he is motivated (Eroğlu, 2004). It can be said that motivational determination is a self-regulation mechanism (Sarıçam et al., 2014).

Self-regulation in individuals is a basic skill and affects many characteristics of humans. There are studies examining the relationship of self-regulation with motivational

beliefs, self-efficacy perceptions, and characteristics such as burnout (Üredi & Üredi, 2005; Altun, 2006; Karademir et al., 2018; Duru et al., 2014). There are many studies in the international literature that examine decision-making from a self-regulation perspective. However, no study has been found in the domestic literature that deals with self-regulation and decision-making skills together. For this reason, in this research, the relationship between self-regulation and decision-making skills was tried to be examined by focusing on sportive self-regulation due to the study of students at the faculty of sports sciences. The purpose of this research is to examine university students' sports self-regulation, motivational determination, and decision-making styles and to contribute to the literature. The sub-problems determined for this purpose are listed as follows:

1. Do university students' sports self-regulation skills differ significantly according to their demographic and sports characteristics?
2. Do university students' motivational determinations differ significantly according to their demographic and sports characteristics?
3. Do university students' decision-making styles differ significantly according to their demographic and sports characteristics?
4. Is there a relationship between university students' sports self-regulation skills, motivational determination and decision-making styles?
5. Do university students' sports self-regulation skills predict their motivational determination?
6. Do university students' sports self-regulation skills predict their rational and intuitive decision-making styles?

Method

Model

A relational screening model was used to evaluate the relationship between university students' sports self-regulation, motivational decision-making, and decision-making styles. In studies carried out in the survey model, studies are carried out on the entire universe or a sample selected from the universe. With the screening model, the general characteristics of the group examined can be explained and the current situation can be described and revealed. In the relational screening model, two or more variables are considered together. With this association, it is investigated whether there is a change or to what extent it is (Karasar, 2012;

Büyüköztürk et al., 2015). In this study, characteristics of the students such as gender, age, class, department, and active sports activities were determined. In addition, data on students' sports self-regulation skills, motivational determination and decision-making styles were collected and analyzed according to demographic characteristics. In addition, the effect of sports self-regulation skills on motivational determination and decision-making styles was examined.

Sample and Population

The population of this research consists of students studying at Aydın Adnan Menderes University, Faculty of Sports Sciences. The sample of the study was determined through easily accessible situation sampling, which is one of the non-probability sampling methods, and 224 students who volunteered to participate in the research. The socio-demographic characteristics of the university students participating in the research are presented in Table 1.

Table 1

Socio-Demographic Characteristics of The University Students Participating in The Research

	Groups	n	%
Gender	Female	80	35.7
	Male	144	64.3
Age Group	20 years and under	88	39.3
	21 years and over	136	60.7
Department	Recreation	168	75.0
	Coaching	12	05.4
	Sports management	24	10.7
	Physical Education and Sports	20	08.9

The ages of the university students participating in the research ranged between 17-42, and the average was 22.5 ± 4.39 . 35.7% (n=80) of the students are female and 64.3% (n=144) are male. 75% (n=168) of the students participating in the study were interested in recreation, 5.4% (n=12) in coaching, 10.7% (n=24) in sports management, 8.9% (n= 20) is studying in the physical education and sports department. While the socio-demographic characteristics of the students were determined with the personal information form, questions were also asked

to determine some general characteristics of their sports activities. Information about the sports characteristics of the students participating in the research is presented in Table 2.

Table 2

Sports Characteristics of the University Students Participating in the Research

	Groups	n	%
Becoming a licensed athlete	Yes	144	64.3
	No	80	35.7
Type of sport of interest	Individual sport	108	42.8
	Team sport	116	51.8
Sports age	0-5 age	44	19.6
	6-10 age	132	58.9
	11 age and above	48	21.4

When Table 2 was examined, 64.3% (n=144) of the students participating in the research were actively engaged in sports. 63.4% of the students have a sports license. 42.8% (n=108) of the students were interested in individual sports and 51.8% (n=116) were interested in team sports. When we look at the sports ages of the students participating in the study, which indicates how many years they have been doing sports, it was seen that 19.6% (n=44) had been doing sports for 0-5 years, 58.9% (n=132) had been doing sports for 6-10 years, and 21.4% (n=48) have been doing sports for 0-5 years. It was seen that they had been doing sports for 11 years or more.

Data Collection Tools

“Sports Self-Regulation Scale”, “Motivational Determination Scale”, “Rational and Intuitive Decision Making Styles Scale” and “Personal Information Form” were used as data collection tools.

Sport Self-Regulation Scale

In the scale prepared by Akeren & ingöz (2023), a measurement tool was developed to determine the performance of undergraduate students who are engaged in at least one sports branch within the scope of self-regulation skills. Zimmerman's Self-Regulated Learning Model was taken as the theoretical basis. Validity and reliability studies were carried out on the scale consisting of 18 items. In the analyzes regarding reliability, Cronbach Alpha internal consistency coefficient was calculated as .92 for the overall scale, .84 for

planning, .81 for implementation, .85 for evaluation, and split-half reliability was .88. In the third stage of the research, measurements collected from 53 students four weeks apart were compared and the test-retest reliability was calculated as .98. The results obtained show that the cyclical three-factor structure of the scale is valid and reliable.

Motivational Commitment Scale

Sarıçam et al. (2014) adapted the Motivational Determination Scale developed by Constantin et al. (2011) into Turkish. In the confirmatory factor analysis, it was seen that the scale consisted of 13 items, consistent with the original form, and the items were collected in three dimensions (following long-term goals, following current goals, following unattainable goals). The factor loadings of the scale range between .30 and .61. Cronbach's alpha internal consistency coefficients of the scale were found to be .69 for the whole scale and .72, .70 and .71 for the subscales. In the convergent validity study, it was observed that there was a positive ($r = .34$) relationship between motivational determination and hope. The test-retest correlation coefficient was found to be .66. Corrected item-total correlations range from .31 to .56. Based on these results, it was stated that the Motivational Determination Scale is a valid and reliable measurement tool.

Rational and Intuitive Decision Making Styles Scale

In the study prepared by Yakup et al. (2020), the validity and reliability of the rational and intuitive decision-making styles scale was adapted into Turkish and examined. Confirmatory factor analysis results showed that the two-factor structure of the rational and intuitive decision styles scale was confirmed. Within the scope of criterion validity, positive correlations were found between the rational and intuitive decision styles scale and the decision making styles subscales. Cronbach's alpha for the total scale is .80. For the subscale dimensions, it was found to be 0.90 for rational decision making and 0.85 for intuitive decision making. The test-retest correlation value for the entire scale was found to be .86. Research findings have shown that the rational and intuitive decision-making scale has psychometric compatibility with university students in Turkey and can be used in scientific studies.

Personal Information Form

The personal information form created by the researcher includes questions about age, gender, and active sports participation.

Collection of Data and Analysis

In this study, data was collected by the researcher. While analyzing the data, first the sum of the scores obtained from the three scales in the study was taken and their normal distributions were examined (Çokluk, Şekercioglu, & Büyüköztürk, 2014). In research, if the sample size is larger than 35, the Kolmogorov-Smirnov (K-S) test can be performed. This test is basically based on the maximum difference between the theoretical and empirical cumulative distribution (Massey, 1951). Cases where the p-value obtained as a result of the test is greater than 0.05 is considered as evidence that the calculated scores show a normal distribution at this significance level (Mertler & Vannatta, 2005). In this study, the Kolmogorov-Smirnov test was applied for the total scores obtained from the scale and the total scores in the sub-dimensions and it was observed that normal distribution was not achieved ($p < 0.001$).

In this study, descriptive statistics (mean, standard deviation, maximum-median-minimum) were used when calculating gender, age ratios, and test total scores. Mann Whitney U and Kruskal Wallis H Tests were used when comparing the total test scores between groups. While examining the relationship between the total scores obtained from the test totals, Spearman Rank Difference Correlation Coefficient analysis was used. The value calculated in correlation coefficients between 0.70 and 0.99 indicates a high level of correlation, a value between 0.69 and 0.30 indicates a medium level of correlation, and a value between 0.29 and 0.01 indicates a low level of correlation (Büyüköztürk et al., 2015). This criterion was taken as the basis when evaluating correlation coefficients in the study. In order to examine the effect of sports self-regulation on students' motivational determination and decision-making styles, multiple linear regression analyzes were performed by taking logarithms since the data in the study were not normally distributed. Analyzes in the study were carried out with the SPSS 23 program.

Compliance With Ethical Standards

With the decision of Aydın Adnan Menderes University Social and Human Sciences Research Ethics Committee dated 29.09.2023 and numbered 26, the ethics committee approval of the research was obtained.

Findings

Findings Regarding The First Sub-Problem

In the first sub-problem of the study, university students' sports self-regulation skills were compared in terms of gender, age, department of education, active sports activity, type of sports they are interested in and sports age variables.

Table 3

University Students' Sports Self-Regulation Skills in Terms of Variables Showing Their Socio-Demographic and Sports Characteristics

Variable	Variable sport self-regulation scale		p; test value
	Mean±sd	Median (min-max)	
Gender	Female	77.50±14.04	0.904; -0.121
	Male	78.75±8.55	
Age	20 and under	81.14±5.80	0.05 ; -2.826
	21 and above	76.47±12.77	
Being a licensed athlete	Yes	77.86±12.44	0.428; -0.793
	No	79.10±7.04	
Type of sport of interest	Individual spot	75.67±13.78	0.004 ; -2.861
	Team sport	80.76±6.14	
Sport age	0-5 age	73.64±17.87	0.053; 5.883
	6-10 age	78.82±8.61	
	11 age and above	81.17±5.20	
Total		78.30±10.81	80.5 (21.0-90.0)

When Table 3 was examined, it was seen that the scores received by the students from the sports self-regulation scale vary between 21-90. The average score obtained from the sports self-regulation scale was 78.30±10.81, and the median was 80.5. While examining the variables of gender, age, having a sports license and type of sport in two groups, Mann Whitney U test was used for comparisons between groups. A significant difference was found between the groups only in terms of age and sports branch of interest. It was determined that the scores of students in the 20 and under age group on the sports self-regulation scale were higher than those in the 21 and over age group ($p = 0.05$). Finally, the scores of students

interested in team sports on the sports self-regulation scale were found to be significantly higher than the scores of students interested in individual sports ($p = 0.004$). When comparing more than two groups in the analyses, the Kruskal Wallis H test was used. There was no significant difference between students' sports self-regulation skills according to sports age.

Findings Regarding the Second Sub-Problem

In the second sub-problem of the study, university students' motivational determinations were compared in terms of gender, age, department of education, active sports activity, type of sports they are interested in and sports age variables.

Table 4

University Students' Motivational Determinations in Terms of Variables Showing Their Socio-Demographic and Sports Characteristics

	Variable	Motivational commitment scale		p; test value
		Mean±sd	Median (min-max)	
Gender	Female	46.45±8.33	45.00 (30.0-60.0)	0.417; -0.812
	Male	45.53±7.94	47.00 (35.0-59.0)	
Age	20 and under	48.95±7.39	49.00 (36.0-60.0)	0.000 ; -4.493
	21 and above	43.85±7.88	43.50 (30.0-60.0)	
Being a licensed athlete	Yes	45.67±8.14	46.00 (30.0-60.0)	0.604; -0.518
	No	46.20±7.99	45.00 (36.0-60.0)	
Type of sport of interest	Individual sport	45.19±7.56	45.00 (30.0-60.0)	0.196; -1.293
	Team sport	46.48±8.51	46.00 (35.0-60.0)	
Sport age	0-5 age	46.36±9.50	46.00 (30.0-60.0)	0.677; 0.781
	6-10 age	45.79±7.49	45.00 (35.0- 60.0)	
	11 age and above	45.58±8.36	45.00 (35.0-59.0)	
Total		45.85±8.07	4550 (30.0-60.0)	

When Table 4 is examined, it was seen that the scores the university students received from the motivational determination scale vary between 30-60, the average score is 45.85±8.07 and the median value is 45.50. When comparisons were made between groups, no significant difference was found between the scores obtained from the scale in terms of gender, having a sports license, type of sport of interest and sports age variables. When the age variable was examined, it was found that the motivational stability scale scores of students aged 20 and under were significantly higher than those of students aged 21 and over ($p = 0.000$).

Findings Regarding The Third Sub-Problem

In the second sub-problem of the study, university students' decision-making styles were compared in terms of gender, age, department of education, active sports activity, type of sports they are interested in and sports age variables. In this section, first the rational decision-making styles dimension of the rational and intuitive decision-making styles scale was examined, and then the intuitive decision-making styles were evaluated.

Table 5

Unuversity Students' Rational Decision-Making Styles in Terms of Variables Showing Their Socio-Demographic and Sports Characteristics

		Rational decision making styles scale		
		Mean±sd	Median (min-max)	p; test value
Gender	Female	21.05±5.04	23.00 (5.0-25.0)	0.028 ; -2.192
	Male	21.19±2.48	22.00 (16.0-25.0)	
Age	20 and under	20.95±2.95	22.00 (14.0-25.0)	0.105; -1.621
	21 and above	21.26±3.97	22.50 (5.0-25.0)	
Being a licensed athlete	Yes	20.75±3.70	22.00 (5.0-25.0)	0.010 ; -2.592
	No	21.85±3.31	22.50 (14.0-25.0)	
Type of sport of interest	Individual spot	20.48±4.28	22.00 (5.0-25.0)	0.049 ; -1.968
	Team sport	21.76±2.69	22.00 (16.0-25.0)	
Sport age	0-5 age	20.82±5.49	22.00 (5.0-25.0)	0.063; 5.530
	6-10 age	21.00±2.81	22.00 (16.0- 25.0)	
	11 age and above	21.83±3.35	22.50 (14.0-25.0)	
Total		21.14±3.60	22.0 (5.0-25.0)	

When Table 5 was examined, it is seen that the university students' rational decision-making style scores vary between 5-25. The average score obtained from the rational decision-making style scale was calculated as 21.14±3.60, and the median was 22. When students' rational decision-making styles were compared in terms of groups, a significant difference was detected in terms of gender, being a licensed athlete and the type of sports they are interested in. No significant difference was detected between the groups in terms of age and sports age variables. It was found that the scores of male students on the rational decision-making styles scale were significantly higher than the scores of female students (p = 0.028). Test scores of those who do not have a sports license are significantly higher than those who have a sports license (p = 0.010). It was determined that the rational decision-making styles scores of students interested in team sports were significantly higher than those of students interested in individual sports (p = 0.049).

Table 6

University Students' Intuitive Decision-Making Styles in Terms of Variables Showing Their Socio-Demographic and Sports Characteristics

		Intuitive decision making styles scale		p; test value
		Mean±sd	Median (min-max)	
Gender	Female	20.15±5.82	22.00 (5.0-25.0)	0.000; -4.366
	Male	18.28±3.86	18.00 (9.0-25.0)	
Age	20 and under	20.14±3.84	19.00 (12.0-25.0)	0.024; -2.261
	21 and above	18.18±5.09	19.00 (5.0-25.0)	
Being a licensed athlete	Yes	18.14±4.59	18.00 (5.0-25.0)	0.000; -3.656
	No	20.40±4.65	21.00 (9.0-25.0)	
Type of sport of interest	Individual spot	18.59±5.46	19.00 (5.0-25.0)	0.740; -0.332
	Team sport	19.28±3.93	18.00 (11.0-25.0)	
Sport age	0-5 age	17.36±5.82	18.00 (5.0-25.0)	0.044; 6.226
	6-10 age	19.12±4.04	18.00 (10.0-25.0)	
	11 age and above	19.92±5.13	21.50 (10.0-25.0)	
Total		18.95±4.73	19.0 (5.0-25.0)	

*Students who have been doing sports for 0-5 years have significantly lower scores than students who have been doing sports for 11 years or more.

When Table 6 is examined, it was seen that the university students' intuitive decision-making styles scores vary between 5-25. The average score obtained from the intuitive decision-making style scale was calculated as 18.95±4.73, and the median was 19. When students' intuitive decision-making styles were compared across groups, it was determined that women received significantly higher scores than men ($p=0.000$). When evaluated in terms of age groups, it was seen that students aged 20 and under received higher scores than students aged 21 and over ($p = 0.024$). Those without a sports license also have significantly higher scores than those with a sports license ($p=0.000$). When evaluated according to the sport age variable, the scores of students who have been doing sports for 0-5 years have significantly lower scores than those of students who have been doing sports for 11 years or more ($p=0.044$).

Findings Regarding The Fourth Sub-Problem

In the fourth sub-problem of the study, the correlation between university students' sports self-regulation, motivational determination and decision-making styles was examined.

Table 7

Correlation Test Findings Between University Students' Sports Self-Regulation, Motivational Determination, Rational and Intuitive Decision-Making Styles

		1	2	3	4
Sport Self-Regulation Scale	r	1			
	p				
Motivational Commitment Scale	r	0.746	1		
	p	<0.001			
Rational Decision Making Styles Scale	r	0.287	0.292	1	
	p	<0.001	<0.001		
Intuitive Decision Making Styles Scale	r	0.460	0.428	0.392	1
	p	<0.001	<0.001	<0.001	

When Table 7 is examined, it was seen that all variables in the study have a significant relationship with each other ($p < 0.001$). There was a high level of relationship between sports self-regulation skills and motivational determination ($r = 0.746$). Intuitive decision-making styles and sports self-regulation A moderate ($r = 0.460$) significant relationship was found between intuitive decision-making styles and motivational determination, while a low-level relationship was found between rational decision-making styles and motivational determination. There is a moderately significant relationship between the two sub-dimensions of melodic decision-making and rational decision-making styles ($r = 0.392$).

Findings Regarding The Fifth Sub-Problem

In the fifth sub-problem of the study, it was examined whether university students' sports self-regulation *skills affected motivational stability*.

Table 8

Simple Regression Analysis Results on The Effect of University Students' Sports Self-Regulation Skills Scale and Its Sub-Dimensions on Motivational Stability

Variable	B	Standard error	β	t	p	
Constant	1.024	0.114		8.974	0.000	$R = 0.453$ $R^2 = 0.205$
Sportive self-regulation	0.522	0.069	0.453	7.572	0.000	$F = 57.331$ ($p = 0.000$)
Constant	0.669	0.108		6.182	0.000	$R = 0.419$ $R^2 = 0.175$
Planning	0.449	0.065	0.419	6.870	0.000	$F = 47.196$ ($p = 0.000$)
Constant	0.422	0.125		3.363	0.001	$R = 0.460$ $R^2 = 0.212$
Practice	0.585	0.076	0.460	7.721	0.000	$F = 59.617$ ($p = 0.001$)

Constant	0.524	0.135		3.867	0.000	R=0.408 R ² =0.166
evaluation	0.544	0.082	0.408	6.650	0.000	F=44.225 (p=0.000)

*Motivational Stability- (Dependent Variable) Constant

According to the regression analysis results, it was determined that sports self-regulation was a predictor of motivational determination ($F(1-506)= 57.331, p<0.001$). Students' sports self-regulation skills explain 20% of their motivational determination. The remaining part of students' motivational determination is explained by different variables. When evaluated in terms of the sub-dimensions of sportive self-regulation, it was determined that planning skills affected motivational determination by 17%, implementation skills by 21%, and evaluation-related skills by 16%.

Findings Regarding The Sixth Sub-Problem

In the sixth sub-problem of the study, it was examined whether university students' sports self-regulation skills affected their rational and intuitive decision-making styles.

Table 9

Simple Regression Analysis Results Regarding The Effect of University Students' Sports Self-Regulation Skills Scale and Its Sub-Dimensions on Rational Decision-Making Style

Variable	B	Standart Error	β	t	p	
Constant	.920	.040		22.790	0.000	R=0.850 R ² = 0.723
Sportive self regulation	.735	.031	0.850	24.045	0.000	F=578.156 (p=0.000)
Constant	-0.119	0.068		-1.762	0.079	R=0.819 R ² =0.670
Planning	1.016	0.048	0.819	21,234	0.000	F=450.887 (p=0.000)
Constant	0.160	0.059		2.687	0.000	R=0.794 R ² =0.631
Practice	0.832	0.043	0.794	19.575	0.001	F=379.292 (p=0.000)
Constant	0.186	0.058		3.215	0.002	R=0.795 R ² =0.632
Evaluation	0.794	0.041	0.795	19.541	0.006	F=381.837 (p=0.000)

*Rational decision-making style- (Dependent Variable) Constant

When the regression analysis results were evaluated, it was determined that sports self-regulation skills predicted rational decision-making style ($F(1-506)= 578,156, p<0.001$). University students' sports self-regulation skills explain 72% of rational decision-making. When examined in terms of sports self-regulation skill sub-dimensions, planning skills affect rational decision-making styles by 67%, implementation skills by 63%, and evaluation skills by 63%.

Table 10

Simple Regression Analysis Results on The Effect of University Students' Sports Self-Regulation Skills Scale and Its Sub-Dimensions on Intuitive Decision-Making Style

Variable	B	Standart error	β	t	p	
Constant	1.490	0.050		29.751	0.000	R=0.472 R ² = 0.223
Sportive self regulation	0.315	0.040	0.472	7.972	0.000	F=63.546 (p=0.000)
Constant	0.142	0.133		1.067	0.287	R=0.493 R ² =0.243
planning	0.792	0.094	0.493	8.434	0.000	F=71.129 (p=0.000)
Constant	0.628	0.119		5.259	0.000	R=0.335 R ² =0.112
practice	0.455	0.086	0.335	5.302	0.001	F=28.111 (p=0.000)
Constant	0.336	0.107		3.141	0.002	R=0.502 R ² =0.252
evaluation	0.649	0.075	0.502	8.656	0.000	F=74.928 (p=0.000)

*Intuitive decision-making style- (Dependent Variable) Constant

When Table 10 was examined, it was determined that sports self-regulation skills predicted intuitive decision-making style ($F(1-506)= 63,546$, $p<0.001$). Students' sports self-regulation skills explain 22% of intuitive decision-making. In the sub-dimensions of sports self-regulation, planning skills affect intuitive decision-making by 24%, application skills by 11%, and evaluation skills by 25%.

Discussion and Results

In this research, the sports self-regulation skills, motivational determination, and decision-making styles of university students studying at sports science faculties were examined. In the study, it was determined that the average score of the university students from the sports self-regulation scale was 78.30 ± 10.81 , and the median score was 80.5. Although it has been seen in the Turkish literature that features such as sportive self-confidence have been examined in studies focusing on sportive skills (Çiftçi et al., 2021), no study has been found examining the sportive self-regulation skills of people interested in sports. In the international literature, it is seen that there are studies on sports personal regulation, self-regulation in sports, and self-regulation in different types of sports (Akeren & Çingöz, 2023; Hardy & Nelson, 1988; McCormick et al., 2019; Popa et al., 2020). When evaluated from this perspective, It is seen that this study contributes to the literature.

In this research, it was determined that university students who were interested in team sports had significantly higher scores in both their sports self-regulation skills and rational decision-making style than those who were interested in individual sports. It is believed that

working in a group increases motivation, helps to set goals and strengthens communication. There are some examples of studies on this subject in the literature. For example, Hotaman (2009) examined students' general habits of working independently, working with a partner, or working in a group. It has been determined that working with a partner or working in a group creates significant differences compared to individual working. Again, some different studies have shown that working in a group contributes to people in terms of knowledge and skills, and in some studies, it even increases academic success (Şimşek et al., 2005; Bekmezci & Ünlü, 2007). For this reason, it can be said that group activities that people do, including sports activities, have positive effects on their lives in general. Individual study activities are of course also important, but it is obvious that group activities support people in acquiring self-regulation skills. The high rational decision-making scores of students involved in team sports suggest that their sense of responsibility towards the group causes them to act rationally rather than intuitively.

In the study, it was determined that the average score of the university students from the motivational determination scale, which can be obtained at most 65 points, was 45.85 ± 8.07 and the median value was 45.50. There are some examples of studies using the motivational commitment scale used in this research. For example, this scale was used in the Demir & Peker (2017) study and motivational determination was found to be a negative predictor of school burnout. In the study of Tarhan & Şar (2021), it was stated that motivational determination is an important predictor of performance. There are examples of studies in the literature examining the factors affecting motivational determination. In one of these, Ekinçi & Hamatra (2020) study, the effect of the perseverance training program on motivational determination was examined. In Polat's (2020) study, the effect of moral identity on motivational determination was examined. In this study, it was determined that there were significant relationships between the examined sports self-regulation, motivational determination, and decision-making styles ($p < 0.001$). A moderate ($r = 0.460$) significant relationship was determined between intuitive decision-making styles and sports self-regulation. While there was a moderate ($r = 0.428$) significant relationship between intuitive decision-making styles and motivational determination, a low-level relationship was found between rational decision-making styles and motivational determination. There is a moderately significant relationship between the two sub-dimensions of the decision-making styles scale, melodic decision-making and rational decision-making styles ($r = 0.392$). No research on the relationship between this variable has been found in the domestic literature.

For this reason, it is thought that this study will contribute to the relevant literature. When looking at the international literature, it can be seen that there are studies that address the nature and development of decision-making as a self-regulation model (Byrnes, 2013). In fact, in some applied studies, some programs such as obesity prevention have been created by considering self-regulation and decision-making skills together (Riggs et al., 2007). There are examples of studies where academic decision-making processes are also discussed in terms of self-regulation (Miller & Byrnes, 2001a). It has been stated in studies that the ability to make good decisions generally includes a self-regulation perspective (Miller & Byrnes, 2001b).

Another remarkable result obtained in the research was determined in decision-making styles. Male students received higher scores on the rational decision-making style scale than females. In the intuitive decision-making style scale scores, females received higher scores than male students. This shows that women make more decisions with their intuition, while men make more rational decisions. There are some examples of studies in the literature examining people's decision-making styles. Kelecek et al. (2013) examined the decision-making styles of athletes in their study, but no significant difference was detected between men and women in terms of gender. In their study, Köksal & Gazioğlu (2007) examined the decision-making strategies of adolescents and found that female students received higher scores than male students in the logical decision-making dimension. In their study, Demir et al. (2018) examined the decision-making styles of individual and team athletes, but no difference was detected in terms of gender.

In this study, it was determined that there was a high level of relationship between university students' sports self-regulation skills and motivational determination ($r = .746$). In this study, it was revealed through analysis that sportive self-regulation is a predictor of motivational determination. Self-regulation skills explain 20% of motivational determination. When evaluated in terms of the sub-dimensions of sportive self-regulation, it was determined that planning skills affected motivational determination by 17%, implementation skills by 21%, and evaluation-related skills by 16%. This result is considered important in terms of the effect of focusing on self-regulation skills in improving people's determination skills.

In the study, it was determined that sportive self-regulation was also an important predictor of rational decision-making style, one of the decision-making styles. Sportive self-regulation skill explains 72% of decision-making ability. When examined in terms of sports self-regulation skill sub-dimensions, planning skills affect rational decision-making styles by 67%, implementation skills by 63%, and evaluation skills by 63%. This is a high rate. It has

been determined that athletic self-regulation skill is also a predictor of intuitive decision-making, which is another decision-making style. In analyzes where a lower effect was detected compared to rational decision-making, sportive self-regulation explained 22% of intuitive decision-making. In the sub-dimensions of sports self-regulation, planning skills affect intuitive decision-making by 24%, application skills by 11%, and evaluation skills by 25%. This shows that self-regulation skills filter the issue they deal with more through the mind during the decision-making process. The fact that self-regulation skills also affect intuitive decisions may have caused people with these skills to trust their intuition because they are more successful.

In this study, it was determined that university students' sport self-regulation skills are related to their decision-making skills and especially rational decision-making style is a very important predictor. It was found that those who were interested in team sports made more rational decisions than those who were interested in individual sports; men had higher rational decision-making style scale scores than women; and women had higher intuitive decision-making style scale scores than men. Both intuitive decision-making and rational decision-making styles were found to have a significant relationship with motivational determination and sport self-regulation. Sportive self-regulation skill also has a significant relationship with motivational determination. Sportive self-regulation is also an important predictor of motivational determination. All these results reveal how important self-regulation skills are. In our education system, individuals should receive education to develop self-regulation skills.

Recommendations

Some suggestions were made based on the findings obtained in the research. Programs can be applied to university students to improve their self-regulation skills, and to sports science faculty students to improve their sports self-regulation skills. Similarly, programs can be implemented to improve students' decision-making skills. For all age groups, there are sports, arts, academic studies, etc. where students can work in groups. It can be directed to all kinds of activities. Screening studies can be increased to determine the characteristics of students regarding these variables. The relationships between students' sports self-regulation skills and different variables can be examined.

Compliance With Ethical Standards

With the decision of Aydın Adnan Menderes University Social and Human Sciences Research Ethics Committee dated 29.09.2023 and numbered 26, the ethics committee approval of the research was obtained.

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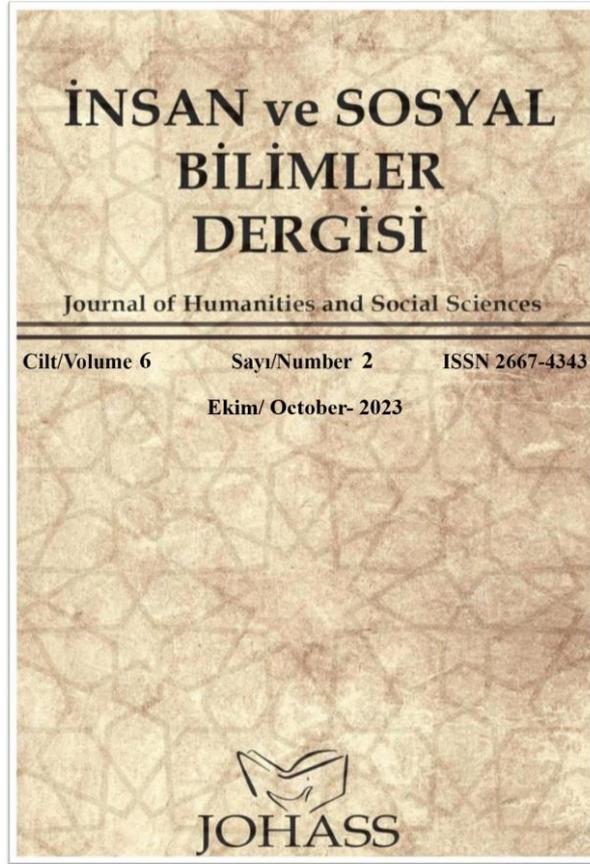
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Bibliometric Analysis of Higher Education Restructuring

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Bibliometric Analysis of Higher Education Restructuring

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Abstract

The spread of competitive elements and the well-being of human capital increase productivity capacities in scientific content. Research and development activities are prioritized in higher education, international trends and modern paradigms are taken into consideration. In the study, a visual map of the studies prepared on the restructuring of higher education on a global scale was prepared and it was aimed to determine the trends in the literature with bibliometric analysis. Between 2002 and 2022, a total of 585 articles in the Scopus and WoS database were identified and analyzed by keyword analysis, cooperation network analysis, social network analysis methods. The most commonly used keywords were "higher education, education, university, restructuring and neoliberalism", the largest clusters defined in the network were "higher education, humanities, education policy", and the smallest cluster was "higher education policy". Among these clusters, the largest cluster is the "higher education" cluster, the average year of the publications cited jointly is 2011, and the newest issues are "humanities and higher education policy". According to the timeline map, there was a focus on the keywords "higher education, curriculum, neoliberalism, China, student, administration". In the early days, the focus was on "higher education, curriculum", then "higher education policy, innovation, management, organizational change, university reform, savings", and after 2020, the keywords "Covid 19, pandemic, distance education, student". The keywords with the most citation explosions were initially "Eurasia", in the middle "management, higher education, student", and after 2020, "student, Covid 19, human". The highest explosion of citations occurred from the word "Eurasia" between 2005 and 2009.

Keywords: Higher education, university, restructuring, bibliometric analysis

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Introduction

After the twenty-first century, higher education institutions are being revised through radical changes and continue to experience globalization processes with multidisciplinary and interdisciplinary perspectives. As a result of these processes, individualization, shifting from the understanding of central management to the understanding of decentralization, integration into the global perspectives and situations of individuals are realized (Keyman and Sarıbay, 2000). At the same time, the target audience of universities is constantly changing, and there is a concentration on different disciplines and research areas against all stakeholders.

The focus of determining the higher education systems at the international and national level is the structuring of universities and their reconstruction and design with scientific criteria. The change of societies in historical processes has revealed different generation concepts for universities. The first generation of universities is portrayed as a form of organization with a privileged position with a dominant educational and social aspect (Rashdall, 1895; Wissema, 2009). The second generation universities have taken on a structure that attaches importance to the national culture where the state influence is strengthened and serves the understanding of the nation state (Arab, 2010; Scott, 2004). Third generation universities are defined as entrepreneurship-based multiverse universities that spread all over the world with the twentieth century and converge to research, education, use of knowledge, value creation, modern and interdisciplinary understanding of science and follow a professional management approach in line with global trends (Çalık, 2019; Wissema, 2009). Fourth-generation universities are positioned as universities that have certain strategies, emphasize the thematic aspect of universities, have a transformative feature in society, and proactively shape their environment (Ayten and Göver, 2020; Erdem, 2016). After the generation classification format, new model approaches also contribute to the restructuring of universities and are adopted. Using the geographically based information infrastructure of the RIS 3 model regions, producing knowledge through the transfer of universities and other actors, performing interactive innovation processes; The eclectic university model assimilates a new type of scientific management approach that is interdisciplinary, heterogeneous, comprehensive, complex, compatible with methods in social fields; The participatory university model prioritizes the local development of universities, strengthens university-region-industry collaborations, and is shaped as a university model that plays an active role in shaping regional identity (Council of Higher Education [CoHE], 2020).

While there are structures in universities where the effect of a single model is strong, reflections of mixed models are seen in some of them.

The structuring of universities is instrumental in the development of higher education systems. Higher education institutions go through various stages in terms of education, research, function and management in order to realize structural transformation. The transition from classical methods to digital technology in terms of education-research, education centering on the student, creating international criteria and standards, international languages and programs, multidisciplinary and interdisciplinary approaches instead of disciplinary approaches, lifelong learning, practice-oriented education, caring about individual differences and abilities, collaborations between universities, internationalization in higher education are becoming widespread (Çetin, 2007; Leask et al., 2013; Mihut et al., 2017; Modernisation of Higher Education, 2014; Özpolat, 2013; Patria, 2012; Samancı and Ocakçı, 2017). In terms of functionality, the addition of research and community service function to the educational function of universities, the use of knowledge for the benefit of society, the transition to thematic concept universities instead of classical, the effect of pragmatism, transformation into universities, the activation of information and technology, global elements are taken as basis (Çalık & Sezgin, 2005; Erdem, 2006; Erdem, 2016; Ozalp, 2006; Wissema, 2009). In terms of management, local governments-oriented, horizontal forms of organization, diversity in funding sources, commercialization of higher education come to the fore (Çetin, 2007; Erdem, 2006; Mainardes et al., 2011). The development of universities in different aspects leads to the cumulative advancement of knowledge and brings with it the need to renew perspectives in research.

It is usual for countries that design their higher education systems in the direction of innovation to adopt innovative policies in research, science, technology and higher education, to strengthen their university infrastructure, to train qualified manpower and to increase their investments in higher education and research (Kearney, 2009). For modernity in universities, they should (i) provide managerial autonomy (ii) academic freedom (iii) quality (iv) productivity (v) effective use of resources (vi) financial freedom (vii) transparency (viii) differentiation (ix) participation conditions (xi) improve relations with society and make strategic approaches (Çelik and Gür, 2014; CoHE, 2007). In this context, higher education institutions should focus on research in areas such as more institutional structures, management processes, performance management, entrepreneurship and innovation, competition, globalization, managerial behaviors, quality, organizational climate, autonomy,

human resources management, internationalization (Aydın et al., 2018) and implement innovations in line with feedback.

The restructuring of higher education when the field is scanned in the literature (Acar and Bilir; 2013; Bingöl, 2012; Gunay, 2011; Öncel and Sevim, 2014), new generation universities (Alan, 2016; Gunay, 2018; Toprak et al., 2021), higher education models (Ekinci et al., 2018), but there were no studies examining new trends. With this research, it is aimed to eliminate the gap in the field literature and to contribute to the field of educational management. It is also envisaged that innovative approaches will be encouraged for higher education institution managers and researchers in Türkiye.

In the study, it was aimed to make a visual map of the studies prepared on the restructuring of higher education and to perform bibliometric analysis. In line with this approach, answers to the following sub-problems were sought:

- 1) What is the distribution of keywords used in the studies on the restructuring of higher education?
- 2) What are the clusters of keywords used in the studies on the restructuring of higher education?
- 3) What is the distribution of the studies that are co-cited in the articles on the restructuring of higher education?
- 4) What is the distribution of the most cited authors in articles on the restructuring of higher education?

Method

Research Model

In this study, scientific publications on restructuring in higher education were examined in terms of bibliometric indicators. Since it is aimed to describe an existing situation as it is, a descriptive survey model, one of the quantitative research approaches, was used (Karasar, 2005).

Data Collection and Analysis

During the data collection process, first of all, "higher education restructuring", "higher education" fields were entered separately for each of the "title", "abstract" and "keywords" fields in the Scopus database. "reconstruction", "higher education

reorganization", "restructuring in higher education", "reorganization in higher education", "reconstruction in higher education", " The expressions "reconstruction of higher education", "design of higher education", "reorganization of higher education", "restruction of higher education" were written. Then "2002-2022" in the "Publication Years" tab; "Article" in the "Document Types" tab; In the "Web of Science Categories" tab, "Education Educational Research" and "Management"; In the "Web of Science Index" tab, restrictions are made in the form of Science Citation Index Expanded® (SCIE), Social Sciences Citation Index® (SSCI) and Emerging Sources Citation Index® (ESCI). The search results were then filtered to cover the years 2002-2022.

In the data collection process, first of all, "higher education restructuring", "higher education reconstruction", "higher education reorganization", "restructuring in higher education", "reorganization in higher education", "reconstruction in higher education", "reconstruction of higher education", "reorganization of higher education", "restructioning of higher education" were added to each of the "title", "abstract" and "keywords" fields in the Scopus database. Then, in the "Publication Years" tab, "2002-2022"; in the "Document Types" tab, "Article"; in the "Web of Science Categories" tab, "Education Educational Research" and "Management"; and in the "Web of Science Index" tab, Science Citation Index Expanded® (SCIE), Social Sciences Citation Index® (SSCI) and Emerging Sources Citation Index® (ESCI) were restricted. The search results were then filtered to cover the period between 2002 and 2022. As a result of the searches, a total of 585 articles on the restructuring of higher education in the Scopus database between 2002 and 2022 were obtained. The articles were analyzed with the social network analysis method in line with the parameters of the evaluative bibliometrics method. Bibliometrics is a quantitative method that analyzes the bibliographic information of publications with statistical methods (Holden et al., 2005). Evaluative bibliometrics, on the other hand, is a method of analyzing scientific activities that focuses specifically on the quality of scientific performance (Narin, 1976). In this study, articles on the restructuring of higher education were analyzed using bibliometric analysis techniques according to criteria such as keyword network analysis and most cited publications. Collaboration network analysis was used to determine keyword analysis and source co-citation network analysis in the articles. Within the scope of the study, social network analysis method was used in the bibliometric analysis (Wasserman and Faust, 1994). In the analysis process, CiteSpace software, which uses both bibliometrics and social network

analysis methods together, was used. CiteSpace is a Java-based program used in the analysis and visualization of co-citation networks (Chen, 2004).

Findings

Distribution of Keywords

The most frequently used keywords in scientific studies on the restructuring of higher education were analyzed by social network analysis and the network map is presented in Figure 1.

Figure 1

Keyword Network Map

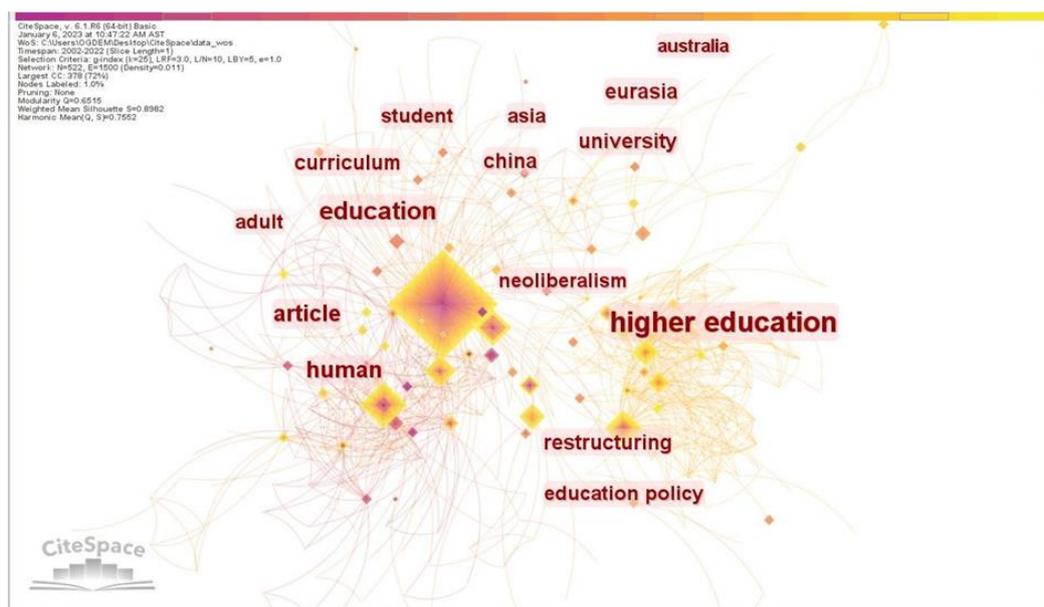


Figure 1 shows a network map of the most commonly used keywords in studies on the restructuring of higher education. Each node on the map represents a keyword. The size of the nodes varies according to the number of times the word is used. The node belonging to the more frequently used word is larger than the others. A few of the most frequently used words are presented in written form on the map. The font size of these texts also varies according to the frequency of use of the word. Accordingly, the five most used keywords are "higher education", "education", "university", "restructuring" and "neoliberalism". The network map of the clusters formed by the keywords is presented in Figure 2.

Figure 2

Network Map of Clusters Formed by Keywords

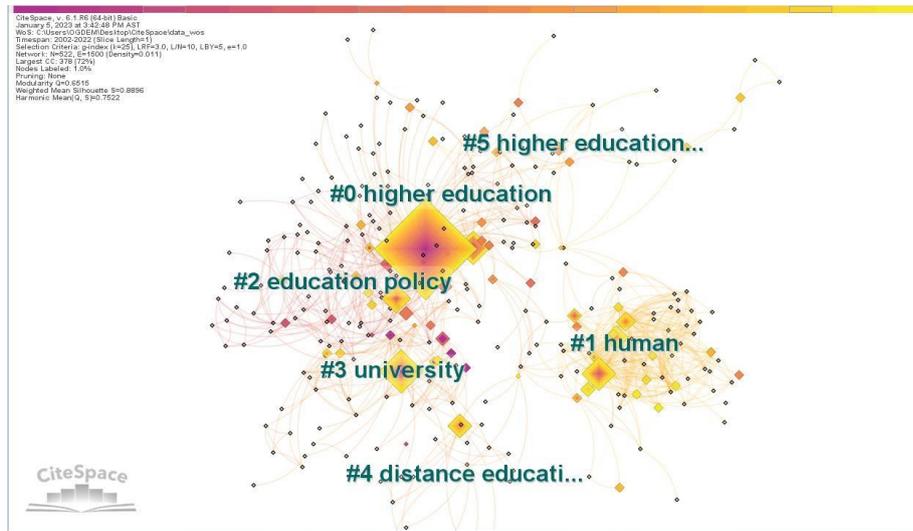


Figure 2 shows a network map of the clusters formed by keywords. There are two indices that show how good the clusters are. These are "modularity q" and "weighted mean silhouette" indices, which take values between 0-1 and indicate that the clustering is better as it approaches 1 (Chen, 2014). Figure 2 shows that the modularity q index of the network is 0.65 and the weighted mean silhouette index is 0.89. In the research, the first six clusters formed by the keywords used in scientific studies on the restructuring of higher education were defined. It is seen that the first and largest cluster defined in the network is "higher education". The cluster titled "human" ranks second, followed by "education policy" in third place. The smallest cluster in the network analysis is "higher education policy" in the last place. Statistics on clusters are presented in Table 1.

Table 1

Statistics on Clusters and Keywords

Cluster ID	Size	Silhouette	Year	Top terms (log-likelihood ratio, p-level)
Higher education	81	0.903	2011	higher education (39.13, 1.0E-4); restructuring (15.03, 0.001); hungary (11.96, 0.001); motivation (8.96, 0.005); birth rate (8.96, 0.005)
Human	63	0.891	2014	human (35.26, 1.0E-4); higher education (26.2, 1.0E-4); adult (21.07, 1.0E-4); curriculum (21.07, 1.0E-4); male (18.71, 1.0E-4)
Education policy	58	0.832	2007	education policy (19.26, 1.0E-4); globalization (16.44, 1.0E-4); education reform (16.44, 1.0E-4); china (15.54, 1.0E-4); eurasia (14.08, 0.001)
University	51	0.786	2008	University (29.2, 1.0E-4); australia (23.47, 1.0E-4); geography

Figure 3 shows the distribution of the words used in studies on the restructuring of higher education by year. The leftmost part of the map shows the most frequently used words on the basis of clusters in studies conducted in 2002 and the rightmost part in 2022. Accordingly, although there is a density in almost all clusters in the first years, it is seen that this density continues especially in the first two clusters. Clusters are listed in descending order from largest to smallest. Starting from the first cluster, the largest nodes in each cluster are listed as "higher education", "curriculum", "neoliberalism", "China", "student" and "governance". In the early years, the focus was mostly on words such as "higher education, curriculum"; later on, keywords such as "higher education policy, innovation, governance, organizational change, university reform, austerity" came to the fore. As of 2020, the phrases "Covid 19, pandemic, remote learning, student" (Covid 19, pandemic, distance learning, student) draw attention. Then, according to the social network analysis, the 6 keywords with the highest explosion values are presented in Figure 4.

Figure 4

Citation Burst Values of the 6 Keywords with the Highest Burst Values by Year

Top 6 Keywords with the Strongest Citation Bursts

Keywords	Year	Strength	Begin	End	2002 - 2022
eurasia	2005	4.67	2005	2009	
governance	2012	3.62	2012	2014	
higher education	2002	6.2	2014	2015	
student	2015	3.13	2015	2022	
covid 19	2020	3.43	2020	2022	
human	2013	3.39	2020	2022	

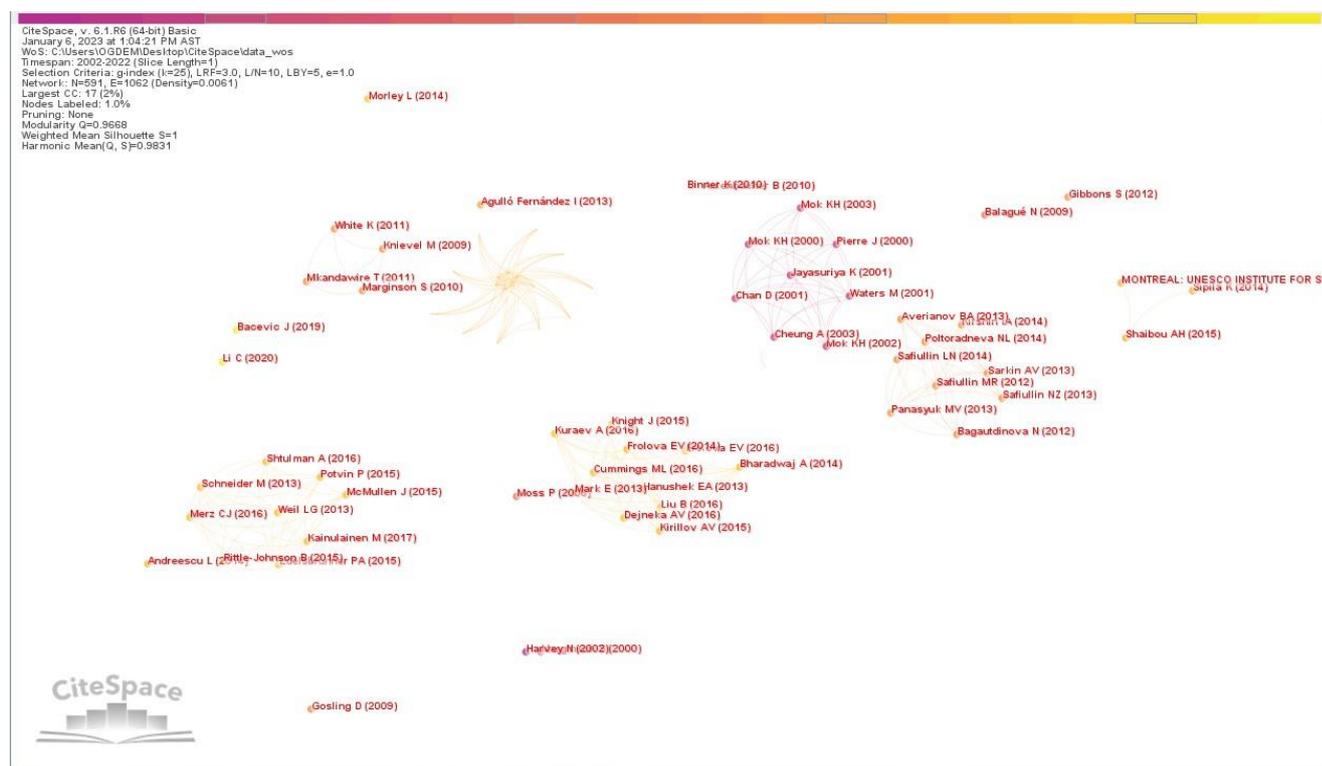
According to Figure 4, when the keywords with the highest citation explosion between the years analyzed within the scope of the research are examined; in the first years, the keywords "eurasia", in the middle, "governance, higher education and student"; in the last two years, "student, covid 19 and human". Citation explosion is observed. The highest citation burst value is 4.67 between 2005-2009 and belongs to the keyword "eurasia".

Co-Citation Analysis

The most co-cited publications in the studies examined within the scope of the research were analyzed by social network analysis and the network map is presented in Figure 5.

Figure 5

Co-Citation Analysis Network Map



In Figure 5, the network map of co-citations in the scientific studies examined on the restructuring of higher education consists of 591 nodes and 1062 links. Each node represents a study. The groups, each with different colors, show the clusters formed by the cited studies. It is seen that the modularity q index of the network is 0.97 and the weighted mean silhouette index is 1. Therefore, it can be said that the clustering in the network is perfect. As the effectiveness of the studies in the network increases, the font size increases. Accordingly, it can be said that the studies in the network are not superior to each other.

Discussion and Results

In line with the results obtained from the research, it is seen that the largest clusters defined in the network among the studies carried out for the restructuring of higher education between 2002-2022 are "higher education, human, education policy", while the smallest clusters are "higher education policy". Among these clusters, the largest cluster was determined as the "higher education" cluster with 81 studies, the average year of the publications cited jointly was 2011, and the newest issues attracted attention as "human and higher education policy". According to the timeline map, the focus is on the keywords "higher education, curriculum, neoliberalism, China, student, administration". In the early days, there is a concentration on the keywords "higher education, curriculum", then "higher education policy, innovation, management, organizational change, university reform, savings" and from 2020 onwards, "Covid 19, pandemic, distance education, student". The keywords with the most citation explosions were initially identified as "Eurasia", in the middle as "management, higher education, student", and after 2020, "student, Covid 19, human". The highest explosion of citations occurred from the word "Eurasia" in 2005-2009. In general, it is possible to perfectly characterize clusters in the network.

Since the research prepared is related to the restructuring of higher education, it is directly related to the studies on "higher education". There are many studies involving higher education and therefore university structures abroad and in Türkiye (İlhan and Yelkenci, 2021; Poplar, 2011; Meyer et al., 2007; Yaman and Özdemir, 2016). In these studies, it is often emphasized that higher education is transformed through "reforms" and "organizational change" in the light of global trends (Eroğlu and Alga, 2019; Toprak et al., 2021). The primary step in the restructuring of higher education is usually to establish a "higher education policy" and then put it into effect (Kaiser et al., 2014).

Since the target group of higher education is students, continuous research is carried out for university students in the field literature and in most universities, demands are tried to be fulfilled with a "student-oriented approach" and "human" elements are taken into consideration (İncik and Tanrıseven, 2012; Uçkun et al., 2013). With the Bologna processes, "curriculum" in higher education is created according to certain criteria and improvement studies are carried out with international participation (Güneş, 2012; Zahavi and Friedman, 2019). At the same time, higher education institutions develop and process knowledge and activate their capacity for "innovation" (Aslangilay and Özdemir, 2017).

In higher education, the concept of "Neoliberalism" is used as a synonym for globalization, indicates the transformation of all people into universal human beings, focuses on the changes of universities with the transition to the information society in order to adapt to the world, strengthens competition and finds a place in the field literature to a great extent (Akkutay, 2017; Toulmin, 1999, p. 906). In universities, forms of "management" and "autonomy" are often evaluated together and discussed within the scope of the restructuring of higher education (Enders, De Boer and Weyer, 2013). When the new trends in the literature are examined, it is determined that "Eurasia" and "China" countries come to the forefront. It can be concluded that universities in these countries prioritize research and development activities and increase their scientific publications (Bircan, 2017). After 2020, the declaration of the global pandemic caused the universities to be reshaped and the effects of "distance education", "Covid-19" and studies on the academic learning of students became widespread (Pokhrel and Chhetri, 2021). In addition to the main arguments for the restructuring of higher education, the ever-changing world conditions must be taken into account. Therefore, while innovative structures, types and paradigms are emerging in universities, there is a need to prepare a larger number of researches.

Recommendations

1. Based on the content of this research, the recommendations for the determinants and implementers of the higher education system are as follows:
 - Greater attention may be paid to global trends in the restructuring of higher education.
 - Changes occurring on a global scale can be dealt with on a national scale.
 - Accreditation procedures of more universities may be carried out within the scope of educational programs.
 - Within the framework of higher education policies, the structuring of universities can be accelerated with diversity and new models.
 - Reforms in universities can be updated and innovation efforts can be prioritized.
 - Certain arrangements may be made for the autonomy of higher education.
 - Student-centered research can be increased to reveal the changing expectations and needs of university students.
 - Academics may be encouraged to investigate the structures and trends of universities abroad.

- Effective use of distance education systems outside the pandemic can be ensured and international effectiveness can be ensured.
- 2. In line with the content of this research, the recommendations expressed for the researchers are listed as follows:
 - Bibliometric analysis of domestic publications for the restructuring of higher education can be carried out.
 - Bibliometric analysis can be performed for graduate levels that examine the structural conditions of higher education.
 - Bibliometric analysis researches related to the management of higher education can be prepared.

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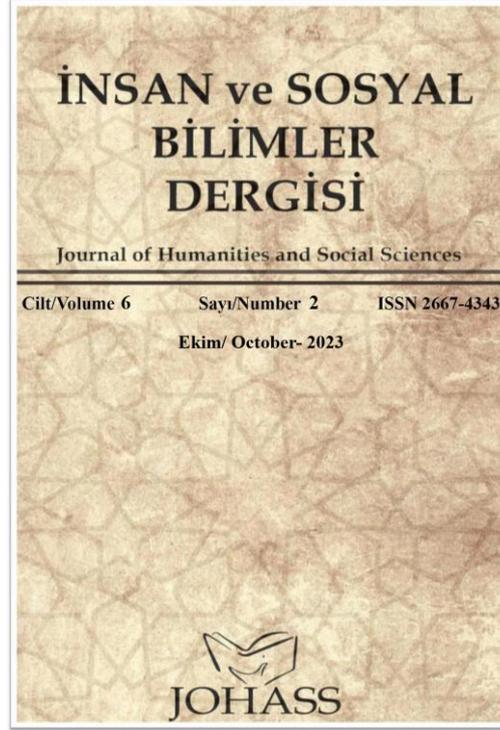
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Leadership Concern: Its Causes, Consequences and The Coping Strategies*

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Leadership Concern: Its Causes, Consequences and The Coping Strategies*

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Abstract

Research Article

This study aims to explore the leadership perceptions and leadership-related worries of educational administrators within the context of their own perspectives. This research was conducted as a phenomenology pattern, one of the qualitative research methods. Participants of this study include 30 school administrators and deputy principals working in schools of various types and levels. A semi-structured interview form developed by the researcher was used as the data collection tool in the study. The final form of the interview form, used as the data collection tool in the research, was given in line with the opinions of two educational science experts and two school administrators. The data obtained from the participants, chosen using criterion sampling, were collected using a semi-structured interview form and analyzed with content analysis. Participants stated that the fear of failure, according to their leadership perceptions in the context of leadership, hindered their actions. As a result of the analysis of the data regarding the concerns experienced by school administrators in the research, the theme of "Leadership Concern" and the categories of "Perception", "Leadership", "Competence" and "Bureaucratic Obstacles" and their codes were obtained. It is stated that the desire to be a leader of school administrators with the characteristics of openness to innovation, responsibility, compatibility, willingness, and balance in work-private life will increase, and their concerns related to leadership will also decrease. They also expressed the assumption that the reluctance they experienced about being a leader in their choices in schools negatively reflected in their applications.

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Introduction

The influence of leaders on society is undoubtedly great (Giessner, Knippenberg & Sleebos, 2008). One of the important factors in the development of societies is trained manpower. Education, especially leaders, contribute to their institutions in meeting the need for qualified manpower and bringing them into society (Peddleton ve Furnham, 2012). In today's global competitive environment, organizations need competent and effective leaders in order to increase their effectiveness (Yılmaz & Çevirgen, 2010). Leadership in the 21st century is accepted as one of the important factors affecting the adaptation to the competitive environment with the developments in information technologies as a result of globalization trends (Özbezek & Paksoy, 2018). Constantly changing conditions and requirements are reflected in the approaches of leaders. Leadership can be understood through the management of continuous change and the response of leader behaviors to change (Peddleton & Furnham, 2012). Understanding the changing needs of leaders and their reactions to change can reduce their anxiety in management processes. It can be predicted that the fear of failure will be as effective as the desire for success in the leaders' being effective in education. Therefore, it is necessary to know the causes of fear and anxiety in order to eliminate the anxieties of individuals who want to be leaders. Allen (2019), predicts that leaders should be brave enough to seek success in order to cope with the fear of failure, not be afraid to try, and see failure as a stage for success. Therefore, the fear of failure, which should be taken into account in the education system, makes it difficult for the school leader and school leaders, who have an important role in the education system, to focus on the management processes and functions. The future is in the youth who grow up in schools run by successful leaders who deal with and manage their fears and anxieties. However, according to Hogan, Curphy & Hogan (1994) leadership is to direct people towards goals that are important to their well-being and responsibility by allowing people to put their individual concerns aside for a while. However, the anxiety of being a leader is based on the assumption that people's preferences to be or not to be a leader are shaped by being influenced by their emotions (Aycan & Shelia, 2019). It means that employees avoid their leadership roles and avoid the responsibilities of being a leader. Successful and talented individuals refuse to take on being a manager and leader in the context of coming forward. This leads to the transformation of leadership into a task that is often felt lacking in working life (Epitropaki, 2018). The fact that the laws regulating the rights and responsibilities of the employees ensure the private life of the

leaders, allow them to spend time with their family and surroundings and regulate the relations between them and their colleagues also reduce the concerns of leadership (Öztürk, 2021). In this context, it should be considered important to understand the reasons for concern about being a leader and the obstacles to the choice of being a leader in order to meet the need for leaders with the qualifications expected especially in educational institutions. For this reason, the research aims to examine the perceptions of education administrators about being a leader and their views on the causes of leadership concerns.

Leadership Concern

Although leadership is seen as an important position that everyone wants as an individual choice, it can be brought to an undesirable or even avoided position by the majority of society due to the weight of the responsibilities of leadership and its effect on private life. Therefore, the decision-making process to becoming a leader can be challenging and long-lasting (Öztürk, 2021). Being a leader requires taking on a formal role within the hierarchy of the organization. Although leadership is encouraged, it is expressed as leadership concern that employees stay away from leadership roles. Employees are escaping leadership roles, avoiding responsibilities to become leaders.

Being a leader requires taking on a formal role within the organization's hierarchy. Although leadership is encouraged, it is expressed as a leadership concern that employees stay away from leadership roles (Aycan & Shelia, 2019). The literature presents the fear of failure and different fears and anxieties as reasons for those who work as leader candidates do not tend to be leaders for different reasons (Giesner, Van Knippenberg & Sleebos, 2008; Anderson, Brien, McNamara, O'Hara & McIsaac, 2011; Brue, 2018; Epitropaki, 2018; Aycan & Shelia, 2019). But leaders also have fears and concerns. Leaders may give up because of fears and concerns of being criticized for their desire to be a leader, failing, not communicating well, and making difficult decisions (Waytosay, 2021). Individuals who stay away from being leaders and act reluctantly have concerns about;

- Concern of failure
- Concern about a work-life imbalance
- Concern about harming yourself and other people

The work of leaders in different fields and the failures they experience do not satisfy both themselves and their employees. It even causes leaders to question their competence. Even people who are far from anxiety in daily life may be concerned about the possibility of

becoming a leader (Gieesner, Van Knippenberg & Sleebos, 2008). Leaders' concern that their decisions and practices will harm themselves and others also reinforces concerns about the negative consequences of a leadership role (Aycan & Shelia, 2019). Individuals who have leadership qualities and are eager to become a leader can anticipate possible conflicts that may arise. Openness to innovation, responsibility, adaptability, extroversion, and emotional balance should be found as personality traits in leadership. While these features increase the desire to be a leader, they also reduce the concern about being a leader. (Judge, Bono, Hies & Gerdhart, 2002). The possibility of not being able to balance work-private life can also be seen as a cause for concern in preferring leadership. Leadership limits private life and can increase the autonomy of working life. The possibility of not being able to spare time for family and private life reduces the preferability of leadership (Brue, 2018). The followings may be the causes of unwillingness and concern of leadership for employees: (Anderson, Brien, McNamara, O'Hara & McIsaac, 2011);

1. Problems with leader image
2. Workload
3. Personality
4. Prejudgement
5. Feeling of inadequacy
6. The restriction of the institutional environment
7. Environmental uncertainty

Probably one of the most distinctive features of leaders is their motivation to achieve success. However, their past experiences cause them to take responsibility for the tasks necessary to succeed or to stay away from taking responsibility. Management experience makes it easier to manage management processes. Individuals with previous managerial experience are likely to be worried about failing because they have experienced working processes (Araç Ilgar, 2019). Employees who have high self-confidence, want to be a manager and make career planning are likely to have low anxiety about being a leader. Because they think they can reach the leadership role they want and plan and their career goals. This situation may highlight willingness rather than concern (Günay & Özbilen, 2018; Araç Ilgar, 2019). A leader needs to act calmly and understand the problems he faces (Erçetin, 2000).

School administrators are expected to exhibit their leadership characteristics while fulfilling their managerial responsibilities and achieving their goals without highlighting their

characteristics such as fear of success (Birekul, 2018). Therefore, leaders in today's educational institutions should have sufficient knowledge and skills (Rigby, 2014). It is substantially important to determine the worries and fears experienced by the principals and vice principals, who manage schools as leaders in education and determine their reasons and solutions in line with their own opinions. This study aims to examine the leadership perceptions and concerns of education administrators. In this context, the following research questions are ingested in this study:

1. What do school administrators think about leadership and leadership concerns?
2. What fears and concerns do school administrators experience?
3. What are school administrators' approaches to establishing a balance between work and private life?
4. What do school administrators think about the personal and professional competencies that leaders should have?
5. What are the tendencies of school administrators towards the solution of management problems?

Method

Model

The study was carried out using qualitative research method.

This research was conducted as phenomenology, one of the qualitative research methods. Qualitative method and phenomenological design were used in the research in order to reveal in depth the common meaning of the leaders' concerns, their causes and effects. In the phenomenological pattern, the researcher aims to reveal and describe a specific phenomenon (Christensen, Johnson ve Turner, 2011). This study can be described as phenomenology in terms of revealing the concerns and effects experienced by school administrators, who are accepted as leaders in the educational environment while performing their school administration responsibilities. The purpose of phenomenology, as a type of qualitative research, is to understand human experience (van Manen, 2007). In this study, the perceptions of the leader and leadership, the opinions of the leaders regarding their personal and professional competencies and problem-solving attitudes, and their concerns and methods of coping with them were examined in the context of their managerial experiences.

Sample and Population

The study group of the research consists of 18 school principals and 12 vice principals working in different types and levels of schools in the Beylikdüzü district of Istanbul. Criterion sampling, one of the purposive sampling methods, was used while determining the study group. In this sampling method, the cases that meet the criteria determined by the researcher were studied (Yıldırım & Şimşek, 2011). In this study, working in different types of schools (Public Education Centers, Science High School, Anatolian High School, Vocational High School, Secondary School, and Primary School) and having been a manager in schools for at least 5 years were determined as criteria. The criteria of school administrators' type of school where they work and having completed their appointment period (5 years) were chosen to describe the differentiation of concerns they experience. It is thought that detailed information will be obtained in understanding the causes and consequences of the concerns that the administrators feel in school management and education life. At the saturation point, when the most information on the subject is obtained and there is no new information coming from the new sample units, sampling is stopped; the repetition of information is the first criterion (Shenton, 2004). In case of repetition, data collection should be stopped and the sample size should remain where the repetition was first seen (Onwuegbuzie & Collins, 2007). The sample size was limited to 30 people, as the data obtained from the interviews with 30 participants interviewed in the research were understood that the information was repeated. Demographic information about the school administrators participating in the study is given on the board below.

Table 1

Demographic Information of the Participants

Participant	Gender	Marital Status	Branch	Education	Professional Seniority	School Management Seniority	Number of School Teachers	Number of School Students
P 1	M	M	History	Master	21 and above	11-15	43	548
P 2	M	M	Literature	Master	21 and above	16-20	43	548
P 3	M	B	Class Teacher	Master	21 and above	16-20	49	1.350
P 4	M	M	Religion culture	Master	21 and above	6-10	49	1.350
P 5	M	B	Science Technology	License	16-20	16-20	79	1.598
P 6	M	M	Social Studies	License	21 and above	11-15	79	1.598
P 7	M	M	IT	Master	11-15	6-10	4	200
P 8	M	M	Mats	Master	21 and above	21 and above	70	1.250
P 9	M	M	Literature	Master	21 and above	11-15	47	932

P 10	M	M	Class Teacher	License	21 and above	21 and above	34	640
P 11	M	M	Class Teacher	Master	21 and above	21 and above	44	1.160
P 12	M	M	Mats	Master	21 and above	21 and above	62	774
P 13	M	M	Social Studies	Master	21 and above	11-15	52	1.100
P 14	M	M	Class Teacher	Master	16-20	16-20	51	1.470
P 15	F	M	Science Technology	Master	16-20	6-10	42	980
P 16	M	M	Physical	Master	21 and above	11-15	42	980
P 17	M	M	Technology Design	Master	11-15	6-10	42	980
P 18	M	M	Class Teacher	Master	16-20 Yıl	6-10	33	820
P 19	M	M	Class Teacher	Master	21 and above	11-15	33	820
P 20	M	M	Class Teacher	Master	16-20	16-20	26	685
P 21	M	M	Social Studies	Master	21 and above	16-20		69.500
P 22	F	B	English	License	11-15	6-10	37	850
P 23	F	B	Turkish	License	11-15	6-10	29	620
P 24	F	M	Social Studies	License	16-20	11-15	47	1220
P 25	F	B	Religion culture	Master	16-20	6-10	24	460
P 26	F	B	Mats	License	11-15	6-10	54	1185
P 27	F	B	Chemical	License	16-20	11-15	42	746
P 28	F	M	Physical	License	11-15	6-10	50	828
P 29	F	M	Literature	License	11-15	6-10	50	828
P 30	F	B	Science Technology	Master	16-20	11-15	32	596

When Table 1 is examined, the participants, consisting of 18 principals and 12 assistant principals, are 20 male and 10 female, 8 single and 22 married. The type of schools in which school administrators work is 30, including 8 in primary school, 10 in middle school, 11 in high school, and 1 in the public education center. While the professional seniority period of 14 of the 20 participants with a master's degree and 2 participants with a bachelor's degree is 21 years or more, it is seen that 5 of them are 16-20 years and the remaining 2 managers are 11-15 years. It is seen that there are 4 people with management seniority of 21 years and above, 6 people between 16-20 years, 9 people who are managers between 11-15 years and 11 people who are managers between 6-10 years.

Data Collection Tools

In the study, data were collected with a semi-structured interview form developed by the researcher. While preparing the interview questions, they were formed by reading the literature on leadership and taking the opinions of the experts. For the content validity of the questions, the questions were written using the literature. Two experts from the field of educational administration, two school administrators, and an expert in the field of qualitative research were asked for regulation suggestions. The opinions of the experts on the clarity of the questions and the opinions of a language expert were also sought to ensure structural validity. Draft interview questions, which were formed after receiving expert opinions in terms of scope and language validity, were tested in the preliminary interviews held separately with 3 school principals and 3 deputy principals. A pilot application consisting of

one or two interviews will enable to develop the research materials and make necessary corrections, to define the framework of the questions, and to adapt to the research process (Creswell, 2013). After the preliminary interviews, it was decided that the interview form was suitable for the purpose and that the questions were understandable. The interview form consists of 6 interview questions and 6 demographic questions. For the school administrators who participated in the research voluntarily to conduct the interviews at any time and at a place where they feel comfortable, voice recordings were kept in their own administrators' rooms within an average of 30 minutes.

During the research process, the researcher directed the research questions to the participants without prejudgement and personal opinions. The researcher managed the interviews, data analysis, and interpretation of the findings impartially during the research process. Written permission was obtained from the relevant institution for the research, and written and verbal consent was obtained from the participants regarding their volunteering. The names of the participants were kept hidden and not shared with third parties, instead of names, the Interviewer: G letter and interviewer numbers (such as G1, G2) are given in the statements of the school administrators.

Collection of Data and Analysis

In the analysis of the data, the coding and categorization of the data, the development of the themes, and the interpretation of the findings are carried out (Yıldırım & Şimşek, 2011). The content analysis method was used in the analysis of this research data. The 38-page document of audio recordings of the interviews with the school administrators, which lasted an average of 10 hours, was examined in detail. The data obtained from the forms were transferred to the MAXQDA program, read several times and coding was created for this. Then, content analyzes were made by bringing together the codes and revealing the themes that would form the main lines of the research findings. After the coding, categorization, and theming processes were completed, direct quotations were used in the presentation of the findings. Coding processes allow researchers to make sense of the facts about the concerns of education administrators and to understand their behaviors in school administration processes. (Saldana, 2009). To present the findings, direct quotations from the interviews were used and interpreted in line with the relevant literature.

In the research, measures were taken to ensure the reliability and validity of the data, such as presenting the research questions in a clear and understandable way, determining the

role of the researcher clearly, and checking the consistency between the codings. To ensure reliability, the research question must be clear and the role of the researcher clear, data collected from appropriate participants, and free from bias (Miles, Huberman & Saldana, 2014). To increase the external reliability of the research data, the position of the researcher, the school administrators who are the data source in the research, the literature used in the data analysis, and the research processes are explained. In the analysis of research data, the internal reliability of the research data has been increased following a predetermined and defined conceptual framework. To ensure confirmability in a study, the processes followed by the researcher in the study, data collection, analysis, and findings should be clarified (Miles, Huberman & Saldana, 2014). The interview coding key was prepared by the interview questions, and the interview transcript forms of the two participant school administrators and the interview coding key were evaluated independently by two experts to ensure the reliability of the key. As a result of the evaluation, the final form of the interview coding keys was given. Finally, expert opinion was sought on the suitability of themes, sub-themes, and codes, and opinions on the suitability of the analyzes were received.

Confirmability

In order to ensure the credibility of the research, support was received from two field experts in content and measurement and evaluation during the development of the data collection tool and data analysis process. In addition, the credibility of the study was ensured by including the statements of the participants in the findings section.

Transferability

In order to ensure the transferability of the research, direct quotations were made regarding the themes and sub-themes reached as a result of the data obtained from the participants' opinions. The identities of the research participants were kept confidential and coding was done for each participant (G1, G2...).

Compliance with Ethical Standards

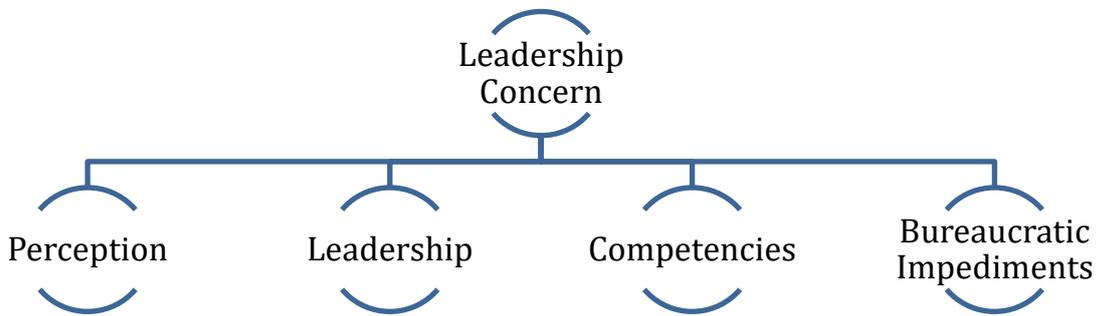
Kırşehir Ahi Evran University Social and Human Sciences Scientific Research and Publication Ethics Committee decided that this research was ethically appropriate with the approval dated 14/06/2023 and numbered 2023/05/05.

Findings

Within the scope of the research, school administrators' perceptions of leaders and leadership, leadership fears and concerns, personal and professional competencies of leaders, and their problem-solving attitudes are discussed below. In this study, as a result of the analysis of the data obtained from the in-depth interviews conducted to understand the concerns of school administrators in the context of leader and leadership perceptions, the theme of "Leadership", "Perception", "Competence" and "Bureaucratic/Legal Impediments" and their categories were reached.

Model 1

Theme of "Perception", "Leadership", "Competencies" and "Bureaucratic/Legal Impediments" and Categories

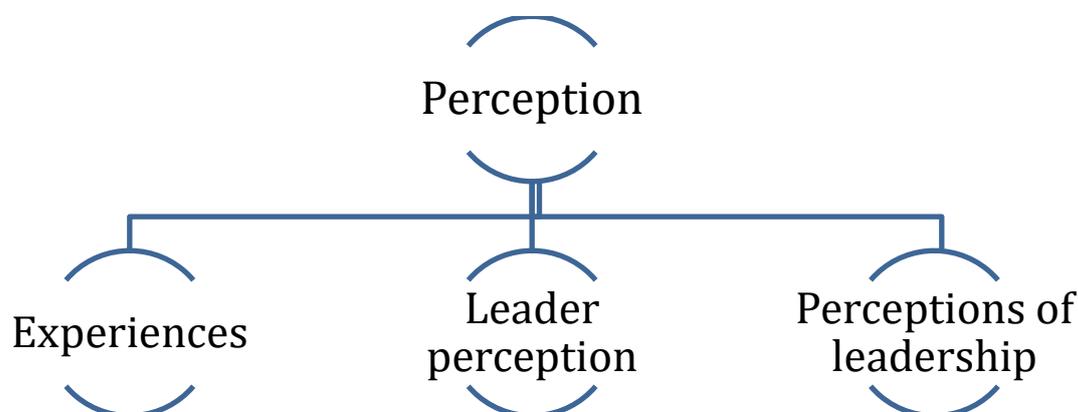


1. Perception

Four themes emerged as a result of the analysis of school administrators' opinions on leader and leadership; "Perception", "Leadership", "Competence" and "Bureaucratic/Legal Impediments". "Perception" theme, "Leadership Perception, Leader Perception, Experiences" categories were reached.

Model 2

Perceptions of participants



Perception of Leadership

According to the participant school administrators, leadership is described as a phenomenon and process that can be developed through family, society, education and administrative experiences. Some of the opinions of school administrators expressing their leadership perceptions are as follows:

“Leadership is a mechanism that directs and drags the society, adds value to the institution, and enables some things to develop spontaneously.” (G2).

“This process work must be developed later with some innate features. Leadership and being a leader are different, leadership is a process, and being a leader is about the person.” (G5).

“Leadership is a task in which a person develops his abilities later and can progress by learning. Leadership is not born as a leader, it is the development of leadership-prone talents through experience and other tools in the leadership process.” (G7).

Leader Perception

According to the participant school administrators, the leader is described as a role model for the followers, motivating them, setting an example with his attitudes and behaviors, ideas and practices, organizing the institution he manages, an expert in his field, open to communication and innovations, fair, having a mission and vision. Some of the opinions of school administrators that some leadership characteristics are innate and some leadership characteristics are acquired through family, education and environment are as follows:

“The leader is the leader who sets an example in the first place, like a lighthouse with his actions, decisions and ideas. A fair leader is a person who knows and applies the regulation.” (G 17).

"I see the leader as a person who is open to communication, organizes his organization well, has a good interaction with students and teachers, and is open to their development." (G 19).

"A leader is a person who can get the masses behind him, motivate them on the path he believes in, and walk with them" (G 20).

"Leadership is not entirely innate. Innate characteristics need to be combined with professional qualifications and general culture, I believe that it can be developed." (G 3).

"A leader can become a leader by developing some innate characteristics. Not everyone can be a leader." (G 4).

"It also has an innate structure, and the family has a great influence. People are affected by the culture of the family they grow up in." (G 6).

Experiencies

Participants stated that past administrative experiences in school administration and all kinds of experiences in school administration are important for their future; they state that their managerial experience reduces their concern by contributing to their development and competence. Some of the opinions of school administrators about their experiences are as follows:

"Some experiences were needed to translate, manage, direct some of the works in the school and to ensure the workflow." (G1).

"Leadership is experience, the biggest thing is experience. I draw my strength from experience. Let the leaders forget the past, forget the bad examples they saw, and keep themselves open to improvement." (G3).

"... Our old experiences hinder us in new environments as well. The environment is very important, it facilitates our work in balancing." (G16).

"Because of the obstacles and walls you encountered during your inexperienced years, you see every issue by experiencing it." (G27).

It may be necessary to combine individual differences and various leadership behaviors with managerial experiences in the effectiveness of leaders in schools. The desire to be a leader is seen as a factor that can reduce the anxiety experienced by the administrators in schools.

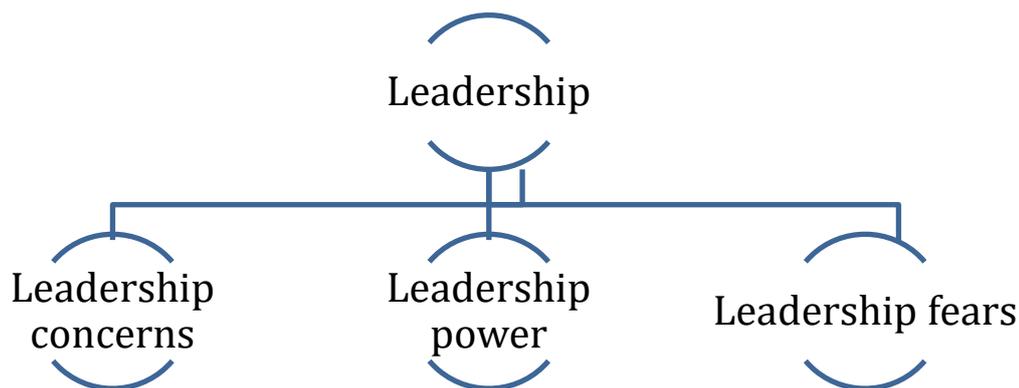
2. Leadership

Educational administration is a field that requires expertise, and it is necessary for school administrators who direct the education system to have certain competencies and to experience concern in order to be successful with the power they receive from the laws while managing schools, which is very important for the individual and society. As a result of the analysis of the opinions of school administrators, the opinions on the categories of

"Leadership power, bureaucratic/legal impediments, leadership fears and leadership concerns" related to the theme of Leadership are given below.

Model 3

Leadership Perceptions of Participants



Leadership Power

All of the school administrators stated that some of the characteristics required for leadership were learned from birth and some of the characteristics were learned later through factors such as experience, family, social environment, education, and colleagues. The participants stated that they derive their leadership power from themselves, their knowledge and skills, their experiences, personal characteristics, family and social environment, not from authority or status. Some of the opinions in order to be a successful and strong leader, plans, leadership goals, and desires for self-improvement are as follows:

"Experience is my leadership power, the greatest thing is experience. I take my strength from my experiences." (G30).

"In the institution, I take my strength from expert information and communication, outside of the institution I take it from being effective in the region and having good relations with people. The position you are in or the non-governmental organizations you belong to do not give me strength, I do not feel stronger with them." (G20).

"I take my strength from myself, I take it from my knowledge. I get it from my self-confidence." (G6).

"I take all my power from myself. I think that I did not do anything by using the authority given by the school principal, hiding behind the given title and using it." (G28).

Fears of Leadership

All of the participating school administrators stated that they are afraid of experiencing external situations such as complaints, insults and threats, slander, misunderstanding, being wronged, being in trouble, accident, NGO and political pressure, and being wrong and injustice, failure, loss of control, different personal situations, such as harming teachers and their families. Some of the opinions of school administrators regarding the fears they experienced are as follows:

"Complaint is our biggest fear. My biggest fear is whether or not we fulfill our responsibility." (G 15).

"I have a fear that something will happen to me" (G 20).

"I have different fears, such as making mistakes and failing." (G 16).

"I have political fears, I am afraid of NGOs. Uncertainties scares me." (G 17).

Concerns of Leadership

All of the participating school administrators are worried about the negative situations they have experienced and will experience in the future due to legal gaps. Personality traits, uncertainties, inexperience, parents, legal gaps, wrong decisions and practices, failure, failure to meet expectations, falling below the success shown, and situations related to the health and safety of students were expressed as the sources of concerns experienced by school administrators. Some of the opinions of school administrators regarding the concerns they experience are as follows:

"I'm worried about what people will suffer if I can't open them up." (G 19).

"As a leader, we are worried that there is a regulation that still does not fit in our system, and an unsettled appointment order. There is uncertainty." (G 9).

"The feeling of embarrassment to my environment, parents and teachers, thinking about the possibility of continuing what I have done or being ashamed of them, worries me." (G 11).

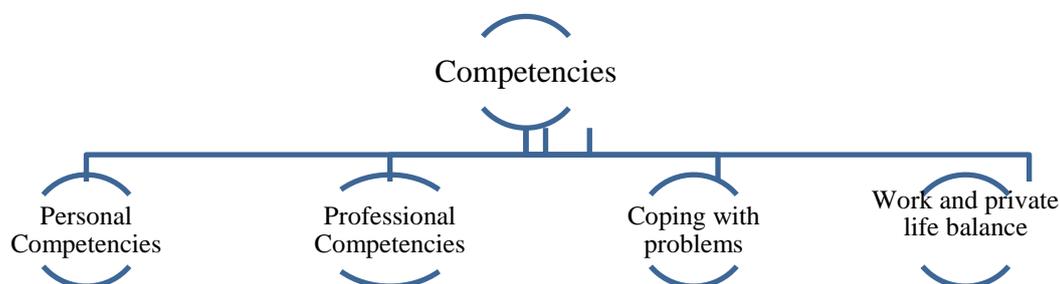
"It may be necessary to put it higher after you have had a certain amount of success. I'm worried about falling down." (G 13).

3. Competencies

In education administration, which is accepted as a field of specialization, school principals and assistant principals are expected to have certain competencies in order to be successful. The views on the categories of "Personal competencies, professional competencies, work and private life balance and coping with problems" related to the "Competences" theme related to the analysis of school administrators' opinions are as follows:

Model 4

Participants Perceptions of Competence



Personal Competencies

According to the participant school administrators, the weight of the responsibilities undertaken in school administration, the difficulty of the school administration task, in order to reveal the desired and expected administrator performance, it is necessary to have personal competencies such as taking initiative, problem-solving, quick decision making, being open to innovations, criticism and communication and following innovations, being fair and honest, being compassionate, patient and understanding, high persuasion and communication skills. Here are some participants views on the personal competencies required for school management:

"Must have the ability to make decisions in difficult conditions and to use initiative. It should be innovative, in the teachers' room, in cooperation and solidarity. When there are difficult conditions, he should solve the problems in a short time by keeping his calmness." (G 8).

"Leadership is taking the initiative, it is the power to interpret events according to that moment, it is to dominate the era." (G 27).

"The leader should be able to influence students and teachers, be open to communication, be a role model." (G 19).

"The leader must play their role correctly to balance." (G 17).

Professional Competencies

Participating school administrators consider it necessary to have professional competencies in school administration, which is their area of expertise, to be successful in the management process and to eliminate the concerns felt by the leaders. Some of the participants opinions regarding the professional competencies that school administrators should have to be a leader are as follows:

"Having a command of technical knowledge in terms of professional competence, being at a level that can drag people " (G 2).

"Professionally, the leader should improve himself and master his field. He should have a good command of not only the field but also current events. Should follow the developments." (G 26).

"He follows world facts, watches scientists, and sees his future. Also follows technological developments." (G 10).

Work and Private Life Balance

According to the participants, the fears and anxieties experienced in the desired leadership as an individual choice, the responsibilities are undertaken, inexperience, legal gaps and concessions in private life for personal reasons cause leaders to be unable to balance. Some of the views of school administrators on balancing work and private life are as follows:

"Leaders find it difficult to balance work life and private life, managers balance better." (G 21).

"I don't think it's possible to balance. It is very difficult to establish this balance in the conditions of Turkey." (G 7).

"I could not balance before, I have not had a balance problem for the last two years. Because I have seen by experience that my taking on everything brings me more harm than good and that it is not valued." (G 15).

"The balance cannot be established inevitably, these are the negativities brought by the profession." (G 18).

Coping with Problems

The problem-solving skills, ways and methods of the education administrators, who undertake the task of setting goals and directing the employees to these goals, differ according to their past experiences. Here are some of the participants' opinions that the principals and vice principals, who are leaders in schools, find solutions to their problems by making use of their experiences, communicating, consulting, sharing thoughts and suggestions, being understanding and tolerant, giving time, researching, and cooperating:

"I use brainstorming in problem-solving, I talk, test the problem and ask everyone's opinion, I solve the problem by combining the thoughts in my head with others." (G 16).

"I consult my opinion with my colleagues, I write something about my own opinion. I ask what is caused by me... First, I measure myself and see what my involvement is." (G 10).

"I think that I can solve the problems that may arise with myself. I'm also trying to convince." (G 20).

"I try to listen to the other person and to understand exactly what they want." (G 30).

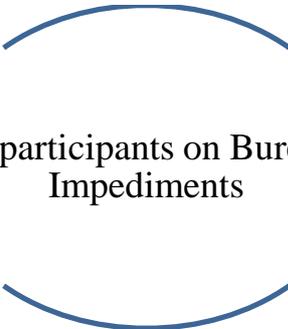
4. Bureaucratic Impediments

The participants stated that they had difficulties in decision-making processes in school administration, their responsibilities were many and their authorities were limited, the laws did not protect them, and the concerns they felt in courage, taking initiative, and problem solving reduced their productivity.

Legal legislation regarding school management processes and duties-related responsibilities cause school administrators to worry.

Model 5

Perceptions of Participants on Bureaucratic/Legal Impediments



Perceptions of participants on Bureaucratic/Legal Impediments

Some of the views of school administrators on the bureaucratic structure regarding the concern of performing a duty that is not protected by the law and the fulfillment of administrative responsibilities are as follows:

"It's because of the gaps in the regulation. Regulation does not protect teachers and administrators" (G6).

"When you are restricted by certain laws within the Ministry of Education, your work on leadership is subject to restrictions. Because it is restricted, many people do not want to be managers, and leaders cannot stand out." (G4).

" Too much responsibility, little authority. You cannot do anything independently, and when you do, you do not know what will come your way." (G23).

"Due to the different issues of bureaucracy, mobility is limited." (G1).

Discussion and Results

This study was conducted to determine the concerns that school administrators feel while fulfilling their leadership duties and responsibilities. According to the participant school administrators, leadership is a phenomenon that can be developed through family, society, education and administrative experiences. According to the participants, the needs of

colleagues, social environment and the institution they work for are effective in being a manager, but this does not strengthen their desire to be a manager. Zaccaro (2007) also defines the leader as a person who combines personality traits with knowledge and skills acquired in management processes. According to the participants, the needs of colleagues, social environment and the institution they work for are effective in being a manager, but this does not strengthen their desire to be a manager. Employees who have the desire to be a manager are expected to have a low level of anxiety about being a leader. Because, thinking that they will have the opportunity to achieve their desired positions and career goals thanks to leadership will increase willingness instead of worry (Araç Ilgar, 2019; Günay & Özbilen, 2018).

According to the participant school administrators, a leader should be a role model to the followers, motivate them, set an example with his attitudes and behaviors, ideas and practices, organize the institution he manages, be an expert in his field, and open to communication and innovations, fair, have a mission and vision. These features show compatibility with the literature. The personalities of the leaders are different from each other. Personal characteristics such as having personal authority, being able to see ahead, having various personality traits, certainty, courage, truthfulness, and intelligence ensure leadership (Genç & Demirögen, 2000).

According to the results of the research, they differ from each other in terms of leadership characteristics that are innate and developed with education and experience in fulfilling their administrative responsibilities at schools. Personality traits are one of the reasons why leaders' solutions and perceptions of the same events are different. The needs and expectations of individuals with different personality traits may differ in the face of problems (Erkuş & Tabak, 2009).

According to school administrators, managerial experiences contribute to the development and competencies of leaders and reduce their worries; experiences gained through managerial life increase their self-confidence and desire to succeed. According to similar research findings; Employees who have been managers before, know the organizational structure better with their previous experiences, have more self-confidence, and worry less (Araç Ilgar, 2019; Günay & Özbilen, 2018). In some studies, (Ural, 2012; Karabudak, 2015) it is seen that the increase in managerial time also increases the concerns of leaders. In this research, school administrators stated that they received the power required for their administrative duties from themselves, their characteristics, knowledge, and skills, and

their family and social environment, not from the positions of a school principal or vice principal. In our country, school management is not a profession legally, and there are no professional qualifications and professional ethical principles. School principals and vice principals are evaluated as teachers in the National Education Basic Law No. 1739; and evaluated as Civil Servants Law No. 657 (Karataş, Radmard, Öksüz Gül, Varol & Dağ, 2019). Opportunities to be provided to employees in return for being leaders can increase their desire to be a leader (Araç Ilgar, 2019). It is common for school administrators to have certain competencies and to experience anxiety to be successful with the power they get from the laws. School administrators stated that they have difficulties due to legal restrictions, their responsibilities are high and their authority is less; they stated that the laws do not protect them and that their concerns increased due to the feeling of not being successful in solving problems, and that the laws have a negative effect on them by increasing rather than decreasing their concerns. Legislation that limits the work environment of public institutions also increases the leadership concerns of employees. (Şahin & Gül, 2011). Participant school administrators stated that they are worried about making mistakes, injustice, failure, and loss of control, and worried about students, teachers, and their families being harmed due to external factors such as complaints, insults, threats, slander, misunderstanding, being in trouble, accident, non-governmental organizations, and politics effects. Elmuti, Minnis, and Abebe (2005) stated that education provides self-confidence by improving leadership skills and reduces the concern of failure. In this study, the majority of participants thinking their concerns prevent them from being successful despite their postgraduate education differs from the literature. It can be expected that school administrators' postgraduate education level will reduce their concerns (Elmuti vd., 2005).

The participant school administrators stated that the concerns they experienced resulted from their personality traits, uncertainties, inexperience, student parents, legal gaps, wrong decisions and practices, failure, failure to meet expectations, falling below the level of success, and factors that threaten students' health and safety. School principals' anxiety levels are higher because the slightest possible problem in the school will be asked about by the principal (Ural, 2012). Concerns about taking on a leadership role are due to individual factors such as lack of knowledge and self-confidence (Anderson vd., 2011). According to the participants, to be able to assume the weight of school administration responsibilities for leadership, and to reveal the desired and expected managerial performance, it is necessary to have personal competencies such as taking initiative, problem-solving, quick decision

making, being open to innovations, criticism and communication and following innovations; being fair and honest, compassionate, patient and understanding, being a high persuasion and communication skills. According to Gündoğar (2010), the proficiency level of the leader directly affects the success of the practices. The leader, who plays an important role in the achievement and success of the institutions, in motivating the employees, is expected to have self-confidence and courage to be the pioneer of change, be able to take risks, communicate effectively and correctly, and create motivation (Eraslan, 2004; Tahaoğlu & Gedikoğlu, 2009). Participants consider it necessary to have the knowledge and skills required by the profession, to have knowledge of legislation and management, to follow current developments, and to have professional competencies related to technical knowledge and equipment to be successful in school administration and to eliminate the concerns felt by the leaders. Since leadership is not a learned or acquired position, and individuals who do not have the necessary characteristics to cope with change cannot be leaders, professional characteristics are as important as personal characteristics for leadership (Sertoğlu, 2010; Robbins, 2012).

Participants see that concerns, responsibilities, legal gaps, inexperience, and inability to spare time for private life due to personal reasons are the main reasons for leaders' inability to balance. Work and private life balance are being at work when they are at work and being at home when they are at home (Sharma & Nayak, 2016). Fulfilling the roles and responsibilities expected from teachers and administrators depends on establishing a balance between work and living areas (Polat, 2018). In the research on work-life balances in the related literature (İzki, 2019; Ödemiş, 2018; Tuğsal, 2017; Turna, 2017; Güleryüz, 2016), it has been concluded that the establishment of work and private life balance positively affects work performance. The fact that the laws regulate the rights and responsibilities of the employees, ensure the private life of the leaders, allow them to spare time for their family and environment, and regulate their relations with their colleagues, reduces leadership concerns (Öztürk, 2021). The participant school administrators stated that they solved the problems by making use of the past experiences of the principals and vice principals in schools, by communicating, sharing their thoughts and suggestions, behaving with understanding and tolerance, allowing time, researching, and cooperating with all parties concerned. The success of institutions requires leaders to be receptive to challenges and criticism and to demonstrate a shared vision with their employees (Yeşil, 2016). Employees may feel anxious and worried during a crisis, but leaders can calmly turn this environment into an opportunity and put

forward new ideas (Uğur & Uğur, 2014). According to the results of the research, the participant school administrators are worried even though they have the necessary personality traits and professional competencies to fulfill their duties and responsibilities. Although they developed their innate leadership through their education and experience, they worry about reasons such as legal gaps, wrong decisions and practices, complaints, slander, misunderstanding, being in trouble, factors that threaten the health and safety of students, falling under the success shown, acting unfairly, losing control, harming students, teachers and their families. They worry about failing, not meeting expectations, making mistakes, uncertainty, and harming others. Personal competencies such as taking initiative, problem-solving, quick decision-making, being open to criticism and communication, following innovations, being fair and honest, being compassionate, patient, and understanding, having high persuasion and communication skills in school management, as well as the knowledge and skills required by the profession, having knowledge of legislation and management, keeping up with current developments, having professional competencies such as technical knowledge and equipment enable leaders to be successful by eliminating their worries.

Recommendations

Leadership is about guiding people to goals for their well-being and happiness by letting go of their worries. Managers who can't cope with their worries should not be expected to lead. In light of these findings, the following recommendations were made to practitioners and researchers;

Training should be given to training school administrators who will meet the needs of the changing education systems with the rapid technological developments experienced today.

It should be ensured that the leaders are protected from all kinds of internal and external worrying factors by making legal arrangements to eliminate their concerns.

Practical studies should be conducted to eliminate the fear of failure, which is one of the most important causes of leadership concern.

Awareness studies should be conducted to encourage and increase the desire of education administrators to be leaders.

Leadership concerns of educational administrators should also be examined with quantitative or mixed research.

Comparative studies should be carried out on the leadership concerns of education administrators working in public and private schools.

There is a need for studies to determine the effect of the expectations arising from the needs of the age on the fear of failure of educational administrators.

Compliance with Ethical Standards

Kırşehir Ahi Evran University Social and Human Sciences Scientific Research and Publication Ethics Committee decided that this research was ethically appropriate with the approval dated 14/06/2023 and numbered 2023/05/05.

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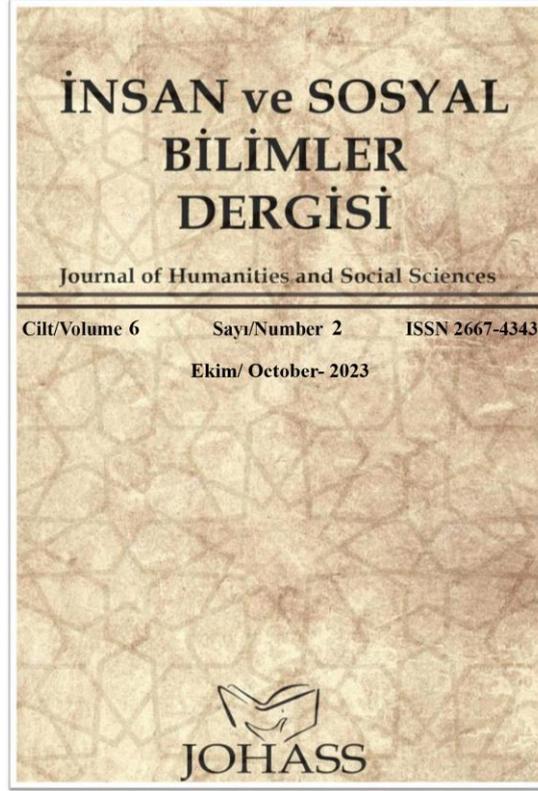
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Early Childhood Educators' Views, Sentiments, Attitudes, Concerns and Practices Related to Students with Special Needs

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Abstract

This research aims to investigate early childhood educators' sentiments, attitudes, and concerns towards students with special needs, their efficacy related to inclusive education practices, and how they follow students with special needs in their classrooms. This study uses a convergent/parallel mixed methods research design, including quantitative and qualitative research designs. The sample size of the quantitative part of the study is 135 early childhood educators. The participants for the qualitative part are ten early childhood teachers working with special needs children. The quantitative part of the study uses the scales of sentiments, attitudes, and concerns related to inclusive education and teacher efficacy during inclusive education practices. For the qualitative part of the study, researchers developed interview questions to collect data related to inclusive practices in early childhood education. The quantitative data is analyzed using the Kruskal-Wallis, Mann-Whitney, and Spearman's rho correlation non-parametric tests. The qualitative data is analyzed with content analysis and open coding. Based on the findings, there is no relationship between sentiments, attitudes, and concerns related to inclusive education and teachers' efficacy during inclusive education practices. On the other hand, it is found that there is a weak correlation between the dimensions of sentiments attitudes and concerns and teachers' efficacy and its dimensions. In light of the findings derived from qualitative data, teachers feel less unsatisfied about firstly children with special needs and their parents, then themselves, and finally, typically developed children and their parents during the adaptation process.

Keywords: Inclusive education, early childhood education, early childhood teacher

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Introduction

Providing equal educational opportunities for all members of society is one of the significant indicators of modernity and democracy in developed societies. When human rights, inclusive and quality education based on equity, and life-long learning opportunities offered for everybody are concerned, we can clearly understand how educating individuals with special needs is crucial for the well-being of societies (Metin, 2013). Most of the sustainable development goals (Goals 4, 8, 10, 11, and 17) put a great emphasis on the view that individuals with special needs are an indispensable part of societies and the actions that might be taken to reintegrate them into the society are specified in each goal. When we take a closer look at these goals, “Goal 4: Quality Education”, for instance, stresses the importance of inclusive and equitable education involving the whole society (UNESCO, 2017).

Inclusive education allows individuals with special needs to equally benefit from the available educational opportunities by sharing the same learning environments with their typically developed peers, which considerably supports these individuals in their attempts to maximize their development in “the least restrictive environment” (Yükselen & Akar, 2021, p. 49).

The practical implementations of inclusive education in all levels of elementary education in Türkiye were initiated in 1983 according to the requirements specified in Article 4 of the Law on Children Who Need Special Education numbered 2916 (Resmi Gazete [Legal Gazette], 1983; Sargın and Sünbül, 2002). Having approximately 40 years of history in legislative terms, inclusive education has been practiced since the 1990s in early childhood education (Yılmaz, 2020). The Regulation on Special Education and Guidance Services published by the Ministry of National Education (MoNE) in 2006 and the regulations regarding early childhood education that were introduced in 2004 allowed special needs children to receive early childhood education (Sucuoğlu, Bakkaloğlu, İscen Karasu, Demir and Akalın, 2014). Revised in 2013, the Early Childhood Education Program emphasized the importance of educating special needs children together with their typically developed peers in the same learning environment. This program also focused on adaptations and individualized education program practices (IEPs) that teachers might develop and implement. In addition, the program was designed to introduce a roadmap for teachers. Appendix 11 of the program explains the characteristics of children with different types of disabilities and the issues to be considered while actively integrating them into the

educational processes (MoNE, 2013). Including special needs children in the same learning environment together with 36-66 months old typically developed children was legitimized within the Regulation on Early Education and Elementary Education Institutions (Resmi Gazete [Legal Gazette], 2014). The number of inclusive students in a classroom depended on the class size. There was a considerable increase in the number of inclusive children in early education institutions after the enactment of this regulation (Çakıroğlu and Melekoğlu, 2014). In the 2014-2015 academic year, the number of students³ attending early childhood inclusive education programs was 304 (MoNE, 2014), which was reported to reach 1830 in the 2021-2022 academic year (MoNE, 2021).

Individuals with special needs benefit from inclusive education the most in early childhood since many positive changes take place in various dimensions of their development during this period (Batu, 2010; Buysse et al., 2002). Therefore, inclusive education is remarkably essential since it yields successful outcomes in the growth and development of children with different special needs. Despite the increase in the number of children benefitting from inclusive education, still few special needs children, unfortunately, receive inclusive education when the overall ratio is considered (Seçer, Çeliköz, Sarı, Çetin and Büyüктаşkapu, 2010). According to the data published by the Ministry of Family and Social Services in 2021, there were a total of 124.244 individuals with special needs in Türkiye, 33.185 of whom were in the 0-4 age range and 91.059 in the 5-9 age range (Ministry of Family and Social Services, 2021). In the 2021-2022 academic year, only 1830 of these individuals received inclusive education (MoNE, 2021), which clearly supports the findings of Seçer et. al (2014). In fact, inclusive education supports these children's cognitive and social-emotional development and minimizes problematic behaviors. Early inclusive education encourages productive education and promotes positive experiences not only for special needs children but also for teachers, typically developed children, as well as parents of typically developed children and special needs children (Aral, 2011; Batu and Kırcaali İftar, 2007).

Early Childhood Teachers in Inclusive Education

Teachers play a crucial role in the quality, effective, and successful implementation of inclusion practices in early childhood (Odom, 2000). Accordingly, teachers are expected to

³ *The numbers of special needs students are reported based on guidance and research center's educational assessment and diagnostics.*

assume the following roles and responsibilities when there are special needs children in their classes: (a) roles related to developing positive attitudes, (b) roles related to IEPs, (c) teaching roles, (d) roles related to behavior management, (e) roles related to assessment and (f) family-related roles (Gezer, 2017). Thus, teachers' attitudes and performances with regards to inclusive education are remarkably significant (Ataman, 2003; Kayhan, Şengül and Akmeşe, 2012; Seçer, Çeliköz, Sarı, Çetin and Büyüктаşkapu, 2010). Positive attitudes of early childhood teachers towards a special needs child in the class positively affect the attitudes of other students, their parents, and all other staff working in the school (Ekşi, 2010; Kaya, 2013; Kuz, 2001; Temel, 2000). Furthermore, teachers' positive attitudes help them accept special needs children and find effective solutions to the problems they encounter (Batu, 2000; Temel, 2000; Ekşi, 2010). In addition to teachers' attitudes, their efficacies regarding this specific teaching type should not be overlooked while taking necessary actions (Kuz, 2001). Among these efficacies are (a) knowledge about inclusion practices and the ability to implement these principles, (b) assessing performances and identifying areas of interest and needs of students with special needs by using appropriate measurement and evaluation tools, (c) developing learning materials, selecting and applying suitable teaching techniques and methods according to these measurements and evaluations, (d) ensuring the child's active participation in the learning process by consulting to special education teachers, developing an IEP and making necessary adaptations, and (e) collaborating with school administration, school staff and parents (Battal, 2007; Batu and Kırcaali-İftar, 2011; Kargın, 2004; Özcan and Karaoğlu, 2021; Özdemir, 2010; Sucuoğlu, Bakkaloğlu, Karasu, Demir and Akalın, 2014; Vural and Yıkmış, 2008).

When the literature related to inclusive education in early childhood is examined in detail, we can notice the predomination of the studies conducted with teachers and children (Yılmaz, 2020), although there are some studies whose participants were school administrators and families (Gezer, 2017; Tuş and Çiftçi Tekinarslan, 2013). Bakkaloğlu, Yılmaz, Altun-Könez, and Yalçın (2018) examined a total of 58 studies conducted on early childhood inclusive education in the Turkish context. According to the findings of the study, 41 of these studies were descriptive (25 qualitative and 16 quantitative), 10 were experimental, and 7 were compilations. Mixed research design was not preferred in any of these studies.

The analysis of the studies conducted with teachers revealed that the majority of these studies focused on determining their attitudes and views about inclusion practices as well as

levels of their knowledge and professional efficacies, identifying practices and adaptations implemented in classrooms, their needs, and problems they encounter in inclusive education (Bakkaloğlu, Yılmaz, Altun-Könez and Yalçın, 2018; Gezer, 2017; Yılmaz,2020). These studies often reported positive attitudes of teachers towards inclusive education (Artan, Uyanık-Balat, 2003; Küçük-Doğaroğlu and Bapoğlu-Dümenci, 2015; Dias and Cadime, 2016; Hsieh and Hsieh, 2012; Dikici-Sığirtmaç, Hoş and Abbak, 2011). Although teachers develop positive attitudes towards such students, they often feel anxious about the presence of an inclusive child in their classes and the implementation of inclusion practices since they lack self-confidence regarding how to support individuals with special needs (Akdağ and Haser, 2017). In addition, some studies reported that teachers develop negative attitudes towards the presence of inclusive children in their classrooms (Dimitrova-Radojichikj, Chichevska-Javanova and Rashikj-Canevska, 2016; Koçyiğit, 2015). Besides, the related studies concluded that teachers' attitudes change according to "age" and "professional experience" variables (Özdemir and Ahmetoğlu, 2012; Üstün and Bayar, 2017). The literature review also revealed that the studies on teachers' views about inclusive education often focused on the following problems encountered by teachers in inclusion practices: inadequate physical conditions (Dikici-Sığirtmaç, Hoş and Abbak, 2011), teachers' not being well-equipped about special needs children's education and the problems encountered during practices (Gök and Erbaş 2011; Kale, Dikici-Sığirtmaç, Nur and Abbak, 2016; Küçük-Doğaroğlu and Bapoğlu-Dümenci, 2015), designing IEPs inappropriately for these children (Koçyiğit, 2015), communication problems between the teacher and special needs children and their families (Dikici-Sığirtmaç, Hoş and Abbak, 2011), the problems related to classroom transitions and ineffective adaptations (Ergin and Bakkaloğlu, 2019; Özen, Ergenekon, Ülke Kürkçüoğlu and Genç, 2013).

In summary, the literature review emphasizes the significance of the following issues to ensure effective and successful implementation of inclusion practices: teachers' fulfilling the roles and responsibilities expected from them regarding inclusive education, being equipped with professional efficacies about inclusive education, and the ability to put these efficacies into practice. In addition, the studies focusing on this issue were often conducted by employing qualitative or quantitative research designs. However, mixed method research design allows researchers to test the identified situation and adopt a holistic perspective to understand it clearly (Greene, Caracelli, and Graham, 1989). Therefore, in the present study, it is possible to determine whether the quantitative data obtained using a mixed research design

supports the findings obtained from early childhood educators with previous and current experience with inclusive students in their classrooms. Besides, this study presents more detailed findings about in-class inclusion practices in early childhood education. At this point, the study aims to determine early childhood teachers' sentiments, attitudes, and efficacies regarding inclusive students and explore the actions taken in the class for inclusive students. To achieve this purpose, the study seeks answers to the following research questions:

Research Questions

1. Do early childhood educators' sentiments, attitudes and concerns about inclusive education differ according to the following variables: the province of the school where they work, the number of students in the class, duration of professional experience, duration of training received on special education, type of the special need, duration of experience with special needs children, the presence or absence of inclusive students in the class and having a relative with special needs or not?

2. Do early childhood educators' efficacies about inclusion practices differ according to the following variables: the province of the school where they work, the number of students in the class, duration of professional experience, duration of training received on special education, type of the special need, duration of experience with special needs children, the presence or absence of inclusive students in the class and having a relative with special needs or not?

3. Is there a significant correlation between early childhood educators' sentiments, attitudes and concerns about inclusive education and their efficacies about inclusion practices?

4. What are the opinions of early childhood educators who have inclusive student(s) in their classes about inclusion practices?

5. What actions do early childhood educators take regarding inclusion practices in the learning environments?

Method

Design

The study employed a mixed research design to determine early childhood teachers' sentiments, attitudes, concerns, and efficacies about inclusive students and how they

implement inclusion practices in early childhood education. This design uses both quantitative and qualitative data (Creswell and Plano-Clark, 2011; Johnson and Christensen, 2014), and both data types were collected concurrently in the present study. In other words, the study used a convergent/parallel mixed methods research design, which gives equal weight (Qual+Quan) to the information obtained from both data types. The quantitative part of the study was descriptive, while the qualitative part was conducted as a case study. By doing so, the study aims to present quantitative and qualitative information about teachers' sentiments, attitudes, concerns, and efficacies regarding inclusive education and how they implement inclusion practices in their classes and discuss the findings based on the data obtained.

Sample and Population

This study, which used a convenient sampling method (Büyüköztürk et al., 2019), was conducted in a city with approximately 1.400.000 population located in the Central Anatolia Region and a city with approximately 230.000 population in the Eastern Anatolia Region. This sampling method is chosen according to location and ease of access (Merriam, 2009). The cities are selected based on their population size. The population of the quantitative part of the study consists of early childhood education teachers (n=424) working at public and independent preschools and nursery classes in primary schools located in these two cities in the 2020-2021 academic year. Sampling should constitute at least 30% of the population in relational analyses (Büyüköztürk, 2012). Therefore, the data collected from 135 teachers (30% of the population) were used for the analyses after excluding inaccurately filled surveys. See Table 1 for detailed information.

Table 1

Demographic Information about the Participant Teachers

	f	%
City		
City A (population approx. 1.400.000)	79	58.5
City B (population approx. 230.000)	56	41.5
Age		
20-25	22	16.3
26-30	21	15.6
31-35	39	28.9
36+	53	39.3
Professional experience		
0-4 years	26	19.3
5-9 years	26	19.3
10-14 years	51	37.8
15 years+	32	23.7

Classroom size		
5-15 children	101	74.8
16-20 children	27	20
21-25 children	5	3.7
26 children+	2	1.5
Educational experiences related to special education		
None	30	22.2
A little bit (1-19hours)	60	44.4
Medium (20-39 hours)	31	23
Top (40 hours+)	14	10.4
Special needs child in the classroom		
Presence	35	25.9
Absence	100	74.1
The type of disabilities		
None	97	71.9
Physical Disability	3	2.2
Intellectual disability	2	1.5
Autism Spectrum Disorder	9	6.7
Hard of Hearing	4	3
Attention Deficit Hyperactivity Disorder	7	5.2
Learning Disability	3	2.2
Other	10	7.4
Professional Experience with Special Needs Children		
None	38	28.1
A little bit (1-29days)	56	41.5
Top (30days +)	41	30.4
Special needs relative		
Having	31	23
Not Having	104	77

As for the qualitative part of the study, the purposive sampling method was preferred to determine the participant teachers in order to collect more detailed information about inclusive education in early childhood (Merriam, 2009). First, 35⁴ teachers in the sampling were found to have inclusive students in their classes. Later, 10 out of 35 early childhood education teachers in the sampling volunteered to participate in the qualitative part of the study. See Table 2 for detailed information.

Table 2

Demographic Information about the Interviewed Teachers

*Teachers	Age	Gender	Professional Experience	Children's Age Group	Duration of special education training (excluding undergraduate)
P1	32	F	8 years	5	-
P2	35	M	12 years	4-5	2-4 hours
P3	28	F	7 years	5	-
P4	33	F	9 years	4	8 hours
P5	44	F	12 years	5	+ (did not remember the duration)
P6	48	F	15 years	3-4	+ (did not remember the duration)
P7	22	F	2 years	3	5 months

⁴ In 2020-2021 academic year, preschool education was held face-to-face except between April 29th and May 17th 2021, which were the times of the full lockdowns throughout the country due to the pandemic. However, it might be kept in mind that weak immune systems of students with special needs might have negatively affected their attendance in face-to-face education.

P8	23	F	5-6 months	5-6	-
P9	36	F	3 years	5	+ (did not remember the duration)
P10	35	F	15 years	5	10-12 hours

* Pseudonyms were used to preserve teachers' anonymity.

Data Collection Tools

Quantitative Data Collection Instruments

The quantitative data about early childhood educators' efficacies, sentiments, attitudes, and concerns about inclusive education were collected through (a) Teacher Efficacy in Inclusive Practices Scale, and (b) Sentiments, Attitudes and Concerns about Inclusive Education Scale. Before using these scales, to collect demographic information about the participant teachers' personal information form was developed. The questions in the form were inspired from the questions prepared by Bayar (2015) and assumed to have effects on the research data. It consists of eight items aiming to collect data about "age", "duration of professional experience", "total number of students in the class", "presence/absence of inclusive student in the class", "inclusive student's special need type", "level of received training on special education", "teaching experience with special needs children" and "having a relative with special needs or not".

a) The Teacher Efficacy in Inclusive Practices Scale (TEIP): Developed by Sharma, Loreman and Forlin (2011) and adapted to Turkish by Bayar (2015), the Teacher Efficacy in Inclusive Practices Scale includes 18 items, which are rated according to 6-point Likert Scale. The results of the Exploratory Factor Analysis revealed three dimensions for the scale: (1) Teaching efficacy, (2) Collaboration Efficacy, and (3) Classroom Management Efficacy. The Turkish-adapted version's Cronbach Alpha, internal consistency coefficient, was 0.89. The coefficient calculated for the present study was 0.97.

b) The Sentiments, Attitudes and Concerns about Inclusive Education Scale: Developed by Forlin, Earle, Loreman and Sharma (2011), the scale was adapted to Turkish by Bayar, Özaşkın and Bardak (2015). This 4-point Likert-type scale consists of 15 items. The maximum score that can be obtained from the scale is 60, and the minimum score is 15. There are three dimensions in the scale: (1) sentiments, (2) attitudes and (3) concerns. The Cronbach Alpha value of the adapted version was calculated as .88 while the overall scale's value was .71. The Cronbach Alpha value in the present study was .74.

Qualitative Data Collection Instruments

The qualitative data on early childhood educators' views and attitudes related to inclusive education, their inclusive education experiences, challenges in inclusive practices, and parents' attitudes were collected using semi-structured interview techniques.

The interview protocol was developed by the researchers after a detailed literature review and finalized according to the feedback received from the early childhood education teachers and experts who have had experiences in early childhood education and special education. The first section of the protocol includes five questions to collect demographic data about the participant early education teachers such as age, gender, year of teaching experience, educational background, the age range of the students they teach, trainings/seminars/courses they attended to learn about special education and/or inclusive education. The nine questions in the second section aim to collect information about the following issues: advantages and disadvantages of early childhood inclusive education, previous experiences with special needs children, the most challenging special need(s), the types of special needs of the inclusive student(s) in their class, their experiences with special needs children, whether they implement the adapted version of the activities for inclusive students as one-on-one practice, whether they make special physical arrangements for inclusive children in the learning environments (in the classroom and the school garden), attitudes of typically developed children's parents towards the inclusive child(ren) and the actions they take when the inclusive child is not accepted by typically developed children in the class.

Data Collection and Analysis

Quantitative Data Collection and Analysis

The required ethical committee and implementation permissions were taken before administering the Personal Information Form and the scales. After the related institutions granted the permissions, the Personal Information Form and the scales were uploaded to the digital environment. The principals of public and independent preschools and nursery classes in primary schools in the city centers were informed about the study, and one copy of the Personal Information Form and the scales were shared with them. Later, the principals shared the form and the scales with teachers via the internet. The data collection procedure lasted approximately three months after the necessary permissions were taken.

After the inaccurately filled data collection instruments were excluded from the analysis, the remaining data were examined by performing descriptive and correlational analyses through the Kruskal-Wallis Test, Mann-Whitney Test, and Spearman's rho Correlation non-parametric tests since this data was not normally distributed. SPSS statistical package software was used for all the analyses.

Qualitative Data Collection and Analysis

The interview questions were piloted, revised, and finalized before the interviews. Also, the participant teachers were informed about the purpose of the study and asked whether they would like to volunteer to participate in the interviews. Those who volunteered were asked to sign the informed consent form. In addition, they were informed that the interviews would be audio recorded and they could leave the study anytime without or by giving an excuse. The interviews were conducted face-to-face in the schools where the participant teachers work and audio recorded. Each interview lasted approximately 25 minutes, and the total data collection time was nearly one month.

The data obtained from these interviews were analyzed through open coding (Strauss and Corbin, 1998) and content analysis (Baxter and Jack, 2008; Yıldırım and Şimşek, 2008), which requires the completion of some processes such as transcribing the data, generating codes for the transcribed data, determining themes involving these codes and categorizing the codes and themes. The collected data were used to determine categories and codes. This procedure was followed by determining themes and sub-themes. The researchers carried out all these procedures independently at different times and locations. After the coding procedure was completed, the researchers discussed the codes, themes, and sub-themes and determined the agreed and disagreed ones. The procedure was finalized following the negotiations over the disagreed ones.

The study's validity was confirmed by expert review (Creswell, 2008) and participant validation (Merriam, 2009). As for reliability, intercoder agreement was preferred. According to Miles, Huberman and Saldana (2014), agreement between coders should be above 85%. The agreement between the coders, who were experienced researchers in early childhood education, was calculated as 88% in the present study.

Compliance with Ethical Standards

The permissions required to conduct the present study were taken according to the rules specified in “The Directives for Higher Education Institutions Scientific Research and Publication Ethics”. No actions specified under “the Actions Contradicting Scientific Research and Publication Ethics” were taken within the scope of this study.

Ethical Committee Permission Details

The Name of the Ethical Committee= Kirsehir Ahi Evran University Social Sciences and Humanities Scientific Research and Publication Ethics Committee

The Date of the Permission Granted: March 4th 2021

The Document Number of the Permission Granted: 2021/1/46

Findings

In this section, the findings of the study are presented based on the replies provided for the related research questions.

The Findings regarding the First and Second Research Questions

In this part, findings related to the research questions given below were shared. These are:

1. Do early childhood educators’ sentiments, attitudes and concerns about inclusive education differ according to the following variables: the province of the school where they work, the number of students in the class, duration of professional experience, duration of training received on special education, type of the special need, duration of experience with special needs children, the presence or absence of inclusive students in the class and having a relative with special needs or not?

Do early childhood educators’ efficacies about inclusion practices differ according to the following variables: the province of the school where they work, the number of students in the class, duration of professional experience, duration of training received on special education, type of the special need, duration of experience with special needs children, the presence or absence of inclusive students in the class and having a relative with special needs or not?

Only the data analysis results with significant differences were presented as tables in this section.

Of the variables for which the Mann-Whitney U Test was performed, not a significant difference was found for the following variables: the presence or absence of inclusive student(s) in the class; early childhood educators’ sentiments, attitudes and concerns about inclusive education; and teacher efficacies in inclusion practices. The variables with significant differences are presented in the tables below.

Table 3

U-Test Results for Early Childhood Educators’ Sentiments, Attitudes and Concerns about Inclusive Education and Teacher Efficacies in Inclusion Practices According to the “City Where the Teacher Works” Variable

	Cities	n	Mean Rank	Sum of Ranks	U	P
SACIE-sentiment	City A	79	70.84	5596.50	1987.5	.311
	City B	56	63.99	3583.50		
SACIE-attitude	City A	79	70.04	5533.00	2051	.467
	City B	56	65.13	3647.00		
SACIE-concern	City A	79	71.65	5660.00	1924	.194
	City B	56	62.86	3520.00		
TEIP-II	City A	79	64.73	5114.00	1954	.246
	City B	56	72.61	4066.00		
TEIP-C	City A	79	67.22	5310.50	2150.5	.783
	City B	56	69.10	3869.50		
TEIP-MB	City A	79	67.31	5317.50	2157.5	.807
	City B	56	68.97	3862.50		
totTEIP	City A	79	66.31	5238.50	2078.5	.551
	City B	56	70.38	3941.50		
totSACIE	City A	79	73.58	5812.50	1771.5	.048
	City B	56	60.13	3367.50		

*p< .05

According to Mann-Whitney U Test results presented in Table 3, the only significant difference at .05 degree of significance was found for the participant early childhood educators’ total scores in their sentiments, attitudes and concerns about inclusive education ($U= 1771.5$, $z= -1.98$, $p=.048$, $r=.17$) according to “the city where they work” variable. In other words, the teachers working in City A (approx..1.400.000 population) scored higher than those working in City B (approx. 230.000 population) in their total scores on their sentiments, attitudes and concerns about inclusive education. However, no significant difference was found for the sentiments, attitudes and concerns dimensions, although the scores of teachers working in City A were higher than that of City B for these dimensions.

Table 4

U-Test Results for Early Childhood Educators’ Sentiments, Attitudes and Concerns about Inclusive Education and Teacher Efficacies in Inclusion Practices According to “The Presence or Absence of a Special Needs Relative” Variable

	Special relative	needs n	Mean Rank	Sum of Ranks	U	p
SACIE- sentiment	Yes	31	81.18	2516.50	1203.5	.031
	No	104	64.07	6663.50		
SACIE-attitude	Yes	31	59.77	1853.00	1357	.177
	No	104	70.45	7327.00		
SACIE- concern	Yes	31	57.48	1782.00	1286	.085
	No	104	71.13	7398.00		
TEIP-II	Yes	31	79.82	2474.50	1245.5	.054
	No	104	64.48	6705.50		
TEIP-C	Yes	31	81.69	2532.50	1187.5	.026
	No	104	63.92	6647.50		
TEIP-MB	Yes	31	82.85	2568.50	1151.5	.016
	No	104	63.57	6611.50		
totTEIP	Yes	31	82.16	2547.00	1173	.021
	No	104	63.78	6633.00		
totSACIE	Yes	31	62.53	1938.50	1442.5	.372
	No	104	69.63	7241.50		

*p< .05

Table 4, which displays Mann-Whitney U Test results, shows that early childhood educators’ scores in their sentiments about inclusive education ($U= 1203.5$, $z= -2.16$, $p=.031$, $r=.18$), teacher efficacies’ “collaboration” dimension ($U= 1187.5$, $z= -2.23$, $p=.026$, $r=.19$) and “classroom management” dimension ($U= 1151.5$, $z= -2.418$, $p=.016$, $r=.20$), and total scores for “teacher efficacies in inclusion practices” ($U= 1173$, $z= -2.299$, $p=.021$, $r=.19$) significantly differ at .05 degree of significance according to “whether or not they have a relative with special needs”. In other words, the scores of early education teachers with special needs relative were higher than those without a relative with special needs in their sentiments about inclusive education, teacher efficacies’ collaboration and classroom management dimensions, and the total scores of “teacher efficacies in inclusion practices”.

According to the results of Kruskal-Wallis tests, “teacher efficacies in early childhood education” and “early childhood educators’ sentiments, attitudes and concerns about inclusive education” did not significantly differ according to “age”, “professional experience”, “the total number of children in the class” and “inclusive child’s special need type” variables.

Table 5

Kruskal-Wallis Test Results for Early Childhood Educators' Sentiments, Attitudes and Concerns about Inclusive Education and Teacher Efficacies in Inclusion Practices According to the "Receiving Training on Special Education" Variable

	Educational experiences related to special education	n	Mean Rank	χ^2	df	p
SACIE-sentiment	Never	30	64.53	.866	3	.834
	Low-level (1-19h)	60	66.66			
	Mid-level (20-39h)	31	71.26			
	High-level (40h+)	14	73.96			
SACIE-attitude	Never	30	70.23	8.653	3	.034
	Low-level (0-19h)	60	70.11			
	Mid-level (20-39h)	31	74.53			
	High-level (40h+)	14	39.71			
SACIE-concern	Never	30	74.65	5.010	3	.171
	Low-level (0-19h)	60	68.63			
	Mid-level (20-39h)	31	69.76			
	High-level (40h+)	14	47.18			
TEIP-II	Never	30	66.67	2.142	3	.543
	Low-level (0-19h)	60	63.74			
	Mid-level (20-39h)	31	73.34			
	High-level (40h+)	14	77.29			
TEIP-C	Never	30	65.95	2,119	3	.548
	Low-level (0-19h)	60	63.93			
	Mid-level (20-39h)	31	74.34			
	High-level (39h+)	14	75.79			
TEIP-MB	Never	30	72.40	1.110	3	.775
	Low-level (0-19h)	60	64.31			
	Mid-level (20-39h)	31	71.03			
	High-level (40h+)	14	67.68			
totTEIP	Never	30	68.57	1.258	3	.739
	Low-level (1-19h)	60	64.16			
	Mid-level (20-39h)	31	72.39			
	High-level (40h+)	14	73.54			
totSACIE	Never	30	70.73	9.380	3	.025
	Low-level (1-19h)	60	67.59			
	Mid-level (20-39h)	31	78.52			
	High-level (40h+)	14	40.61			

* $p < .05$

As shown by Kruskal-Wallis Test results in Table 5, early childhood teachers' "level of received training on special education" and their attitudes towards inclusive education significantly differed at .05 degree of significance (never, n=30; low-level, n=60; mid-level, n=31; high-level, n=14), $\chi^2(3, n=135) = 8.653, p = .034$. Mann Whitney-U Test performed to examine the differences between the groups showed that the median value ($Md = 10.50$) for high-level training received (more than 40 hours) was lower than median values ($Md = 12$) calculated at all other levels. In other words, as the participant teachers' "level of received training on special education" increases, their "attitude" scores decrease.

Besides, there was a significant difference at .05 degree of significance between early childhood teachers’ “level of received training on special education” and their total score on their “sentiments, attitudes and concerns about inclusive education” (never, n=30; low-level, n=60; mid-level, n=31; high-level, n=14), $\chi^2(3, n=135) = 8.653, p = .034$. Mann Whitney-U Test performed to explore the differences between the groups indicated that the median value ($Md=34.5$) for high-level of received training on special education (more than 40 hours) was lower than median values calculated for all other levels (never ($Md=38$), low-level ($Md=37$), and mid-level ($Md=38$)). In other words, as the participant teachers’ “level of received training on special education” increases, their sentiments, attitudes and concerns about inclusive education scores decrease.

No significant differences were found between teachers’ “levels of received training on special education” and the other remaining variables at a .05 degree of significance.

Table 6

Kruskal-Wallis Test Results for Early Childhood Educators’ Sentiments, Attitudes and Concerns about Inclusive Education and Teacher Efficacies in Inclusion Practices According to “the Work Experience with Special Needs Children” Variable

	Professional Experience with Special Needs Children	n	Mean Rank	χ^2	df	p
SACIE-sentiment	Never	38	71.50	1.905	2	.386
	Low-level (1-29 days)	56	70.71			
	High-level (30 days+)	41	61.06			
SACIE-attitude	Never	38	64.89	1.123	2	.570
	Low-level (1-29 days)	56	72.19			
	High-level (30days+)	41	65.16			
SACIE-concern	Never	38	72.33	2.767	2	.251
	Low-level (1-29 days)	56	71.19			
	High-level (30 days+)	41	59.63			
TEIP-II	Never	38	59.74	4.357	2	.113
	Low-level (1-29 days)	56	66.51			
	High-level (30days+)	41	77.70			
TEIP-C	Never	38	59.72	6.228	2	.044
	Low-level (1-29 days)	56	64.62			
	High-level (30 days+)	41	80.29			
TEIP-MB	Never	38	64.41	1.622	2	.444
	Low-level (1-29 days)	56	65.74			
	High-level (30 days+)	41	74.41			
totTEIP	Never	38	61.09	4.187	2	.123
	Low-level (1-29 days)	56	65.30			
	High-level (30 days+)	41	78.09			
totSACIE	Never	38	69.55	5.355	2	.069
	Low-level (1-29 days)	56	75.14			
	High-level (30 days+)	41	56.80			

* $p < .05$

According to the results of the Kruskal-Wallis Test displayed in Table 6, there was a significant difference between early childhood teachers’ “teaching experience with children with special needs” and “collaboration” dimension of “teacher efficacies in inclusion practices” at .05 degree of significance (never, n=38; low-level, n=56; high-level, n=41), $\chi^2(2, n=135) = 6.228, p=.044$. Mann Whitney-U Test performed to examine the differences between the groups showed that the median value ($Md=31$) for high-level experience (more than 30 full days) was lower than the median values calculated for other levels (never ($Md=30$), low-level ($Md=29$)). In other words, as the participant teachers’ level of experience with special needs children increases, their scores on the “collaboration” dimension of teacher efficacies also increase.

The Findings Regarding the Third Research Question

The findings based on the third research question given below were presented in this part.

3. Is there a significant correlation between early childhood educators’ sentiments, attitudes and concerns about inclusive education and their efficacies about inclusion practices?

Table 7

Pearson Correlation Analysis Results Between Early Childhood Educators’ Sentiments, Attitudes and Concerns About Inclusive Education and Its Dimensions and Teacher Efficacies in Inclusion Practices and Its Dimensions

	1	2	3	4	5	6	7	8
1.SACIE- sentiment	-							
2. SACIE- attitude		-						
3.SACIE- concern			-					
4. TEIP-II	-.225**	.187*	.227**	-				
5. TEIP-C	-.204*	.181*	.196*		-			
6. TEIP-MB	-.218*	.180*	.198*			-		
7. totTEIP	-.220*	.186*	.211*				-	
8. totSACIE								-

** $p < .01$

According to Pearson Correlation Test results in Table 7, there was no significant difference between the total scores of early childhood education teachers for “sentiments, attitudes and concerns about inclusive education” and “teacher efficacies in inclusion

practices”. However, a significant difference was found at .01 and .05 degrees of significance between the “sentiments”, “attitudes”, and “concerns” dimensions and “teacher efficacies in inclusion practices” and its dimensions. Since the items in the “sentiments” dimension are reverse coded, there is a positive weak correlation with total scores of “teacher efficacies” ($r=.22, n= 135, p < .05$), which explains 4% of the variances. In addition, the “sentiments” dimension has a positive and weak correlation with the “teacher competency” dimension ($r=.22, n= 135, p < .01$), which explains 4% of the variances. Similarly, the “sentiments” dimension positively and weakly correlates with the “teacher collaboration” dimension ($r=.22, n= 135, p < .05$), which explains 4% of the variances. Finally, the “sentiments” dimension has a positive and weak correlation with the “classroom management” dimension ($r=.22, n= 135, p < .05$), which explains 4% of the variances.

There is a positive and weak correlation between the “attitudes” dimension and total “teacher efficacies” scores ($r=.18, n= 135, p < .05$), which explains 3% of the variances. Similarly, the “attitude” dimension positively and weakly correlates with the “teacher competency” dimension ($r=.18, n= 135, p < .05$), which explains 3% of the variances. The “attitude” dimension also has a positive and weak correlation with the “collaboration” dimension ($r=.18, n= 135, p < .05$), which explains 3% of the variances. Finally, there is a positive and weak correlation between the “attitudes” dimension and “classroom management” dimension scores ($r=.18, n= 135, p < .05$), which explains 3% of the variances.

There is a positive and weak correlation between the “concerns” dimension and total “teacher efficacies” scores ($r=.21, n= 135, p < .05$), which explains 4% of the variances. Similarly, the “concerns” dimension positively and weakly correlates with the “teacher competency” dimension ($r=.22, n= 135, p < .01$), which explains 4% of the variances. The “concerns” dimension also has a positive and weak correlation with the “teacher collaboration” dimension ($r=.19, n= 135, p < .05$), which explains 3% of the variances. Finally, there is a positive and weak correlation between the “concerns” dimension and “classroom management” dimension scores ($r=.19, n= 135, p < .05$), which explains 3.6% of the variances.

Findings regarding the Fourth Research Question

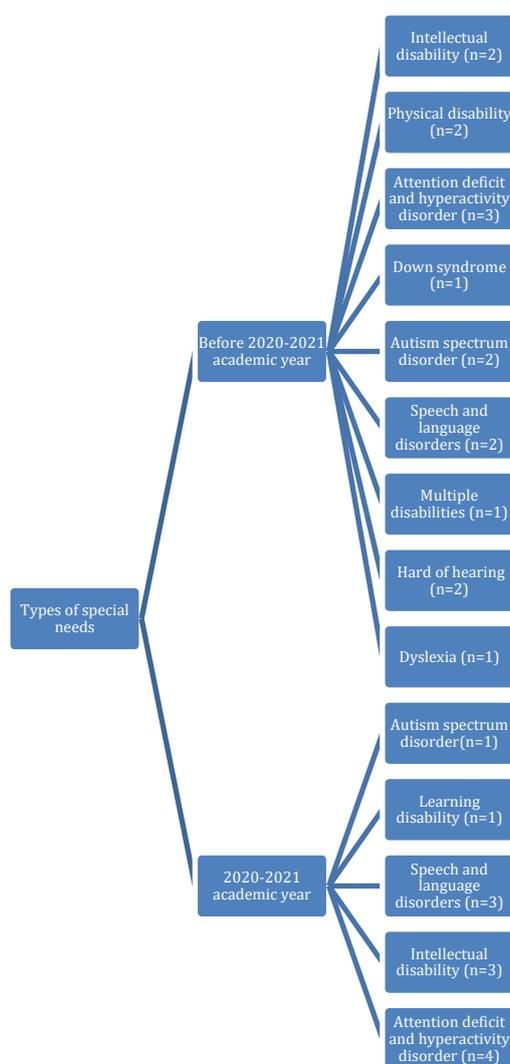
In this part, findings related to the fourth research question given below were shared.

4. What are the opinions of early childhood educators who have inclusive student(s) in their classes about inclusion practices?

First, only one of the interviewed teachers did not have experience with special needs children before the 2020-2021 academic year. When we consider the time the study’s qualitative data were collected, this teacher had been teaching an inclusive child for almost an academic year. All other nine teachers already had experiences with inclusive children in the 2020-2021 academic year and before. See Figure 1 for detailed information.

Figure 1

Special Need Types of Inclusive Children

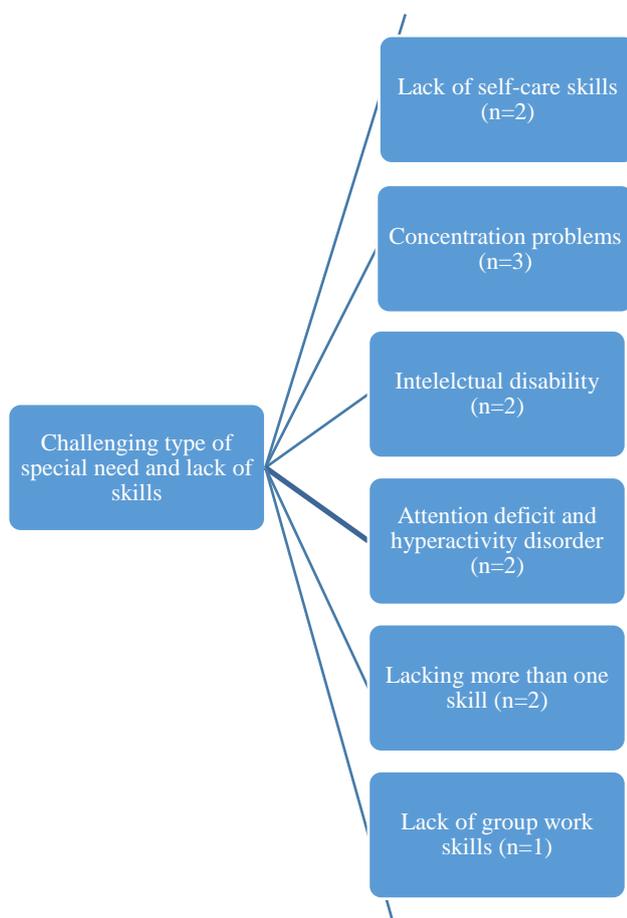


The participant teachers listed the most challenging special needs and lack of skills in inclusion practices: (a) “lack of self-care skills” (n=2), (b) “concentration problems” (n=3), (c)

“intellectual disability” (n=2), (d) “attention deficit and hyperactivity disorder” (n=2), (e) “lacking more than one skill” (n=2) and (f) “lack of group work skills” (n=1). (See Figure 2)

Figure 2

Type of Special Needs and Lack of Ability that Early Childhood Teachers Find Challenging



The present study showed that early childhood teachers working with special needs children focused on the disadvantages and advantages of inclusion practices while expressing their opinions about inclusive education. According to the findings, six teachers who mentioned the disadvantages focused on typically developed children, four on children with special needs, and six on teachers.

The disadvantages regarding typically developed children were reported to be “negative point of view” (n=1), “negative attitude” (n=1), “failure to empathize” (n=1), “expectation of tolerance” (n=1), and “failure to accept differences” (n=2).

As for the disadvantages in terms of children with special needs, the participant teachers mentioned “disrupting the classroom atmosphere” (n=1), “failing to adapt” (n=2),

and “displaying problematic, maladaptive behavior” (n=1). P2 teacher explained the disadvantages regarding both children with special needs and typically developed children as follows:

These children [those with special needs] disrupt the classroom atmosphere. How do they do that? I mean, they behave against the rules since they cannot adapt and perceive the class rules. Of course, other children do not know that these children are special children, children with special needs; if they knew, I mean, since they cannot empathize with them, they want to act freely just like they do or when we tolerate their behaviors, other children think that the teacher will tolerate them if they behave the same way and they want to behave similarly or they want this freedom, so there is an adaptation problem.

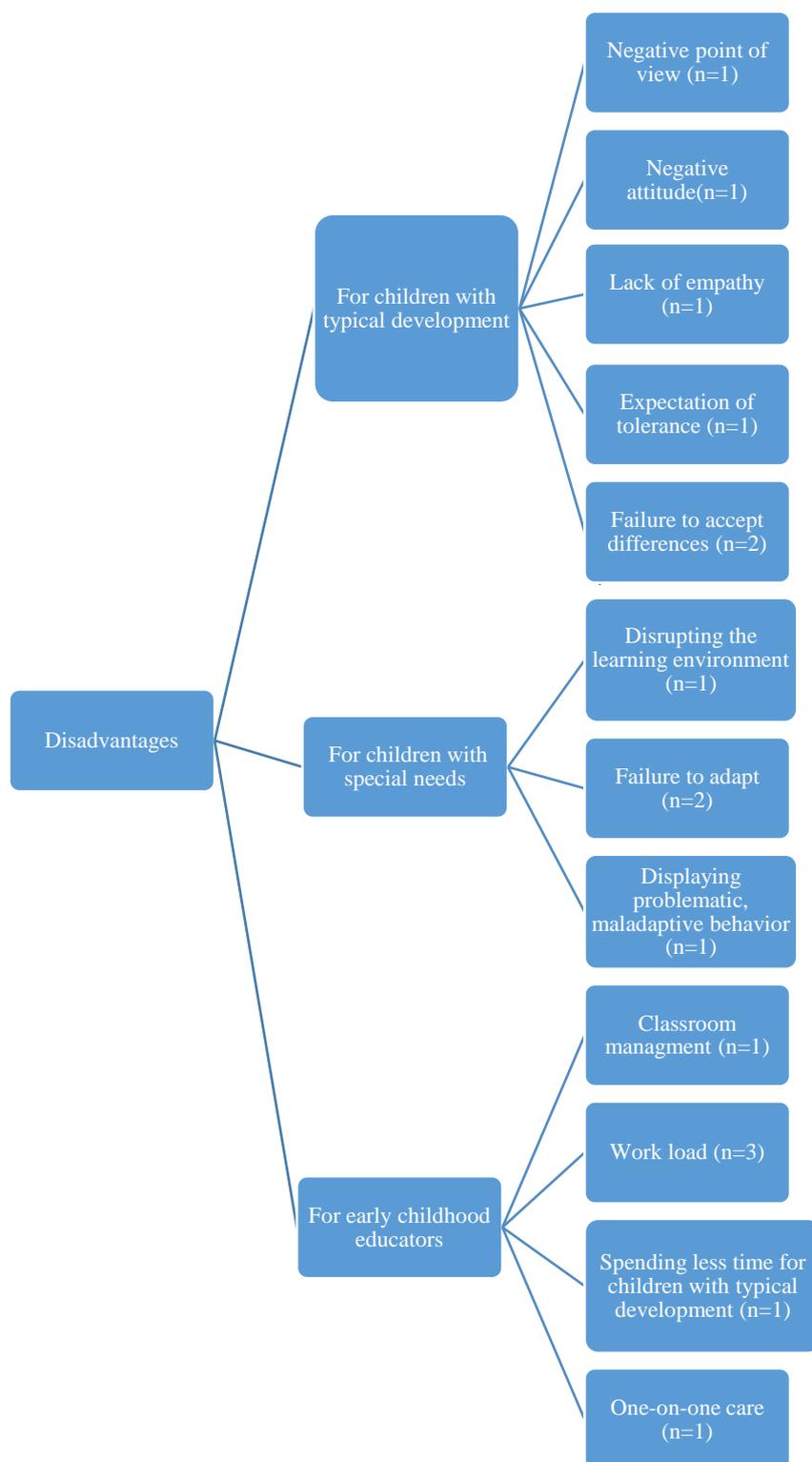
The disadvantages in terms of teachers were stated as “classroom management” (n=1), “workload” (n=3), “spending less time with typically developed children” (n=1), and “one-on-one care” (n=1). (See Figure 3)

P6 teacher explained the situation through the following sentences:

... But I can mention some challenges. The size of preschool classes affiliated with MoNE is quite high, 20 on average. It is difficult for a teacher to do the same activity for both the inclusive child and other children while doing her activity with 20 students. Of course, it depends on the inclusive child’s needs. The teacher has a lot to do here. She sacrifices a lot. But there is always a way for a person who enjoys doing her job.

Figure 3

The Disadvantages of Inclusive Education According to Early Childhood Teachers



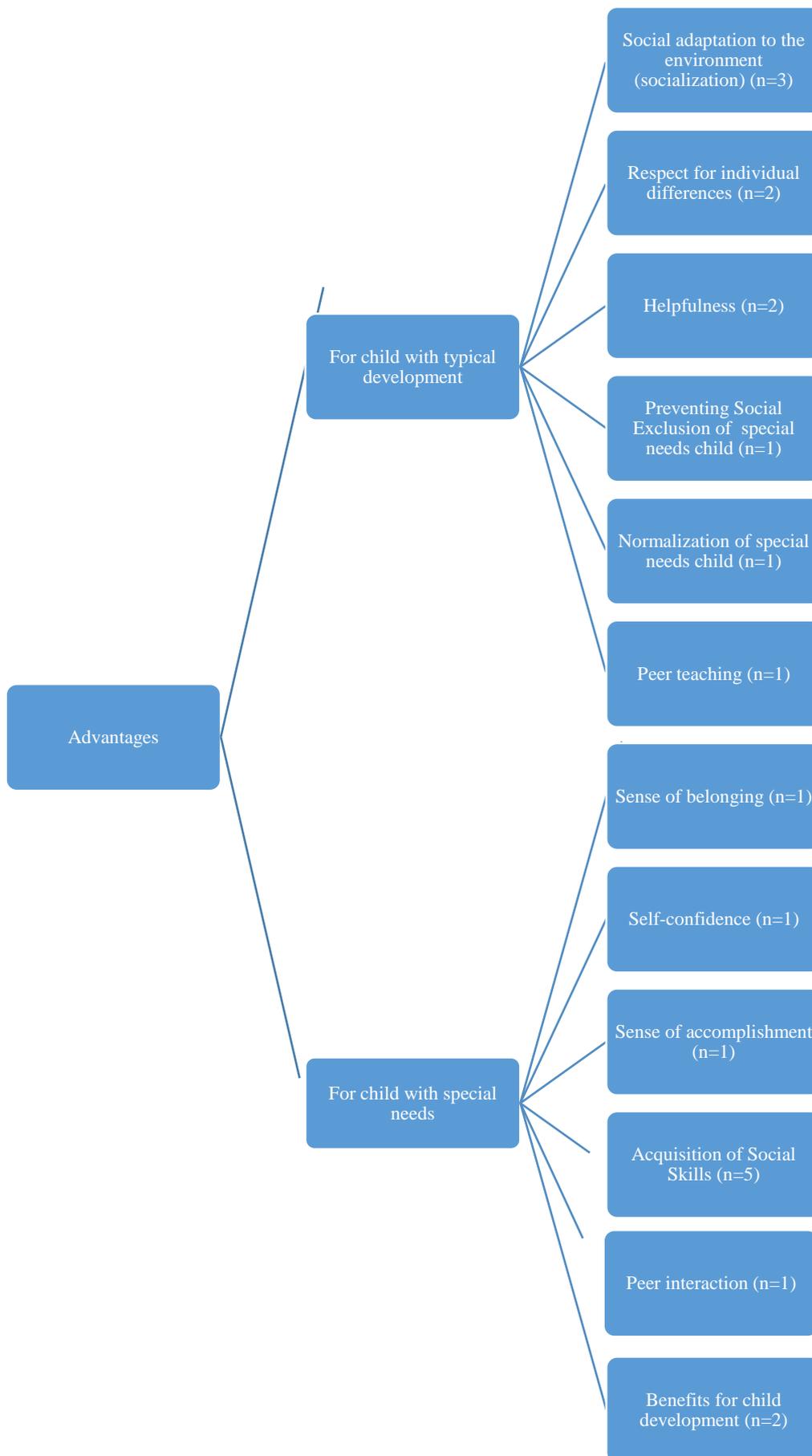
The findings showed that teachers who reported the advantages primarily focused on typically developed children and children with special needs. However, no advantages were mentioned with regard to teachers. The participants listed the advantages in terms of typically developed children as “social adaptation to the environment (socialization)” (n=2), “respect for individual differences” (n=2), “helpfulness” (n=2), “preventing social exclusion of special

needs child” (n=1), “normalization of special needs children” (n=1), “peer teaching” (n=1). The advantages with regard to children with special needs were listed as “sense of belonging” (n=1), “self-confidence” (n=1), “sense of accomplishment” (n=1), “acquisition of social skills” (n=5), “peer interaction” (n=1), “benefits for child development” (n=2). (See Figure 4)

P5 teacher explained the advantages of inclusion practices in the following quote: “*I believe that adaptation of children [special needs children] to the society and displaying behaviors that are appropriate for the society are useful for his integration and also for the acceptance of the disabled individuals by the society*”. P9 teacher also added the following sentence as the explanation of the advantages: “*The child [the special needs child] is able to socialize more easily and learn from their friends; I mean; peer teaching might take place*”.

Figure 4

The Advantages of Inclusive Education According to Early Childhood Teachers



The Findings Regarding the Fifth Research Question

In this part, findings related to the fifth research question given below were shared.

5. What actions do early childhood educators take regarding inclusion practices in the learning environments?

The actions taken by the teachers were examined in terms of the following cases: *whether they make adaptations in their activity plans and make any arrangements in the learning environments regarding inclusive education in general; the actions they take when they encounter problems during inclusive education practices; and what they do in case of problems related to typically developed children and their parents.*

Findings About Adaptations Made on Activity Plans

According to the data regarding whether and why the participant teachers make any adaptations in their activity plans, six teachers reported that they make while one teacher stated that she does not make any adaptations and other three teachers stated that they make partial adaptations in their activity plans. See Figure 5 for detailed information.

As for the reasons for teachers' actions, those reporting that they make adaptations in the activity plans listed their reasons as "short attention span" (n=2), "the child's need" (n=5), "supporting active involvement" (n=2), "modifying the activity for the child's level" (n=2). P6 teacher explained her opinions about the issue as follows:

Yes, I do. I have a plan to implement in the class. However, if I have an inclusive child in the class and I need to prepare a special material for him/her, I do; or If I need to revise the activity, I do because there is not another way to get this child to participate. If I need to extend the activity duration specifically for this child after other children finish the activity, I do so, as well. And this does not have to be a very long time.

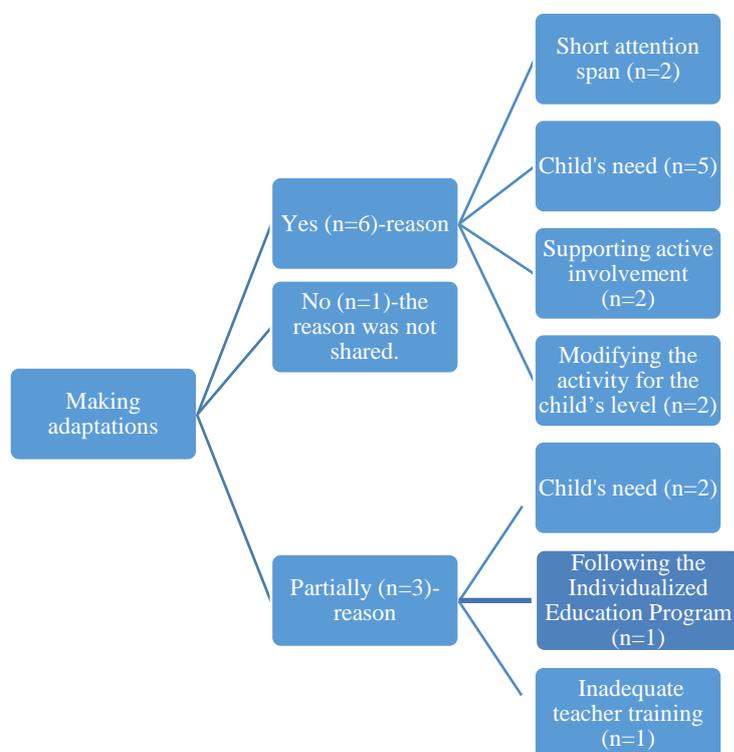
The teacher who does not make any adaptations for the inclusive child(ren) in her classes did not want to give any reasons for her preference.

Finally, the teachers making partial adaptations in their class activities listed their reasons as follows: "the child's needs" (n=2), "following the IEP" (n=1), and "inadequate teacher training" (n=1). The quote below explains P10 teacher's reasons for the partial adaptation of class activities:

I do not make very often. Yes, sometimes I do, but we did not get an outstanding education about that issue. I think that is the reason. There is no one we can get quality support and consultation. For instance, I learned better about adaptation from the seminars I attended as a part of the project. My previous adaptations were not adequate but I think they are more effective now, especially after the seminars in the project.

Figure 5

Findings about Adaptations in the Activity Plans



Findings about the Arrangements in the Learning Environments

The findings showed that five participant teachers made some arrangements in the learning environments according to the needs and abilities of the inclusive child(ren), while the other five teachers did not report any specific arrangements in the learning environments. See Figure 6 for detailed information.

The teachers make the following arrangements in the learning environments: “having the child sit close to the teacher, material and screen” (n=2), “removing unsafe materials” (n=1), “preparing visual teaching aids” (n=1) and “creating interest areas” (n=1). P6 teacher explained her opinions about this issue as follows:

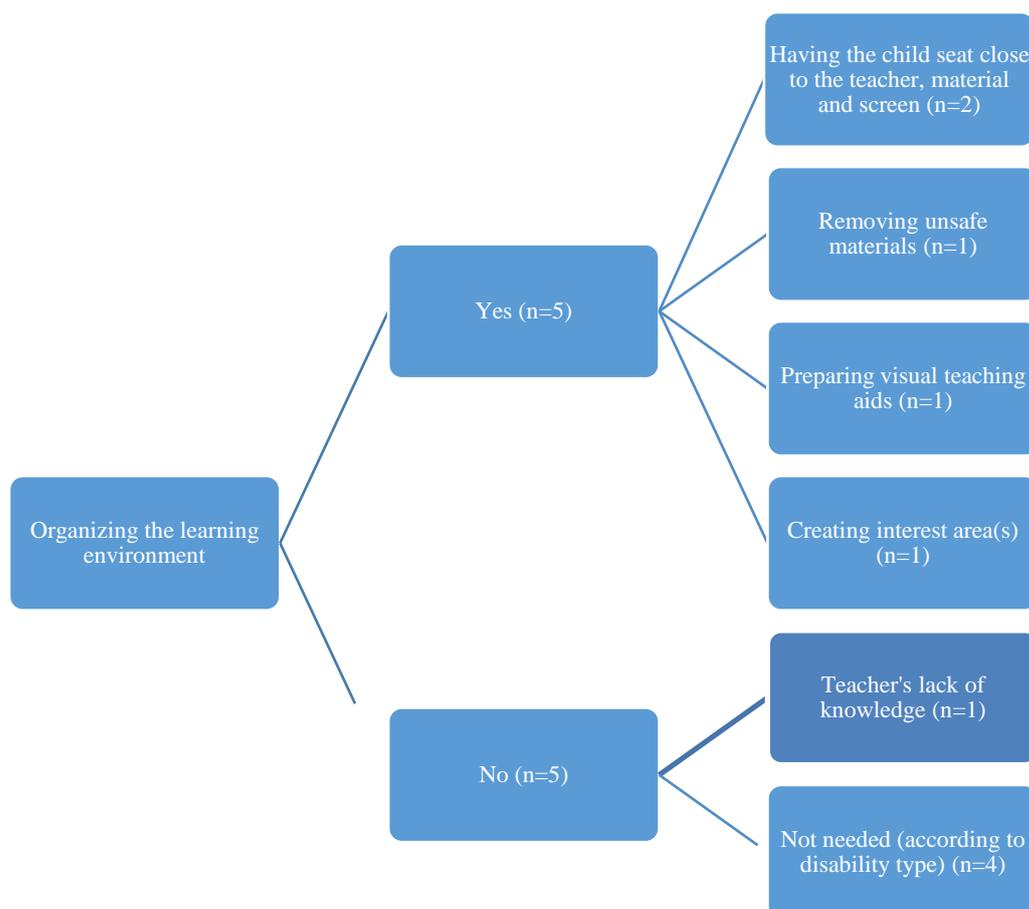
Yes, I do. For instance, one of my students had albinism. He had poor vision. If there is a problem with vision, I prepare visual materials; if there is a problem with hearing, I get him to sit next to me. Because these children try hard to produce these sounds, I should be able to perceive them. Unfortunately, there is not a unique garden for the preschool children. I take my students out when the garden is desolate and when the garden is not very crowded. After briefing my students about the rules before going to the garden, I join the garden activity by keeping the inclusive student very close to me.

As for the reasons for not making any special arrangements, the teachers stated: “not needed according to disability type” (n=4) and “the teacher’s lack of knowledge” (n=1). P8 teacher explains this as follows:

No, I do not. In fact, I do not know what to do. Do I need to do something? When I cannot communicate with a child with an attention deficit due to many stimuli, I take her to a place with fewer stimuli. I try to talk to her there.

Figure 6

The Arrangements in the Learning Environments for Special Needs Children



Findings about the Actions Taken When Challenges are Encountered during Inclusion Practices

All the participant teachers reported that they encounter various problems with special needs children, parents of special needs children, typically developed children and parents of typically developed children. See Figure 7 for detailed information.

The problems related to special needs child(ren) were reported as “adaptation problems” (n=2), “difficulty in self-expression” (n=1), “social exclusion problem” (n=2),

“physical violence” (n=1) and “need for personal guidance” (n=2). P9 teacher states the followings about the issue:

Some problems might occur with special needs children. They might find difficulties in expressing themselves. They might find adapting to the class and obeying the rules challenging.

As for the problems related to parents of special needs children, the teachers mentioned: “socio-cultural characteristics” (n=1), “school-parent collaboration” (n=2), and “denial about their child having a disability” (n=4). P1 teacher expresses her feelings about these problems as follows:

For instance, if parents do not know that their children need special education and are unaware of this, we might have difficulties getting the family to accept it. I mean, parents develop “not accepting” behavior due to the location of the school and the social-cultural characteristics of this location. We cannot diagnose the problem when we notice some inadequate abilities in the child. We should send him/her to the GRC (Guidance and Research Center) and collaborate with the parents throughout this process. It takes time for the parents to accept this and take the child to the necessary institutions for the diagnosis; it is a waste of time; we are getting late for his/her education...

The problems with regard to typically developed children were listed as “lack of empathy” (n=1) and “failure to communicate” (n=1). The following quote by P2 teacher provides a good summary of such problems:

While working with special needs children, first of all, we face problems and difficulties with having the parents of special needs children and other children [typically developed] in the class, and their parents accept that these children have special problems and different needs and empathize with these children. I mean, first, they need to accept the presence of this child in the classroom. After s/he is accepted, we should reinforce this acceptance during the activities while playing with his friends, sharing something, or giving responsibility to other children in the group plays. I mean, other children need to realize that this child has a special need and they are not like them, and every child is different.

P5 teacher defined “refusing to accept the special needs child” (n=1) as a problem with the parents of typically developed children by saying, “... *Even there are parents who do not want inclusive children in the class. This is the most serious problem I face...*”

The teacher listed the challenges from her own perspective as “lack of time” (n=3), “increased workload” (n=2), “difficulty in classroom management” (n=2) and “full inclusion” (n=1). P3 teacher explained the difficulties she experienced as follows:

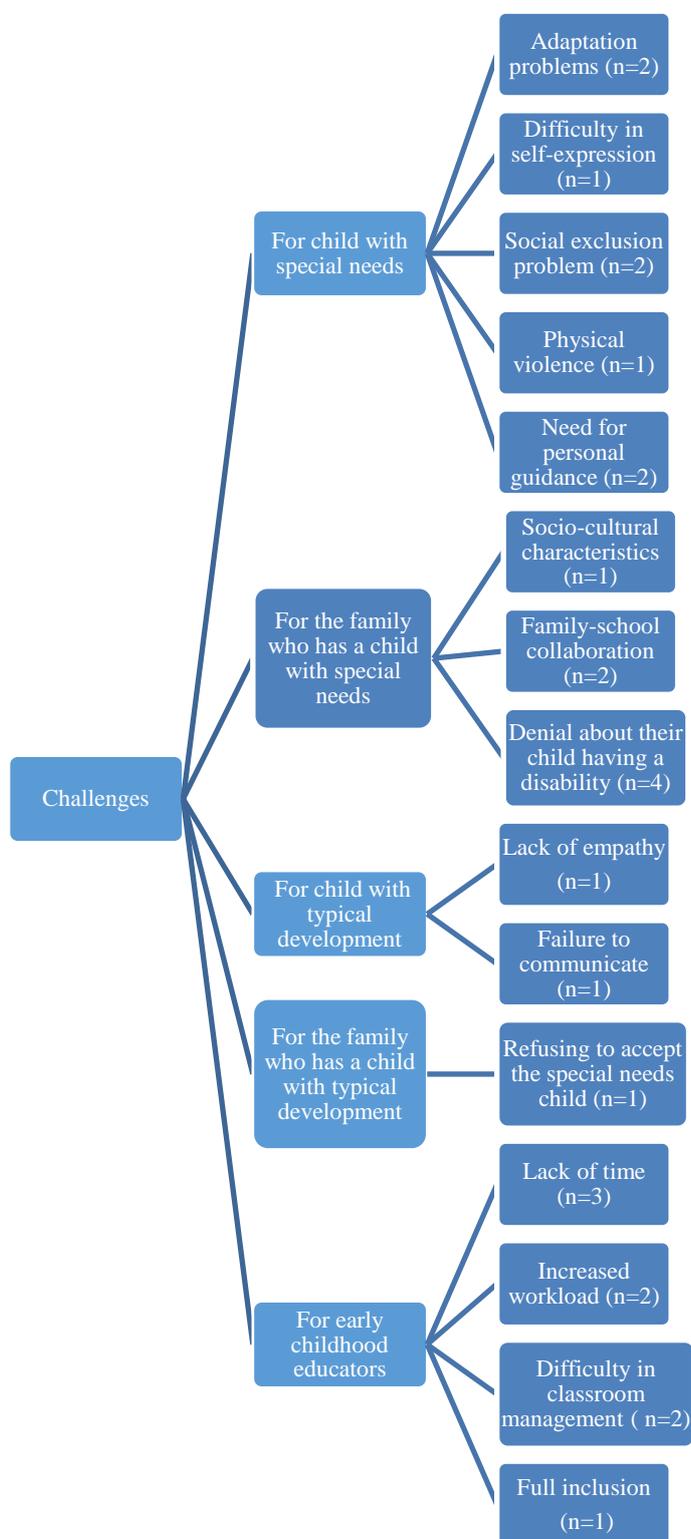
Not having enough time to support the child [with special needs], insufficient support by the parents, and not being able to spend time on my responsibilities or other children while caring about my inclusive child. For instance, [my inclusive student] needs personal guidance in each activity.

P8 teacher made the following explanations about the issue:

I am experiencing difficulties with classroom management because when I pay attention to such children, I deviate my attention from others. It is challenging to manage both sides at the same time.

Figure 7

The Challenges Encountered



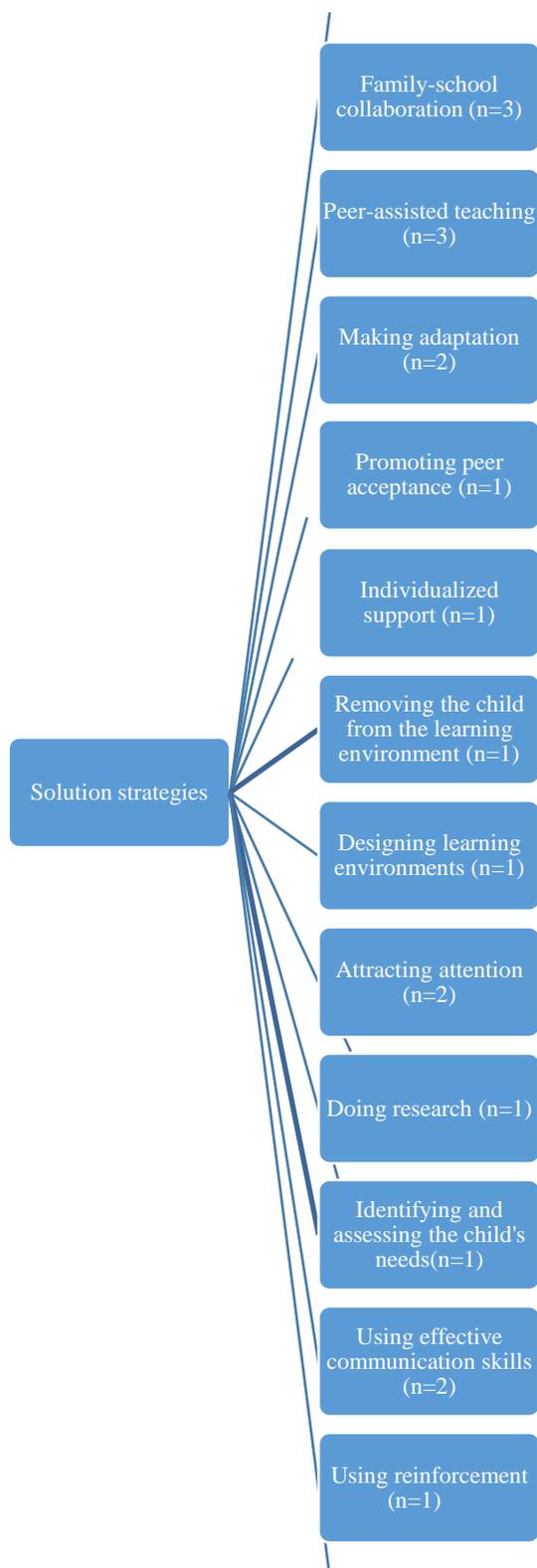
The participant teachers reported 19 different actions they took in order to cope with the challenges they encountered: (a) “family-school collaboration” (n=3), (b) “peer-assisted

teaching” (n=3), (c) “making adaptation” (n=2), (d) “promoting peer acceptance” (n=1), (e) “individualized support” (n=1), (f) “removing the child from the learning environment” (n=1), (g) “designing learning environments” (n=1), (h) “attracting attention” (n=2), (i) “doing research” (n=1), (k) “identifying and assessing the child’s needs” (n=1) (l) “using effective communication skills” (n=2), and (m) “using reinforcement” (n=1). See Figure 8 for detailed information. P6, a participant teacher, talked about the solution methods as follows:

When I am informed that there will be an inclusive child in my class, first, I examine his/her report, if there is one, of course. I learn about his/her special needs, and type of inclusion and search about it. I learn about his/her level in the report, and later, I talk to the child face-to-face. Later, I search for what I should do. To begin with, such children need to be loved the most; they rarely see other people than their mother, father, and close relatives. First, I approach him/her without adopting any techniques. Naturally, an emotional bond develops between me and him/her. So, all those techniques start to work after this emotional bond. Later, I search for which materials I can use to attract the child’s attention and which techniques I should employ to make him/her participate in the activity with other students because these techniques are unique for each child. Afterward, I prepare an IEP and share it with the guidance teacher. I continue with my plan like that.

Figure 8

Solutions

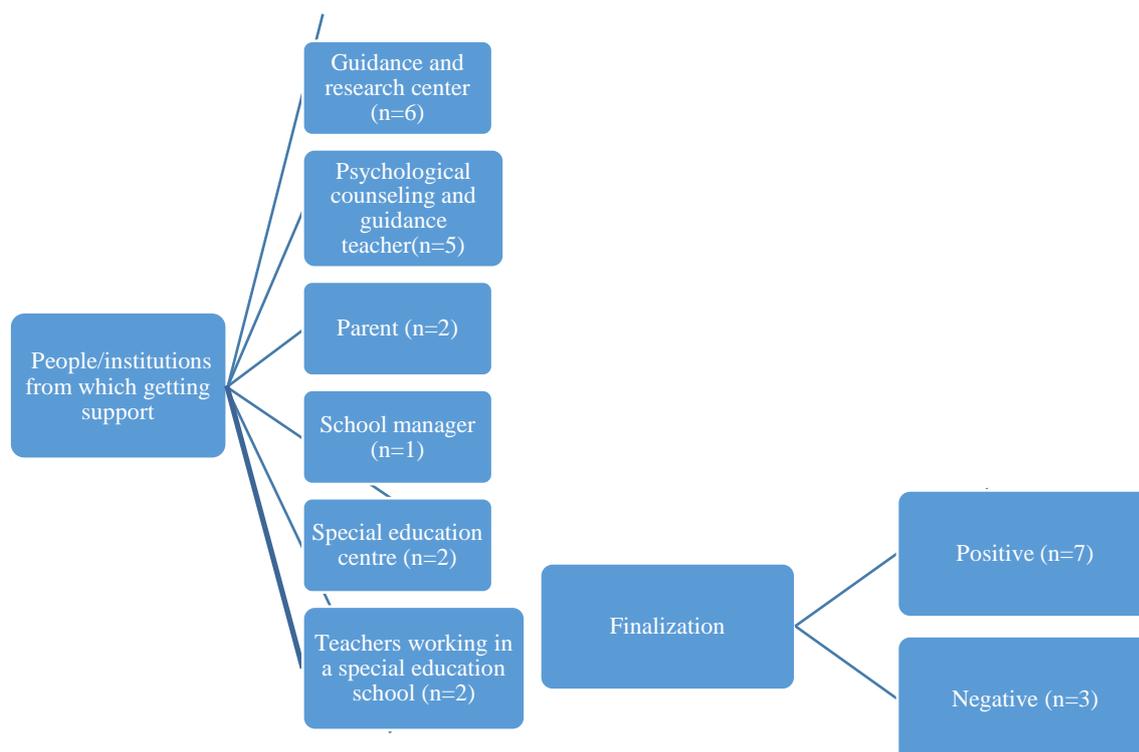


As for people and / or institutions that the teachers asked for help while adopting the solutions mentioned above, GRC (Guidance and Research Center) was the most popular (n=6), which was followed by psychological counseling and guidance teacher working at the

school (n=5), parents (n=2), special education center (n=2), teachers working in a special education school (n=1), and school manager (n=1). Of these 10 cases, seven attempts to get help brought positive consequences and three negative ones. See Figure 9.

Figure 9

People / Institutions Asked for Help and Consequences

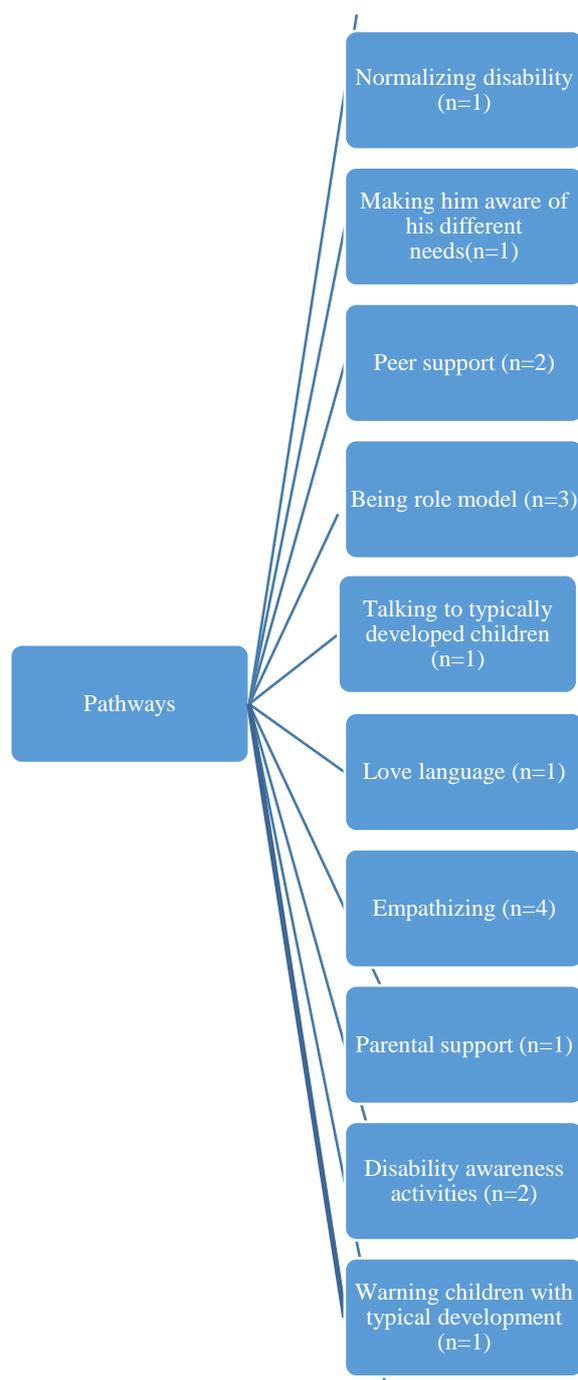


Findings about the Actions Taken When a Problem is Encountered with Typically Developed Children

Nine participant teachers stated that typically developed children’s “not accepting the special needs child” during inclusion practices as an essential problem. They also reported 17 actions they took when they faced such a problem: (a) “normalizing the disability” (n=1), (b) “making him aware of his different needs” (n=1), (c) “peer support” (n=2), (d) “being a role model” (n=3), (e) “talking to typically developed children” (n=1), (f) “love language” (n=1), (g) “empathizing” (n=4), (h) “parental support” (n=1), (i) “disability awareness activities” (n=2) and (k) “warning children with typical development” (n=1). (See Figure 10)

Figure 10

The Actions Taken When the Inclusive Child is not Accepted by His/ Her Classmates



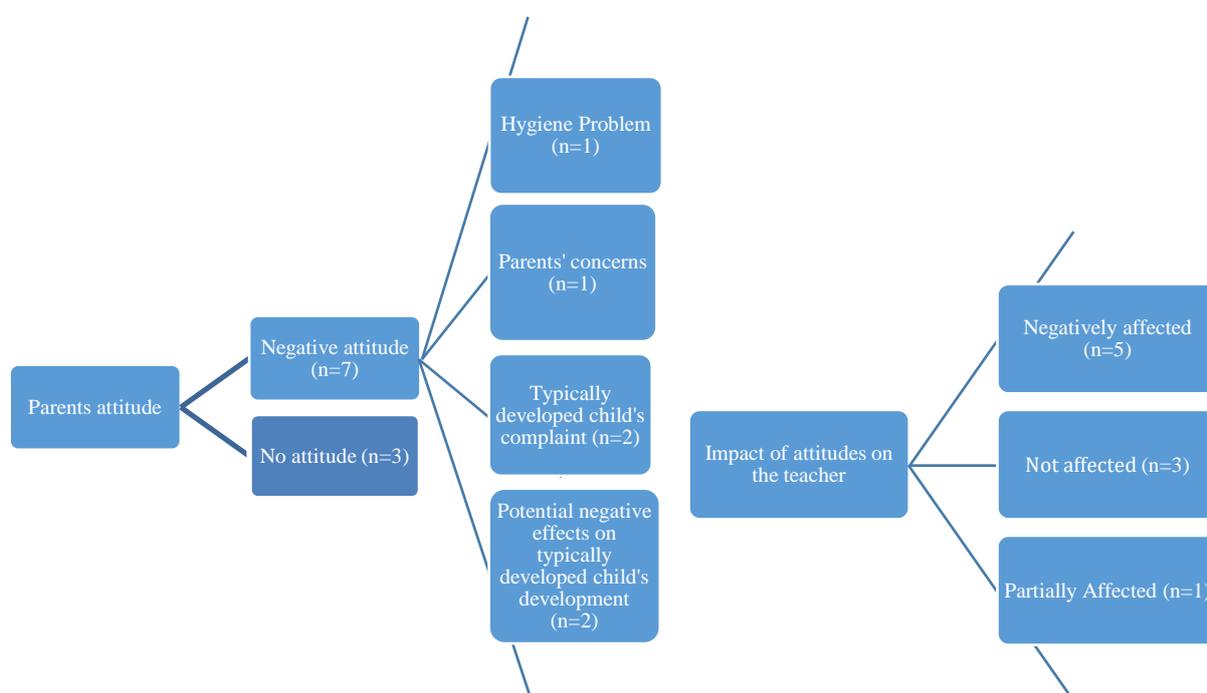
Findings about the Actions Taken When a Problem is Encountered with the Parents of Typically Developed Children

Three of the participant teachers stated that the parents had no attitudes, while the remaining seven reported parents' negative attitudes. The reasons given for such a negative attitude were "hygiene problem" (n=1), "the parents' concerns" (n=1), "typically developed

child’s complaints” (n=2), and “potential negative effects on typically developed child’s development” (n=2). Five teachers said that they were negatively affected by the parents’ negative attitudes, three of them did not report any effects of these negative attitudes, and one of them stated that s/he was partially affected by them. (See Figure 11)

Figure 11

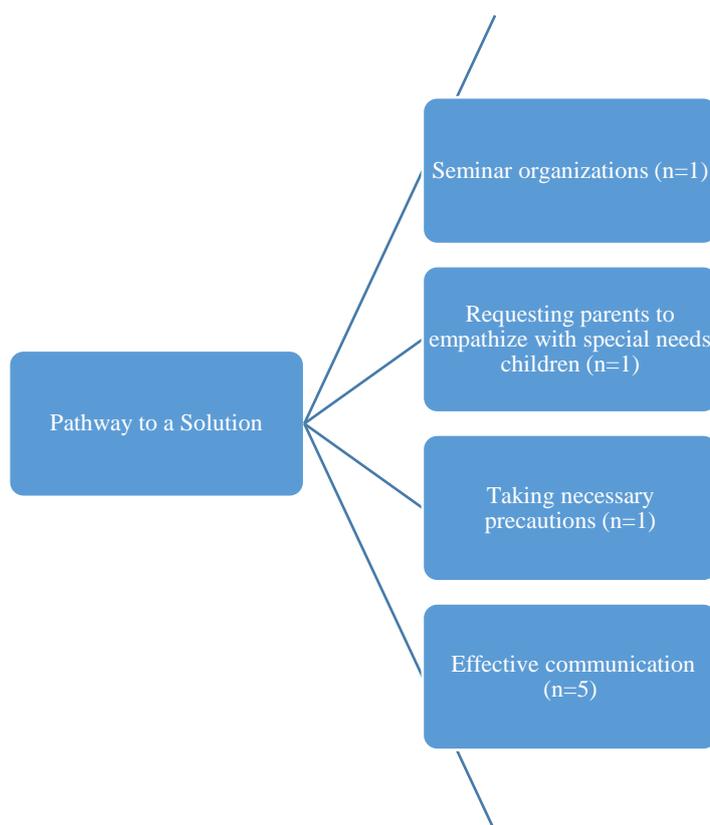
Typically Developed Children’s Parents’ Attitudes Towards Inclusive Students and Their Effects on Teachers



When a parent develops a negative attitude, teachers take some actions including (a) “seminar organizations” (n=1), (b) “requesting parents to empathize with special needs children” (n=1), “taking necessary precautions” (n=1) and (d) “effective communication” (n=5). (See Figure 12)

Figure 12

Teachers’ Solutions for Typically Developed Children’s Parents’ Attitudes towards Inclusive Students



As a summary, the findings of the qualitative data indicated there was no significant difference between early childhood educators' sentiments, attitudes and concerns about inclusive education and the following variables: "presence or absence of an inclusive child in the class", "teachers' age", "duration of professional experience", "the number of students in the classes" and "duration of experience with special needs children". However, a significant difference was identified between early childhood educators' sentiments, attitudes and concerns about inclusive education and the following variables: "the province of the school where they work", "having a relative with special needs or not," and "levels of received training on special education."

On the other hand, no significant difference was found between early childhood educators' teacher efficacies in inclusion practices and the following variables: "presence or absence of an inclusive child in the class", "the province of the school where they work", "teachers' age", "duration of professional experience", "the number of students in the classes" and "levels of received training on special education". Nonetheless, a significant difference was specified between early childhood educators' teacher efficacies in inclusion practices and "having a relative with special needs or not". The duration of experience with special needs children only changed the "collaboration" dimension of "teacher efficacies in inclusion practices" positively.

Although no correlation was found between total scores of teachers' "sentiments, attitudes and concerns about inclusive education" with "teacher efficacies in inclusion practices, there were weak positive correlations among the dimensions of the scales.

When it comes to qualitative data analysis, the findings demonstrated that teachers had more positive attitudes towards inclusive education when they had more experience with different special needs. Even though teachers encountered challenges with special needs and typically developed children during inclusion practices, they had positive attitudes and awareness about making adaptations based on special needs children's characteristics and interests. The most stated challenges for special needs children are adaptation-based problems. Teachers mentioned increased workload and the presence of full-time inclusive student in the class as challenges. They also emphasized effective collaboration between families, regular and special schools, and GRCs. Social behavior acquisition of children with special needs was their most declared advantage. In addition, teachers mostly make adaptations based on the children's special needs for in-class practices.

Discussion and Results

According to the present study's findings, 35 out of 135 teachers who participated in the quantitative part of the study had an inclusive child(ren) in their classes. However, no significant difference was found between the "presence or absence of an inclusive child in the class" and early childhood teachers' "sentiments, attitudes and concerns about inclusive education" and "teacher efficacies in inclusion practices". Özcan and Karaoğlu (2021) also did not find a significant difference between the "presence or absence of an inclusive child in the class" and "teacher efficacies in inclusion practices" and "sentiments" and "concerns" about inclusive education dimensions. However, the "attitude" dimension had a significant negative difference. Based on these results, the qualitative part of the study was planned, and the teachers having inclusive child(ren) in their classes were interviewed.

The findings related to "the city where the teacher works" showed that the scores of the teachers working in a city with approximately 1.400.000 population in the Central Anatolia Region on their "sentiments, attitudes and concerns about inclusive education" were higher than those working in the city with approximately 230.000 population in the Eastern Anatolia region. However, no significant difference was found between "city" variable and "teacher efficacies in inclusion practices". The similar studies in the literature were either

conducted only in one city (Gezer, 2017; Yıkımsı, Aktaş, Karabulut and Terzioğlu, 2018) or no data were presented about “city” variable in the studies carried out in more than one city (Bayar, 2015; Kale, Dikici Sığırtmaç Nur & Abbak, 2016). This finding might be because teachers might be affected by the socio-cultural characteristics of the schools where they work.

The study also concluded that the scores obtained by the participant teachers who have a relative with special needs in “sentiments about inclusive education”, teacher efficacies’ “collaboration” and “classroom management” dimensions, and the overall score they received from “teacher efficacies in inclusion practices” were higher than those achieved by the teachers with no relatives with special needs. This finding is consistent with the study conducted by Özcan and Karaoğlu (2021); however, they also found that only “sentiments” were positively affected. Indeed, studies report a lack of significance regarding the “presence or absence of a relative with special needs” (Özdemir, 2010; Temel, 2000). In the present study, it was concluded that teachers with a relative with special needs might develop empathy for inclusive child(ren), which, in turn, might positively affect their sentiments about inclusive education and their teacher efficacies.

There was not a significant difference between early childhood teachers’ “age” and their “sentiments, attitudes and concerns about inclusive education” and “teacher efficacies in inclusion practices”. Similar findings were reported in the studies by Nacaroğlu (2014), Üstün and Bayar (2017), Özcan and Karaoğlu (2021); however, some studies concluded that as teachers get older, they start to develop negative attitudes towards inclusive education (Gal, Schreur and Engel-Yeger, 2010; Özdemir, 2010). The data obtained in the qualitative part of the present study revealed that some teachers might have positive attitudes when they are younger and have fewer experiences with special needs children or when they get older and gain more experience with special needs children, which might explain the lack of significance in terms of “age” variable.

The study also concluded that early childhood teachers’ “sentiments, attitudes and concerns about inclusive education” and “teacher efficacies in inclusion practices” did not differ according to their “professional experience”, which is consistent with the findings of the studies conducted by Özcan and Karaoğlu (2021) and Emam and Mohamed (2011). However, the data from the qualitative part of the present study showed that more experienced teachers gave more detailed explanations about inclusion practices. On the other hand, Gülsün et al., (2023) found that “professional experience” negatively predicted primary

teachers' sentiments, attitudes and concerns about inclusive education; it positively predicted their "teacher efficacies in inclusion practices".

The results of the study indicated that early childhood teachers' "sentiments, attitudes and concerns about inclusive education" and "teacher efficacies in inclusion practices" did not differ according to "the number of students in the classes". Despite the presence of some similar findings, Özcan and Karaoğlu (2021) found negative effects of total number of students in the class only on the "attitude" dimension. Furthermore, two teachers in the qualitative part of the study mentioned crowded classrooms, the presence of the inclusive child(ren), and challenges of inclusion practices. The teachers participating in the study conducted by Gezer (2017) also reported that full-time inclusion and crowded classrooms impede effective implementations of classroom activities.

The findings demonstrated that early childhood teachers' "sentiments, attitudes and concerns about inclusive education" and "teacher efficacies in inclusion practices" did not differ according to "inclusive child's special need type". However, the study's qualitative data showed that some special needs and lack of abilities (e.g., lack of self-care skills and mental retardation) were more challenging for teachers. Tuş and Çifci Tekinarslan (2013), in the interviews conducted with the parents of special needs children, found that parents highlighted the difficulties encountered in self-care skills. Similarly, Sargin and Sünbül (2002) and Gök (2009) argued that the type and degree of disability might cause difficulties for teachers in inclusion practices.

As teachers' levels of received training on special education increase, their scores on the "attitude" dimension and total scores for "sentiments, attitudes and concerns about inclusive education" decrease. However, not a significant difference was found between levels of "received training on special education" and "teacher efficacies in inclusion practices". It is thought that early childhood teachers' sentiments, attitudes and concerns change negatively when they realize the multi-dimensional nature of special education as their levels of special education increase. In contrast, Özcan (2020) did not find any significant differences between "levels of received training" and "sentiments, attitudes and concerns about inclusive education".

As teachers' experiences with special needs children increase, only the "collaboration" dimension of "teacher efficacies in inclusion practices" changes positively. There was not a significant difference between "professional experience" and "sentiments, attitudes and concerns about inclusive education". It is projected that as teachers' experience with special

needs children increases, their experience about how to collaborate also increases, which is also supported by the study's qualitative data. Similarly, Özcan and Karaoğlu (2021) did not report any significant differences in their study. However, Üstün and Bayar (2017) concluded that teachers develop positive attitudes as their experience with children with special needs increases.

According to the results of the correlation analyses performed within the scope of the present study, early childhood teachers' "sentiments, attitudes and concerns about inclusive education" did not correlate with "teacher efficacies in inclusion practices". However, there was a weak positive correlation between "sentiments" "attitudes" and "concerns" dimensions and total scores of "teacher efficacies in inclusion practices" and its dimensions. In other words, as teachers' sentiments and attitudes change positively, "teacher efficacies", "teacher competency", "collaboration," and "classroom management" also change positively. Therefore, developing positive sentiments and attitudes allows teachers to feel competent regarding inclusion practices and design and implement effective inclusion practices. Özcan and Karaoğlu (2021) and Emam and Mohammed (2011) also reported similar findings about "attitudes".

Besides, as teachers' levels of concern increase, teachers' efficacies and "teacher competence", "collaboration," and "classroom management" also change positively, which implies that the changes in levels of concern positively affect their practices for special needs children. On the other hand, Özcan and Karaoğlu (2021) found a negative correlation between the level of concern and teacher efficacy.

The study's qualitative data showed that the teachers interviewed have previously worked with children with different special needs. The analyses revealed that the teachers developed more positive attitudes towards inclusive education when they had experiences with different types of disabilities. Çulhaoğlu-İmrak (2009) also suggested that teachers' experiences with special needs children are significant factors in inclusive education.

The participant teachers highlighted the advantages and disadvantages while expressing their opinions about inclusion practices. The disadvantages were mainly about individuals with special needs, typically developed individuals and teachers, while the advantages focused only on individuals with special needs and typically developed individuals. In fact, teachers' positive sentiments and attitudes and their awareness about the need to make necessary adaptations according to the specific needs and interest areas of special needs children can be listed as some of these advantages. The most common

disadvantage mentioned regarding individuals with special needs is “adaptation problems”. As for typically developed individuals, “not accepting the differences” and “failure to empathize” were the most common disadvantages, and “workload” was the most significant disadvantage for teachers. Akalın (2015), Sadioğlu, Bilgin, Batu and Oksal (2013) and Demir and Açar (2011) also concluded that inclusion practices increased the workloads of teachers.

Social behavior acquisitions of individuals with special needs were one of the most frequent advantages stated in the interviews. Similarly, Küçük Doğaroğlu and Bapoğlu Değirmenci (2015), in the interviews conducted with teachers, also found that it is possible to foster the adaptation of individuals with special needs through the implementation of inclusion practices and help them acquire skills to sustain their lives as well as cognitive, social and emotional ones. The advantage for typically developed individuals was “learning to live together with individuals with special needs and not to exclude them”.

Teachers often have to make specific adaptations in activities to ensure the active participation of individuals with special needs in the learning process. When examples of such adaptations were examined, it was found that half of the teachers generally made adaptations for in-class practices, and during the interviews, they did not mention any adaptation attempts for out-of-class practices. In addition, it might be concluded that the teachers are not knowledgeable enough about inclusion practices. Dikici Sığıtmaç, Hoş and Abbak (2011) found that teachers fail to implement effective adaptations since they do not have enough knowledge about inclusion practices. Similarly, the study conducted by Temiz and Parlak-Rakap (2018) examined the adaptation section of teaching practice plans prepared by pre-service teachers. The results showed that pre-service teachers often focused on a specific type of need. The authors argued that the reason behind this finding is teacher education programs’ inadequacy in presenting practical information and real experiences regarding how to make effective adaptations in activities for individuals with different types of special needs.

According to the present study’s findings, the difficulties experienced in inclusion practices are mostly about individuals with special needs and their parents, followed by teachers and typically developed children and their parents. The most common challenges for individuals with special needs are adaptation-related problems, while failing to accept reality is the first problem for their parents. Increased workload and the presence of full-time inclusive student in the class are the main problems for teachers. As for parents of typically developed children, the biggest problem is “not accepting child(ren) with special needs”. The solutions proposed to solve such problems are promoting quality collaboration between

family and school, implementing peer-supported teaching, making necessary adaptations, and using effective communication skills. Also, GRCs and guidance teachers at school are preferred the most by the participants to receive the necessary support; however, they do not find this support sufficient. Akalın (2014) and Dikici Sığıtmaç, Hoş and Abbak (2011) suggested that teachers need assistance with inclusion practices at various levels.

The participant teachers become role models and do activities allowing typically developed children to empathize with the inclusive child in the class so that they can accept his/her presence in the classroom. Gezer (2017) also found that the teachers interviewed used stories, fairytales, and cartoons to help typically developed children feel empathy for the inclusive child(ren) in their classes. The studies also reported that parents of typically developed children generally have negative attitudes towards the presence of an inclusive student in the class, assuming that this student might have negative effects on their children's development, which often negatively affects class teachers. However, teachers do their best to convince such parents to develop positive attitudes by establishing effective communication with them. Similarly, the study by Tuş and Çifçi Tekinarslan (2013) also showed that typically developed children and their parents have negative attitudes towards the inclusive child(ren) in the classes.

Recommendations

The results of the present study revealed that most of the participant teachers experience difficulties in implementing effective adaptations and often have to cope with this difficulty by themselves. Moreover, the increase in teachers' training related to special education positively impacted their attitudes, views, and practices related to inclusive education. Some teachers highlighted that they did not graduate from university with sufficient knowledge and practice about special and inclusive education. Although there is a compulsory course on special education and inclusive education in the undergraduate program, this course provides only theoretical knowledge (Higher Education Council, 2018). Therefore, pre-service early childhood teachers should take compulsory courses on special education and inclusive education that provide theoretical knowledge and opportunities to practice this knowledge during their undergraduate education. During this practicum, they should have experience with children with different special needs and typically developed children in inclusion classrooms. In addition, Akdağ and Haser (2017) emphasized that pre-

service early education teachers' taking this practical education by observing special education implementation conducted by special education teachers in special education schools and inclusive practices carried out by early childhood educators in regular education preschools would be significantly beneficial in implementing more effective adaptations in their future classes. Accordingly, the contents of early childhood education courses in associate degree and undergraduate degree programs of education faculties could be revised. Also, the knowledge teachers acquired during their undergraduate education should be extended and put into practice through in-service training sessions.

Furthermore, inclusive education is not a process that early childhood teachers can manage alone. Psychological counseling and guidance teachers at the preschools, special education teachers, school managers, and vice-managers should also be well-equipped with this type of education and giving support to special need and typically developed children's parents, be aware of their responsibilities, and provide constructive assistance whenever necessary. To achieve this purpose, shareholders should be encouraged and motivated to fulfill their duties and responsibilities more effectively and more consciously by providing in-service training opportunities, seminars, and similar practices and implementations. Existing control mechanisms can also be extended and improved for more productive and efficient inclusive education.

Compliance with Ethical Standards

The permissions required to conduct the present study were taken according to the rules specified in "The Directives for Higher Education Institutions Scientific Research and Publication Ethics". No actions specified under "the Actions Contradicting Scientific Research and Publication Ethics" were taken within the scope of this study.

Ethical Committee Permission Details

The Name of the Ethical Committee= Kirsehir Ahi Evran University Social Sciences and Humanities Scientific Research and Publication Ethics Committee

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