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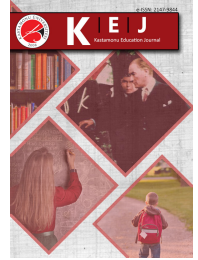
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| Research Article / Araştırma Makalesi |

Data-Driven Decision-Making Process In School Management

Okul Yönetiminde Veriye Dayalı Karar Verme Süreci¹

Emine Doğan², Ayşe Ottekin-Demirbolat³

Keywords

1. Data
2. Data usage
3. Data-driven decision-making
4. School administrator

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Abstract

Purpose: The aim of this study is to examine school administrators' perceptions of the concept of data-driven decision making, the functioning of data-driven decision processes, the factors affecting this process, and suggestions for improving it.

Design/Methodology/Approach: In this study carried out using a qualitative method, a phenomenological approach was adopted. Maximum diversity and criterion sampling techniques were used while selecting participants among purposeful sampling methods. 17 school administrators assigned in Kahramanmaraş city center were included in the study group. The data were analyzed first by descriptive analysis and then by content analysis.

Findings: As per the results of the research carried out, administrators interpret the data mostly as numerical values, thus conceptualizing data-driven decision-making as making decisions based on numerical values. Student performance data has been the most mentioned data type among the data types used in schools. Administrators use the data mostly to create a budget. Data is generally collected from their respective systems and organized accordingly. Administrators benefit from such data either by analyzing them or using the ready-to-use reports that have already been analyzed. Then, the data is discussed in the board meetings and the decisions taken accordingly are implemented. The most important factors affecting data-driven decision making are the completeness of the data and the attitude of the person using them.

Highlights: Administrators prefer the data to be reported and presented to them in the form of detailed feedbacks.

Öz

Çalışmanın amacı: Bu araştırmanın amacı; okul yöneticilerinin veriye dayalı karar verme kavramına ilişkin algılarını, veriye dayalı karar sürecinin işleyişi, bu sürece etki eden faktörleri ve sürecin iyileştirilmesine yönelik önerileri incelemektir.

Materyal ve Yöntem: Nitel yöntemle gerçekleştirilen çalışmada olgu bilim deseni benimsenmiştir. Katılımcıların belirlenmesinde amaçlı örnekleme yöntemlerinden maksimum çeşitlilik ve ölçüt örnekleme teknikleri kullanılmıştır. Kahramanmaraş il merkezinde görev yapan 17 okul yöneticisi çalışma grubuna dâhil edilmiştir. Verilerin analizi önce betimsel ardından içerik analiz yapılarak çözümlenmiştir.

Bulgular: Araştırmanın sonuçlarına göre; yöneticiler veriyi daha çok sayısal değer olarak anlamlandırmakta dolayısıyla veriye dayalı karar vermeyi sayısal değerlere göre karar verme olarak kavramsallaştırmaktadır. Okulda kullanılan veri türlerinden öğrenci performans verisi en çok sözü edilen veri türü olmuştur. Yöneticiler verileri en çok bütçe oluşturmak için kullanmaktadırlar. Veriler genellikle ilgili oldukları sistemlerden toplanarak düzenlenmektedir. Verilerden yararlanma şekli yöneticiler tarafından verilerin analiz edilmesi şeklinde olduğu gibi; yöneticilerin analiz edilmiş halde bulunan hazır raporlardan yararlanma şeklinde de olabilmektedir. Ardından kurul toplantılarında tartışılmakta ve alınan kararlar uygulanmaktadır. Veriye dayalı karar vermeyi etkileyen en önemli faktörler, verinin tamlığı ve veriyi kullanan kişinin tutumudur.

Önemli Vurgular: Yöneticiler verilerin raporlaştırılarak ayrıntılı dönütler şeklinde kendilerine sunulmasını istemektedir.

¹ This research is derived from the doctoral dissertation.

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INTRODUCTION

The success or the failure of a decision made in education systems can create a "butterfly effect" and have an effect on many fields. Since schools are required to meet the interests, needs and expectations of the society, failure of reforms as well as failure to meet expectations at a desired level lead to questioning and criticism of the decisions taken (Kuchapski, 2001). For this reason, the decisions taken for educational institutions should be based on scientific foundations, predictions should be made and their effectiveness should be well designed. Academic performance indicators of international (PISA, PIRLS, TIMSS, etc.), national (ABIDE / monitoring and evaluation of academic skills) exam reports for schools and students in Turkey which are currently low, and ideological and arbitrary practices in education policies in Turkey from past to present have created problems and reactions. Problems that have turned into a vicious cycle cause the debate on accountability in education to continue to be relevant. This makes it essential to provide evidence in terms of the decisions taken.

The difference in success between schools and regions in Turkey requires realistic improvements in the education system within the scope of "equal opportunity in education" principle, as well as accurate reading and interpretation of digital realities. This will only be possible by addressing the problems in the Turkish education system with a holistic, realistic and rational approach taking into account the respective data (Sezgin, 2018). *Data-driven decision making* is defined as a purposeful process of selecting, collecting and analyzing relevant data in order to define problems, develop alternatives, compare the results of alternatives, and select the preferred alternative (O'Reilly, 1983). School data is the information that is systematically collected from multiple sources of information that helps educators better understand the flow of teaching practices and students' learning. The practice of analyzing school data, using analysis results for school development, and then evaluating these practices are defined as *data-driven decision making in education* (Schildkamp, & Kuiper, 2010).

The data-driven decision in education emerged after the enactment of the No Child Left Behind (NCLB) law in 2001 in the United States (USA), with the examination of accountability in education and school-based decision making. It then developed as a process advancing beyond accountability (Childress, 2009). Within the scope of the 2023 Vision Document aiming to make changes in the Turkish education system, the practices stated under the heading of "*Data-driven management with learning analytics tools*" to be carried out at macro and micro levels are the harbinger of gradual transformations in all components of the system. (Ministry of National Education [MoNE], 2018).

In Turkey, modules have been created by the Ministry of National Education in order to provide the administrators with the information as a whole, and to facilitate their decision-making and workflows (Önal, 2016). These web-based modules that record data, reports and documents about the school, students, teachers and families, and provide access to these data are e-School, Management System of Education Financing and Education Expenses (TEFBIS), Ministry of National Education Information Systems (MEBBIS), Public Expenditure and Accounting Information System (KBS), and Mobile Registration and Management System. The data stored in modules called data warehouses are named as *input, process and output* data in the literature. Data such as the characteristics of the teacher, student and school are input data, data such as the management of the school and training of teachers are process data, and data such as performance data at the end of the term refer to output data (Ikemoto, & Marsh, 2007).

In studies examining the conditions of a school that support the use of data in schools, it is observed that the most basic condition is the leadership behavior of principals who are the decision-makers in schools. (Datnow et al., 2007; Ikemoto & Marsh, 2007). Principals are required to be data literate and provide support with incentives such as establishing strong communication with teachers in particular and setting examples, providing guidance, creating opportunities for data use, setting measurable goals, creating a data culture, and involving the teachers in the data-driven decision process. (Goldring, & Berends, 2009). Data literacy, which is indicated as the premise of data-driven decision-making, is defined as "the ability to understand and use data effectively" and refers to the knowledge and skills that need to be acquired (Mandinach & Honey, 2008, p. 20).

The literature reveals that, despite the importance of school administrators in the data-driven decision-making process, the school administrators have limited knowledge in terms of data use, they only benefit from data to support their decisions, they misuse or do not use the data at all, but instead make decisions based on their intuition. (Datnow et al., 2007; Lachat & Smith, 2005; Young, 2006). Despite the fact that data is collected in schools in Turkey for many applications such as planning, organizing activities, and evaluating and even though there is a rich data potential, it is seen that the number of empirical studies conducted (Demir, 2009; Doğan, 2021) is very limited. Since there is no approach for systematically collecting and analyzing data in Turkey, it is clear that there is a lack of information and uncertainty on this matter. There is a need for studies to reveal the use of data in decisions taken in school management in Turkey and to address the problems in a comprehensive way. Therefore, it is aimed to contribute to the macro and micro level studies of data-driven management with the learning analytics tools that the Ministry of National Education has recently included in its agenda. It is believed that this study will support administrators in gaining the conceptual, human and technical skills they need to have, and will establish an important awareness and guide in the methods they follow in decision-making and will fill an important gap in the literature in Turkey on this subject. In addition to the foregoing, it is expected that data-driven decision-making based on realistic and solution-oriented foundations will be emphasized in the formulation, development and implementation of educational policies.

Purpose of the research

The aim of this study is to examine the data-driven decision-making process in schools according to the opinions of school administrators. In this framework, it is aimed to investigate the types of data used in schools, the purpose of using these data, the functioning of the process, the factors affecting this process and the solution suggestions that would improve this process. It is further aimed to reveal the necessary resources, structures and processes for the effective use of data-driven decision making by examining the data-driven decision-making situation, manners and experiences of school administrators. In this context, sub-purposes have been determined in terms of implementation.

- 1.How do school administrators conceptualize data-driven decision-making?
- 2.What types of data do school administrators use within the course of data-driven decision-making processes?
- 3.For what purposes do school administrators use data during the decision-making process?
- 4.How do school administrators implement data-driven decision-making process?
- 5.What are the factors affecting data usage according to the opinions of school administrators?
- 6.What kind of suggestions do school administrators have for the creation and development of data-driven decision making in schools?

METHOD

Research Model

In this study, it is considered that it is important to examine the opinions of school administrators on data-driven decision making, who have the most significant role in terms of data use in data-rich schools. To this end, qualitative research method and phenomenology pattern was used. Yıldırım and Şimşek (2006) emphasize in their study that phenomenology pattern focuses on the phenomena that are recognized but lack an in-depth and detailed understanding.

Study Group

The study group consists of 17 school administrators assigned at official primary, secondary and high schools in Onikişubat and Dulkadiroğlu districts of Kahramanmaraş province during the 2019-2020 academic year. While creating the study group, it was aimed to choose school administrators who have spent enough time in their respective schools to use the data-driven decision-making approach and to examine the use of data-driven decision-making approach from different perspectives, and thus maximum diversity and criterion sampling methods were used. Maximum diversity was tried to be achieved with variables including gender, seniority, undergraduate branch, education level and school type, and the criterion sampling was tried to be provided with the criterion of having been an administrator for at least one year.

Table 1. Demographic Characteristics of Administrators

Column 1	Gender	Seniority	Branch	Educational Level	School Type
A1	Female	24 Years	Primary school teacher	-	Primary
A2	Male	23 Years	Primary school teacher	-	Primary
A3	Male	15 Years	Primary school teacher	Master's Program	Primary
A4	Male	20 Years	Geography	Master's Program	High School
A5	Male	13 Years	Primary school teacher	Master's Program	Primary
A6	Male	15 Years	Primary school teacher	Master's Program	Primary
A7	Male	32 Years	Primary school teacher	Master's Program	Primary
A8	Male	24 Years	Primary school teacher	-	Primary
A9	Male	25 Years	Literatüre	Master's Program	High School
A10	Male	22 Years	History	-	High School
A11	Male	15 Years	Mathematics	-	Secondary
A12	Male	16 Years	Primary school teacher	Master's Program	Primary
A13	Male	11 Years	Counselor	Master's Program	Secondary
A14	Female	10 Years	Informatics	Master's Program	Secondary
A15	Male	13 Years	Informatics	Master's Program	Secondary
A16	Male	17 Years	Turkish	Master's Program	Secondary
A17	Male	14 Years	Primary school teacher	Master's Program	Primary

2 of the school administrators who were included in the study group were female, and 15 of them were male, and their seniority varied between 10 and 32 years. Nine of the administrators were primary school classroom teachers, two of them were

informatics teachers and the other six participants were geography, literature, history, mathematics, Turkish and counselor teachers. 8 of the school administrators graduated from a master's program with thesis, 4 of them graduated from a master's program without thesis, and 5 of them did not receive any postgraduate education. 9 of the school administrators work in primary school, 4 in secondary school and 3 in high school.

Data Collection and Analysis

A standardized interview form was used in this study in order to determine the data usage of school administrators in decision-making. There are six main questions in the interview form, and there are also questions at the end in addition to the main questions that will provide a better understanding of the questions. During the form preparation stages, foreign publications were examined and a conceptual framework was created regarding the use of data in Turkey, and six questions were created based on this framework, expert opinions were received from the field of education management, and then the content validity was ensured by asking the opinions of an administrator outside the study group, and thus a six-question interview form has been created. The interviews were carried out face to face and recorded with a tape recorder. Then the sound recordings were deciphered and converted into a written format upon giving each one of the administrators a code with the abbreviations A1, A2...A17. Prior to the qualitative data analysis techniques, descriptive analysis and then content analysis were carried out, and the categories and codes were determined.

FINDINGS

Findings Related to Defining the Concept of Data-Driven Decision-Making

Within the scope of the first sub-problem of the study, school administrators were asked the following question: "What does the concept of data-driven decision-making mean to you?" Administrators have defined data-driven decision-making in four categories: "decision-making based on current numerical values", "decision-making based on knowledge and experience", "evidence-based decision making" and "decision making based on demographic characteristics". It can be said that in the decision-making based on current numerical values category majority of the participants were considering data as figures with the following codes; decision-making according to the figures and statistics available in the systems (A4, A7, A10, A12, A14, A15, A16, A17), using mathematical signs and numbers in decision making (A1, A13), decision-making according to the numerical values of previous years (A6). In the decision-making based on knowledge and experience category, they stated that they consider the experiences and individual experiences as data as well with the following codes; decision-making based on experience (A3, A7, A8, A9) and decision-making based on knowledge (A1). In the evidence-based decision making category, two participants stated that the data are scientific evidence with the code scientific, valid and evidence-based decision making (A2, A5). In the decision-making based on demographic characteristics category, one participant brought the demographic characteristics to the forefront as data with the code (A11), as decision-making taking into account the data about the socio-economic status of the family, education level and living conditions. The opinions of some of the school administrators regarding the meaning of the concept of data-driven decision making were as follows:

"Decision-making according to the figures and statistics available in the system." A7

"Decision making based on the experiences gained" A9

"It means taking into consideration the economic situation of the family, the neighborhood the student comes from, and the education level of the family when examining the student's situation." A11

Findings Regarding the Data Types Used

Within the scope of the second sub-problem of the study, school administrators were asked the following question: "What types of data do you use within the course of data-driven decision-making?" The data types used by the participants were classified under the categories of "input data", "process data" and "output data". A great number of codes emerged from the participants within the input data category, and input data was the most mentioned data type. Within these codes, data regarding family structure and parents' status (A2, A6, A8, A9, A11, A12, A13, A14, A16) and the number of students in the school (A6, A7, A8, A10, A11, A12, A13, A14, A17) has been the most mentioned input data types. In addition to these, socio-economic status of the family (A2, A12, A15, A16, A17), health information (A1, A5, A7, A15, A17), the number of students who will be enrolled in the next year (A6, A7, A14, A16), the number of foreign students (A7, A15, A16, A12), physical equipment data (A4, A15), inclusive student (A10, A12), educational materials (A4), parents' education status (A12), student's living conditions (A8), number of classes, class size (A15), number of siblings (A12), height-weight of students (A16), veteran or orphan child (A16), and parents' profession (A13) data were the input data types used in the data-driven decision-making process.

When the opinions that arise in the category "process data" are examined, it is seen that the data of the guidance study (8) performed by the guidance teachers is important and appears as the most expressed data. Then participation in social activity (4), the PTA Budget (3), sportive and artistic activities (2), the change in student enrollment (1), the number of staff who have attended courses (1) the student's documents and awards (1) Occupational Health and safety (1), the use of Information Technologies (1) data are stated as opinions. When the opinions that arise in the category of "output data" used by school administrators are

examined, it is seen that student performance data (10) is the most expressed type of data. Student absenteeism (6), teacher observation and opinion (5), and parent surveys (2) were then listed. Classroom attendance, staff absenteeism, school achievement data, surveys with teachers, and perceptual benefit scales are also specified as the type of data used by one participating administrator in the data-based decision-making process. The opinions of some of the school administrators regarding input, process and output data were as follows:

"I always ask every classroom teacher whether the students' parents are separated or together and learn the numbers and situations in this regard. I use these data when there is a problem regarding the child..." A2

"We always check the health information data of the students at the beginning of the year. We try not to assign children with health problems to the same class one after another not to have them hinder the lessons..." A15

"...the social events the students attend give me an idea about them... their participation in the competitions... I use the results we obtain from these." A1

"We also consider the success of students, their socio-economic level and the opinions of teachers about them, although most of the time there are no official data in these regards." A2

"We use the data we keep regarding the parent-teacher association in the decision-making to be able to use it more effectively in the next year or to see where and what we have spent." A7

"I examine the results of the perceptual benefit scales one by one which we obtain the opinions of stakeholders..." A17

The striking finding observed about this sub-problem of the study is that the types of data frequently used by school administrators of primary and high school levels were different. School administrators working in primary schools use input and process data more, which show the social and psychological characteristics of the student such as social activity, parents' status, health data, guidance service data, etc., and school administrators working in high schools use output data more in which academic results such as student performance are prominent. School administrators working in secondary schools, on the other hand, use data that reflect both the academic data of the student and their social and psychological characteristics as well. The opinions of a participant who expressed this situation and the challenges experienced by the secondary school level regarding data are as follows:

"Most of the fifth grade students usually come with only their first and last names. This maybe because there is no examination system in primary schools and it creates a big crisis in secondary schools. In secondary schools, there is such a problem: Since there is no exam etc. in primary school, classroom teachers analyze their students on their own and continue with them for 4 years. In high schools, they continue with the students who will take the university exam. They can expel students who have disciplinary issues. However in secondary schools, there is no such thing like expelling from school. We have to analyze the children well. Therefore, we examine all the data of the children. The teachers in primary schools do not engage exactly. The teachers in high schools do not care about them either. Since they are exam-oriented, they don't care much. Secondary schools are the places with the most information confusion and unfortunately, the children cannot go to the next level without us solving these confusions..." (A15)

Findings Regarding Purposes of Data Use

Within the scope of the third sub-problem of the study, the school administrators were asked the following question: "For what purposes do you use the data?" The data usage purposes of the participants were classified under three categories as "educational activities", "school development" and "accountability". A17 stated the areas where data are used more briefly as follows: *"We use them for education and economical purposes or in the performance of personnel-related business and transactions."* Among the opinions within the educational activities category, determining the achievement level of the learning outcomes (A5, A7, A16) and creating classes (A8, A11, A15) were the prominent ones. In addition to the foregoing, identifying the areas where children are lacking (A5), identifying the students in need of support (A3), organizing course or study activities (A4), identifying the source of discipline problems (A9), determining class success (A10), assisting students in choosing their field (A11), determining the courses and classes that teachers will attend (A14) and creating student feedback (A12) codes have also revealed.

School development category was the category in which the participants expressed the most amount of opinions. Using the data to provide a budget (A1, A2, A11, A14, A15) has been the prominent opinion. In addition to these, school administrators explained their data usage for purposes with the following codes: organizing parent-teacher association income and expenditure (A3, A5, A7), preparing a strategic plan (A2, A14, A16), providing data for financial aid and support (A2, A15, A16), organizing a canteen tender (A2, A11), preparing a school development plan (A2), providing occupational safety (A15) preparing a plan for the next year (A14), providing data for organizing seminars (A8), providing data for participation in in-service trainings (A13).

School administrator opinions in the accountability category were as follows: providing data for the purpose of presenting parent-teacher association information to parents (A2, A3, A17), providing data to submit information to Provincial and District Directorate of National Education (A3, A13, A17), providing data to submit information to parents (A1, A12), internal audit focused data provision (A2, A13), providing data for the purpose of submitting evidence to auditors (A2, A13) and providing data to submit

data and evidence to external stakeholders (A15). Some of the opinions of the administrators regarding the use of data for educational activities, school development and accountability are presented below:

"We use physical data on occupational safety modules. We ensure that security measures for children are taken. We use them for the locations and gaps in exercises and how we will distribute classes in the future. For instance, in some cases, certain physical characteristics of students change as they move from 5th grade to 6th grade. Then we have to change the classes of the students. We try to put the 5 grades in places that are far from the laboratory..." A15

"We enter the expenditures we have made throughout the year for parent-teacher association into a system called TEFBIS (Management System of Education Financing and Education Expenses in Turkey). We state in our meetings what we have entered in this system item by item for all the expenditures we made with the proper data we retrieve from this system for example, in the context of stationery, in the context of information technology, or even for cleaning." A17

"...likewise, when we see that sufficient participation is not ensured in in-service trainings, we, as the administration, lead our team and encourage our fellow teachers to participate in these in-service trainings...I was going get a training on intelligence games, but I saw that none of the teachers was receiving intelligence games training. So, I got them to participate as well. Currently, four of our teachers have received intelligence games training" A13

Findings Regarding the Functioning of the Data-Driven Decision-Making Process

Within the scope of the fourth sub-problem of the research, the school administrators were asked the following question: "How is your data-driven decision-making process carried out?" Based on the answers, data-driven decision-making processes of school administrators have been categorized as "data collection", "sorting and organizing", "analyzing", "interpreting" and "taking action". In the data collection category school administrators explained the sources from which they collected the data as follows; obtaining data from existing systems (A1, A2, A3, A4, A5, A6, A9, A10, A11, A13, A16), obtaining guidance service file data (A2, A4, A8, A11, A12, A15, A16, A17) and obtaining classroom teacher file data (A11, A13, A14, A15, A16, A17). It is seen that school administrators mostly benefit from the data that are available in the system in data-driven decision making. Opinions of the participant explaining the sources from which they collect data are as follows:

"The data are being obtained from Ministry of National Education Information Systems (MEBBIS), Management System of Education Financing and Education Expenses (TEFBIS) and e-school... e-school has a lot of graphics and statistics" A6

"A letter requesting the number of children who are the kids of martyrs and veterans as well as number of orphans to be reported has been received recently. Now, in very crowded schools, it would require certain skills to respond to such a daily letter accurately and completely at the same time. Counselling came to my mind. The counselor has a risk map. There are nine or ten criteria in that risk map such as children living separately from their families, orphans, disadvantaged children, children living in dormitories alone or children under protection. The teacher can gather information about the children whose parents are separated and learns about their financial situation and all the necessary socio-economic status of the family and shares this info with the administration; and the administration acts accordingly when required in the future." A17

"There is also the data we receive from classroom teachers. They are much more realistic. They can see the valid exam results or some other similar information and see the success and progress of students." A11

In the sorting and organizing data category, codes such as grouping data (A1, A11, A13, A16) and organizing data in a list (A6, A7, A16, A17) were seen. Participants think that providing the data in the system in regular lists will facilitate their job, reduce their workload and that it is a necessity for the process to function well. The opinions of the participants on this matter are as follows:

"For example, there is health data, ok, but we cannot find them among many students. Nowadays, we think that we should take precautions for the corona virus, and children with diseases such as diabetes and psoriasis are more at risk because their immunity is suppressed. However when we enter the system for this info, we cannot only see the list of sick children. It is very difficult for us to find such information one by one" A7

In the analysis category of the data-driven decision-making process, the participants stated that the data were analyzed in the system by examining reports based on performance analysis (A1, A6, A10, A11, A17) and performing descriptive analysis when needed (A1, A2, A11, A12, A15). At this phase, data is transformed from raw form to information that will affect decisions. The opinions of the participants, who stated that some of the data were in raw form in the systems, some of them were being obtained through presented reports upon being analyzed, and sometimes by analyzing upon establishing simple descriptive statistics, are provided below:

"... most of the analysis are received as being completed. The success rate of a class for a certain subject can be seen..." A6

"...we conduct learning outcome assessment exams, for that, I consider a difference as follows. I keep the English lesson as a constant variable since the same teacher attends this lesson. Then I look at math courses. While the English course averages are close to each other, we can see differences in mathematics. Then it can be said that there is a difference regarding the teacher's performance, classroom management, pedagogical perception etc..." A12

Although some of the administrators think the reports were insufficient with the statements, *"We do data analysis if we want, but since this is not an obligation, we do it only in some special, troublesome situations (A11)"* since there is no obligation for them to make data-driven decisions, it is understood that they do not carry out any analysis. Others on the other hand stated as follows: *"...I don't need to analyze the data. I generally understand the situation when I look at a class's grades or absenteeism status. I don't necessarily need to deduct a percentage of these to conclude the amount of success or absenteeism in a certain class. When you look at the results roughly, you understand the situation anyway... (A3)"*, and they stated that they did not need to analyze, therefore they did not do it.

In the interpretation category, they stated their opinions as follows: talking to teachers and evaluating their opinions (A2, A3, A4, A5, A14, A16), evaluating student results with parents (A4, A11, A12), and holding meetings with the administration (A8, A13). The opinions of the participants, stating that they discuss the data through meetings with colleagues and parents and made decisions by discussing what should be done, are provided below:

"When we receive the data, we hold a meeting as the administration. I organize meetings with teachers as well. We make decisions according to this." A8

In the taking action category, which is the last stage of data-driven decision making, school administrators mostly stated with the code informing the result (A2, A4, A11, A12, A16) that, in terms of the information they obtain from the data, they inform the related people about the situation. In addition to the this, there are also codes that appear in the form of organizing activities or courses in the school (A2, A4, A16), organizing a visit or trip (A7, A8), taking measures (A1, A7), and referring the situation to relevant authorities (A4, A12). The data is first transformed into information, then interpreted with relevant stakeholders and then a decision is made. It is now important to act according to this decision made. The opinion of a participant describing this situation is provided below:

"I made some decisions at the end of the meeting as well. We thought that we had to open an extra course on these and study times would be beneficial... According to the results of our trial exams, we can meet with the children and the parents. We tell them the level of their child according to the class... We can organize courses... We tell the parents of the students who are doing good to get additional resources" A4

Findings Related to the Factors Affecting Data-Driven Decision-Making

Within the scope of the fifth sub-problem of the research, the school administrators were asked the following question: "What are the factors affecting your data-driven decision making process?" Opinions of participants on factors affecting data-driven decision-making in schools are grouped under the categories of "data properties", "data user characteristics", "organizational characteristics of the school" and "political factors". In the data properties category, it is stated that data completeness (A1, A2, A3, A6, A7, A10, A11, A13, A14, A15, A16, A17), data accessibility (A8, A9, A10, A11, A15), data quality (A2, A4, A12, A16), data availability (A1) support data-driven decision-making. It can be said that the participants do not want to have incomplete data since they want to evaluate the students holistically. Some of the opinions regarding this are summarized below:

"E-school has almost all of the data. I think e-school is very useful... The data on the emotional and psychological development of the students are insufficient... student observations should be made in terms of design classes, game therapy, etc... The child may be hardworking, but he may be mischievous or hyperactive as well. Then, hyperactive children can be assigned to the same classroom. This causes us to lose a lot of time in the process. Rather than academic data, other data such as teachers' opinions about the students should be considered more important." A1

A13, who attributes the reason for the uncertainty regarding them not knowing the amount of foreign students to enroll in school next year, to not having a address requirement for foreign students, stated as follows: *"...last year, 250 Syrian students enrolled to our school due to the closure of temporary education centers. Since our students have address requirement, we can know them, but since foreign students did not have such a requirement, there were intense amount of students in the classrooms and we couldn't prevent it..."* and included that the failure in making plans for foreign students in schools affects the functioning of the school negatively. The administrator with the code A7 continued to state his opinion and explained that for some of the data that was not entered, the parents were concerned about the security of the data, therefore they were keeping the real data. Participant's opinion is as follows: *"We sent a form to parents to see if the children have permanent illnesses or anything like that. Then the parent sent an answer: Will MoNE take this data and comply with the personal data protection law? Actually, the parent is right to be sensitive about this matter."*

Opinions of the participants on data access, being up-to-date and usability are presented below:

"...how can a data-driven decision-making process work when even the internet is not working properly in a village school, for example there are 2 computers in the teachers' room. If only 2 computers are given to 45 teachers, how should the teacher look at the data." A11

"Data obtained from the field can sometimes be unreliable. That being said, the results regarding the data obtained from e-school or electronically are completely up-to-date and reliable. When there is data that the other party cannot just make up, the reliability level of the data increases. School administrators have an essential role in updating the data. If you, as the school administration, do not give teachers the necessary forms and do not follow-up the progress, it is not possible to have the current state of such data in the e-school. For example, the data such as the number of students participating in the activities held in your school throughout the year or the number of activities held in your school for the last five years and the number of teacher participation related to this, I do not think that there is an administrator who fills in such information clearly and properly. They often make up such information. ...We direct our students to family physicians to have an annual examination. A physician said to a parent that it was a very chore job, and asked "is it you again? Even this situation may prevent us from obtaining data on health. If the administration is also indifferent about this and the inspectors ask how many of them went to the examination, and he might say 50-100-150 with a round number and decrease the reliability of the data by not providing the actual number of students. A12

"The data should be in a way we can understand it, with graphics or something like that. I should be able to say "okay now I know what to do." (A1)

In the organizational characteristics of the school category administrators stated their opinions with the following codes: date usage culture (A2, A3, A4, A10, A11, A14, A15, A16, A17), time (A8, A9, A10, A11, A14) and leadership (A2, A4, A8).

"...when you give a survey to the teacher or the student or ask something, they should be able to tell you the answers without hesitation, without thinking that they will be accused. They should be able to feel your sincerity. Then, when they see that these conversations are transferred into the decisions, they will easily talk to you on any type of data. It's important that they get positive feedback from you. ...sometimes when I look at the data, I can just see fixed things, but someone else can see other things as well. I feel that we are a team in this way." A2

"Time is our biggest problem. ...managerial procedures and tasks take a lot of time. ...the data are discussed in the board or the teachers discuss them among themselves in the group meetings. ...separate meetings should be held to examine these data in detail. ...it should be explained to us by higher authorities that we need to organize meetings." A8

"...in fact, administrator appointments should be based on data as well. For instance, if I have become an administrator, yes I should have personal rights, but the state should also tell me that it is assigning me as the principal of this school for 4 years, and that this school is like this and expectations from me is this, so you should do this amount of education activity, and you should do this amount of social aid activity, and you should carry out this amount of family training. and in my opinion the data in this context should not be like this; when I say data I do not mean the level achieved by the students... I think there should be concrete data when assigning a school administrator so that one can ask about the activities carried out in the school." A14

The codes that are observed in the "data user features" categories are user attitude (A1, A2, A3, A4, A5, A6, A9, A11, A12, A15, A16, A17) and data literacy (A1, A2, A4, A7, A15, A13, A16, A17). A12 clearly and briefly summarized the reason for having a positive attitude towards data use with the following statement: "Data show the facts, make us verify our decisions, and add strength to the direction we are going towards... even if the final decisions are not made according to them...". The opinions of administrators who have a positive attitude towards data use but complain about teachers' slackness on this matter are summarized and presented below:

"...data will push the teacher to show extra effort. Teachers just want to conduct their lessons and do not want to do anything else. Therefore, they only collect data and enter them into the system when it is mandatory. Of course, not all the teachers are the same, but most of them are unfortunately like this. After they enter and check the data shallowly, they say okay we're done. If they look at the situation as these students are their children and try to find ways to help them they will extract a lot from the data, but they cut corners." A6

"Data analysis should be managed effectively and at a level that can be examined longitudinally, where one can measure the significance of the difference between the semesters, and even lacking knowledge on this matter, comprehend whether this difference is significant or insignificant. Analyzing data in integration with the previous data and interpreting them requires skill. I do not think that the administrators are very skilled in this regard." A17

In the political factors category, the participants stated that they appreciate the efforts and breakthroughs of the MoNE in this regard with the codes of MoNe practices (A15, A17) and provincial and district organizations' practices (A3, A7), and that there were problems in the practices of provincial and district organizations. Some of the participants' opinions on this matters are as follows:

"The Ministry is doing the best it can do..." A15

"Provincial and district organizations do not make decisions driven by data. Next to us there is a school with around 600 students. I have 1300 students. They have 5 cleaning personnel. I have 4. They provide single education. We provide double education. Those kids leave the school at 14:30. The attendant can clean the school completely until five o'clock. My students leave at 17:30. Here, MoNE has to carry out data-driven decision-making. The same happens like this as well: For instance, a budget is received by the directorate general for basic education. This budget is received by every school bases on number of students. It seems fair, but distributing resources according to the number of students is actually unfair. For example, let's say there is a school in a good location. While the parents of their students are judges, doctors, the best of the parents of my students are working for minimum wage, they are mostly unemployed or foreign parents. Now if I distribute that budget solely according to the number of students, it would not be fair. Other data need to be taken as criteria as well in this regard." A7

Findings Related to the Suggestions for the Development and Improvement of Data-Driven Decision Making Process

Within the scope of the sixth sub-problem of the research, the school administrators were asked the following question: "What are your suggestions for effectively conducting the data-driven decision making process?" Opinions of school administrators on improving data-driven decision-making in schools are classified in two categories as "micro level" and "macro level" recommendations. In the micro level category; codes such as data should be reported (A1, A2, A3, A5, A6, A7, A10, A13, A17), data literacy training should be given (A1, A2, A4, A7, A13, A15, A16, A17), decisions should be taken in a democratic environment (A1, A2, A3, A4, A13), the functionality of the modules should be increased (A5, A14, A15, A16, A17), support should be provided in managing the data process (A8, A9, A10, A11, A12), school capacity should be reduced (A10, A11, A12, A13), data diversification should be ensured (A2, A9, A11), and data-driven criteria should be created (A5, A15) were seen. Opinions of administrators on this matter are as follows:

"We can access information. However we cannot see the correlation between the information. Even more detailed correlations can be established. Even in the reports, the missing information and the improvements to be made should be written..." A1

"MoNE should inform stakeholders on this matter and raise awareness..." A4

"It would be better if we had access to health screenings and see them, for example, how many students are missing vaccination, it is given us as a document but if it was registered in a system, if we had a button in the e-school where we can see which students are vaccinated or not and which did not have eye screening, it would be much better." A5

"I think there should be a data field where parents of students can also enter data. We have sensitive parents, parents who want to reach us. Maybe there are a few, but I think it is still important. For instance, they need to come to school and tell that the student is ill and have a medical report. This is because we do not accept any statement made on the phone. A parent cannot initiate leave processes via phone. But if we had a system where we can see the medical reports through a module, for example, through the health module, and if we could get them directly from there, it would be great. Or it would be nice if there was a field where they can see the sports activities in our school together with the sports activities in public education. It would be nice if when the parents enter the system, they can see the sports areas in the nearest place. Or the physical education teacher might say, preferably these children should be directed to the so and so public education centers. Or, our Turkish teacher can say that the student can benefit from these literacy courses in public education. I really wish there was such a common system." A15

"When I imagine an ideal school where data-driven decision-making is carried out, I think it should be "boutique school" where there a small number of students. A school that is more controlled, where you can observe everyone... then you use the data better. You can see each child's data much better. The number of students in schools should definitely be reduced for data-driven decision-making." A10

"Numerical data are definitely useful. However, for example, there are people who leave the EBA open so that the EBA usage rates would be more and those who leave it open and go away and do not sit in front of it for hours, perhaps just to increase the rate. I think it is wrong to just take certain data into consideration... The same is true for the students as well. If I only acted based on certain data, I would have too many students by now that I suspended or expelled from school. I also consider the family situation of the child, etc. when making a decision. Otherwise, half of the students in this high school would receive disciplinary punishments... I think intuition and data should be used together" A9

"There should be criteria based on data. Everything should be standard and measurable." A5

In the macro level category, the opinions were as follows with the following codes: there should be legal regulation/sanctions (A2, A4, A5, A7, A9, A11, A12, A14), data-driven group directorates should be established for each region (A17). With the code there should be legal regulation/sanctions it was suggested that necessary legislative changes should be made for data-driven

decision-making and their powers should be increased. The opinions of the participants, stating the lack of legislation and legal regulations regarding data use and the need to establish group directorates in regions, are summarized below:

"Legal regulation should be prepared, our powers should be increased, the political pressure on us should be reduced. It is stated that the data should be analyzed in group meetings, but we cannot do anything to the teacher who does not do it. I do not have the authority to dismiss teachers... Legal arrangements must be made about this, a regulation must be issued., We, as a society, do not do anything without receiving orders from higher authorities." A5

"A higher organization can be established in seven regions that can include the data of these seven regions and group directorates can be established that can represent each region on the basis of these regions. For instance: A data-driven group directorate based in Diyarbakır in the Southeastern Anatolia region or in Mardin. This information can be processed in a timely manner so that it can be processed properly and ultimately the data obtained by those group directorates can be transferred to the ministry. Yes, it is possible for the ministry to access all data in 81 provinces at the same time, but it is more important to assign a lower level authorization and make arrangements accordingly for the more sound and fast execution of the procedures. A17

CONCLUSION, DISCUSSION AND RECOMMENDATIONS

The purpose of this study is to identify the type of data used in schools, the purposes of using such data, the functioning of the data-driven decision-making process, and the factors affecting this process, and to offer suggestions for solution. In terms of the perceptions regarding the concept of data-driven decision-making, it was defined by most of the participants as decision-making based on numerical values, but also as decision-making based on knowledge and experience, decision-making based on evidence, and decision-making based on demographic characteristics. The data concept is mostly seen as numbers by the participants. The participants, while defining data-driven decision-making, they consider data as a reliable basis, a tool for reaching qualified results and as an indicator of professional behavior. Administrators with a professional seniority of 20 years or more consider the data as knowledge and experience, while administrators with less professional seniority consider it as numerical values. The fact that professional seniority brings experience with it may cause administrators with more professional seniority to think that they have sufficient knowledge or that their experience and knowledge are more instructive and is a factor helping them in taking better decisions.

The results obtained according to the data types used by school administrators in making decisions are classified as input, process and output data. The data on the family and parent status of the student and the data of the number of students in the school were the most mentioned data among the input data. Anderson et al. (2010) found out that administrators mostly use data showing students' characteristics (socioeconomic status, etc.) in evaluating school and student performance, and McCray (2014) observed that the administrators who were asked to rank the data according to their importance placed demographic data in the first rank among 32 data. However, the input data that countries attach importance to varies according to their specific situations. For instance, in the research carried out by Mnyasenga (2014) in the context of Tanzania, it is found out that data on diseases such as cholera, HIV, malaria and distance between home and school are important there.

Students' performance data were the most emphasized data among the output data, which are mostly considered to be the behavior and academic indicators of students and personnel members. It is consistent with the findings of this study that Schildkamp et al. (2014) identified student performance data as the most used data. The fact that the most mentioned data is related to counselling studies in the process data category can be due to the fact that the data of counselling service which examines the students in more detail in detecting many problems, is found to be more reliable and up-to-date. The fact that high school administrators mention academic data more and primary school administrators mention psychological and sociological data more may be due to the educational expectations and pedagogical differences of the students at these levels.

Based on the opinions of the administrators, the data are used for educational activities, school development and accountability. Using data to determine the achievement levels in terms of learning outcomes and to form classes are the most frequently shared opinions in the educational activities category. The fact that administrators are held responsible for the performance data of the school and that they can closely observe the education-training process cause them to use data in the development of educational activities. Consistent with the findings of this study, Shen et al. (2010) revealed that administrators use data to group students, identify areas of weaknesses and increase students' academic achievement. The study of Aydın (2016) revealed that administrators try to do jobs for their superiors such as telephone calls and official correspondence, and this situation takes them away from educational leadership thus devoting too little time for educational activities. Considering the results in the context of Turkey, administrators' use of data for educational activities can be deemed as an accountability practice for their superiors. The data is used by administrators mostly for school development and it is emphasized that it is also used for budgeting in school development. It is consistent with the findings of this study that in the study of Brunner et al. (2006) it is found out that administrators mostly use data for school planning, identifying resource needs, and organizing professional development activities for teachers.

Presenting parent-teacher association data to parents and presenting data to provincial and district Directorate of National Education are the most frequently mentioned opinions in using data for accountability. In addition to these, data are also used to

inform parents, to provide internal control, to provide evidence to auditors and to provide evidence to external stakeholders. Abdusyakur (2015) found out that parental control contributes to accountability, Ezzani (2009) found out that administrators' use of data for internal accountability improves the culture of inquiry, and Heilig (2014) found out that use of data facilitates the provision of evidence by administrators about their decisions to auditors. When the findings of this sub-problem are examined in general, it is seen that administrators need to use data in planning, execution and evaluation. However, it was understood from the participant's opinions that the data was being used just for accountability, rather than being used deliberately to make changes / improvements.

The data-driven decision-making process is classified as "data collection", "sorting and organizing", "analyzing", "interpreting" and "taking action" stages. In this study, it is complained that the process of sorting the data takes a long time, while Lachat and Smith's (2005) study states that the lack of skills causes difficulty in sorting the data. This situation can be attributed to the software difference of the systems in which the data is stored. In this study, data analysis was carried out by examining the reports presented from the system in the form of analyzed reports or by descriptive analysis made by administrators themselves when they need it. Even the administrators who stated that they are analyzing data only analyze in times of problems or crisis. Heilig (2014), in his research conducted in the context of America, attributed its conclusion that administrators were not obliged to use data and they were analyzing the data only in challenging times. It can be said that this interpretation is also correct in the context of Turkey as well. It is also understood that some administrators directly move to the interpretation stage without analyzing or examining the analyzed reports. In short, this stage is not understood clearly by the administrators and that the data literacy competence of the administrators is very low. Data literacy requires a certain level of competence so that one can make sense of the data collected (Mandinach, 2012). After analyzing the data, discussing them with the personnel members, with parents or just the administration before making a decision indicates that the stakeholders are involved in the decisions. The data of the previous periods are compared at class, school, district and regional levels, therefore the status can be seen as a whole. In the context of Turkey, Demir's (2009) research also shows that analyzes are carried out by comparison. Coburn and Turner (2011) found out that the recommendations at this stage are an essential link in the chain, and Spillane and Miele (2007) also found out that they strengthen the link between decision making and taking action. At this stage, which is also known as the synthesis of knowledge, the point to be considered is that the specific situational conditions of each school, the ideologies of the educators, and their social interactions affect the quality of the decision. In fact, Pollard (2018) revealed that administrators and teachers evaluate data depending on the culture and expectations surrounding their schools. Once the data transformed into information is interpreted, action is taken.

Factors affecting data-driven decision-making according to school administrators are categorized as data properties, data user characteristics, organizational characteristics of the school and political factors. The completeness, accessibility, quality and usability of the data affect the data-driven decision-making process. Even though administrators think that most of the data are generally complete, they still want to have access to more detailed data on students and personnel members. It is explained that there were certain incomplete data due to the reasons such as parents' not sharing the necessary information specifically because they are suspicious of data security, and Syrian students not having an address record. Lachat and Smith (2005) found out that as soon as the data that were initially incomplete and inaccurate were started to be verified, it was started to be used in a much more effective way as well. In recent years, data indicating different characteristics of students have also started to be entered into e-school. However, as we are in the early stages of data-driven management and data-driven decision making, there are still some incomplete data in the systems. Difficulties can be experienced in accessing data due to certain problems such as the insufficiency of technological infrastructure, the amount of people within the system during report card time, the inability to access some systems from outside of school environments, and web access problems in rural areas. Kerr et al. (2006) found out that access to data encourages data use, and Wayman and Stringfield (2006) also revealed that inaccessibility to data prevents data use. The study of Noyce et al. (2000), which is similar to the findings of this study, revealed that high-performance technological resources should be used for the effective use of data. The accuracy and up-to-dateness of the data are mostly linked to the attitude of the administrators and the controllability of the data.

In the organizational characteristics the school category, data usage culture, time, support and leadership codes were seen. One of the indicators of data culture is that, when the data culture is established, the participants can discuss the data with the stakeholders. Wayman et al. (2010) revealed in their research that open and clear communication is not threatening for teachers and supports data use. In the findings of this study, it is also seen that the data are used to find solutions, not to blame someone else. By doing so, different perspectives are used as well, team spirit is kept alive, colleagues share their expertise in data use among themselves and contribute to professional development. However, except for official meetings, the data are not discussed that much. For this reason, it cannot be said that a data culture is fully established.

Among the organizational characteristics another factor affecting data usage of the school is time. Administrators, complaining about the shortage of time due to excessive bureaucratic and managerial workloads, stated that there is no obligation to talk about and discuss the data, therefore they do not allocate a separate time frame for this. In fact, they admitted that they sometimes move away from the core of education due to the excessive amount of paperwork controlled by senior administrators. In similar studies, Ingram, Louis and Schroeder (2004), Lachat and Smith (2005) and Francis (2009) found out that administrators and teachers had time constraints, and revealed that a significant factor in data use was "providing time for adequate and

uninterrupted data usage environment". In the 2023 Vision Document, it is mentioned that the bureaucratic burden will be reduced by improving the processes within the scope of data-driven management (MoNE, 2018). It is believed that this practice will reduce the time constraint problem.

It is determined that a small number of administrators were setting an examples, encouraging and providing guidance for data use under the code of leadership. The research carried out by Murnane et al. (2005) revealed that even though the personnel adopt data-driven decision-making, the inability to get support from the administrator was an obstacle in terms of data usage. In this study, the participants stated that they want the emphasis to be on competence in assignments and the selection of administrators to be driven by data. In researches carried out on selecting, training and assigning administrators (Altın & Vatanartiran, 2014; Arabacı et al., 2015), competency was also found to be the most emphasized factor. Doğan (2019), examining the 2023 Vision Document in terms of various stakeholders, found out that the biggest expectation and desire is the selection of a competent manager.

In the user characteristics category, under the user attitude code, administrators had a positive attitude towards data use due to the properties of data such as eliminating uncertainties, persuading and pleasing stakeholders. Even though administrators had a positive attitude towards data use, the lack of sufficient awareness indicates the lack of a shared vision, in other words a common language. Shared vision, which is one of the five disciplines of organizational learning theory, also affects and directs personal efforts and individual expertise. In this study, it is understood that the administrators could not go beyond the pre-existing patterns, did not have sufficient training, and therefore did not show the necessary sensitivity in terms of data use. In the national literature, three competency areas have been defined for school administrators: technical, humanistic and conceptual competence (Töremen & Kolay, 2003). These competency areas defined are in compliance with data literacy and are required competencies. As stated in the findings of this study, administrator selection processes should be driven by data and the quality of training processes should be increased within the scope of relevant competencies.

In the political factors category, under the code of MoNE practices, the practices of the Ministry of Education and its efforts on this issue were appreciated and the practices of provincial and district Directorate of National Education that are not driven by data were criticized. Reichardt (2000) found out that policy-making that supports and encourages data-driven decision-making increases and improves data-driven decision making processes. Education Reform Initiative (ERI) (2012) stated that, given the centralist structure, it will not be possible for the provincial organizations to implement data-driven plans and policies, unless detailed policies are determined by the central organization of the Ministry of National Education. Some of the administrators stated that the data were symbolic values for their superiors, that the specific situation of schools was being ignored, and favoritism comes to the fore when it comes to decision-making. Slavin et al. (2013) revealed that the region's and the district's unfair practices in school financing and resource allocation were among the problems identified in terms of data-driven decision-making. Doolittle & Browne (2008) stated that laws enacted by the state require the use of data, but ironically, the biggest obstacle to data use is the insisting of higher authorities. This situation is defined as "organizational inconsistency" in the literature. It will be fair to say that inconsistency in statements and actions, which is the second stage of organizational inconsistency (Charette, 2006), is inevitable for all organizations that do not carry out data-driven decision-making.

Suggestions of administrators on the development and improvement of data-driven decision making have been grouped in two categories as macro and micro level. In the micro level category; suggestions such as data should be reported, data literacy training should be given, decisions should be taken in a democratic environment, the functionality of the modules should be increased, support should be provided in managing the data process, school capacity should be reduced, data diversification should be ensured and data-driven criteria should be created were stated. Previously, administrators' lack of analysis, interpretation and understanding of data was coded as insufficient data literacy. Administrators' insufficient data literacy causes them wanting the data to be reported and presented to them. This finding may also be due to the administrators' desire to make the right decision by learning the correct result of the data at the knowledge level. If practices are to be based on data-driven management as stated in the Ministry of National Education's 2023 Vision document, and if schools across the country are to be shaped on the basis of data-driven decisions, the schools where all data are collected and the personnel, who are the most basic part of this matter, should be educated to be aware of this procedure.

According to Holcomb (1999), schools that are effective in terms of data use provide continuous feedback in this respective cycle. Francis (2009) emphasizes with the "feedback loop" code the data should be returned to the user as a report after it is sent and the importance of the time passed in the meantime. It can be said that not getting feedback for the data causes data-driven norms not being established in the school, and measurable goals not being set at school and classroom levels. In the "accountability" category among the findings regarding the data usage purposes of administrators, administrators stated that they give feedback to students, teachers and parents on school basis. However, at the macro level, administrators complained that they could not get enough feedback for the data they upload to the system. It can be concluded that the fact that the administrators cannot receive feedback causes the data to be ignored.

Considering the fact that 12 of the 17 administrators participated in the study have graduated from a master's program, it can be said that master's programs need reform, since an administrator graduated from a master's program is expected to have the knowledge of using and interpreting data. Frey and Schmitt (2007) found out that data collection, analysis, and interpretation skills were not included in administrator training programs, while Khanna et al. (1999) found out that administrators were able to

use data actively after receiving data literacy training once and had no difficulty in understanding it. These results explain the importance of administrators and teachers to receive data literacy training at all levels in the learning community schools.

The proposal to make decisions in a democratic environment indicates the lack of participation in decisions stemming from the centralist structure. As per Feldman and Tung (2001), the lack of stakeholder participation in the decision-making process can lead to resistance to changing its practice and prevent the data from reflecting its functions such as critical view. As a matter of fact, the fact that the studies on decision-making in education (Büte & Balcı, 2010; Özmuşul, 2018) are generally aimed at examining the participation of stakeholders in decisions, and the findings of resistance to such change confirms this view in the context of Turkey.

Even though the administrators like the modules, they made suggestions to complete some of their functional deficiencies. Francis (2009) determining with the "flexibility" theme that there should be more than one way to access systems, and identifying the need to integrate the systems with the "interoperability" code, and Shaw's (2017) study findings showing that 93% of the systems of the administrators were disconnected and there were no links between them are consistent with the findings of this study. Opinions on the modules indicate the need for an "Educational Data Warehouse". With the educational data warehouse, it is planned to integrate data systems that work independently from each other and have access to the big data. Therefore, the data will not show different values in different systems and can be updated at the same time and faster reports can be created and it will be a more efficient process. It can be concluded that making the modules more functional will facilitate the workflow of the administrators, the workload will decrease and the reliability of the data in the system will increase.

The administrators who stated that they experience an uncontrolled amount of students with the addition of foreign students in these regions also stated that it would be more appropriate to upload student data to an analytical program instead of an expert. They complained that they could not examine the data in detail and suggested that the student amount in the school should be reduced or a person who would only deal with the data should be assigned. Bischel (2012) stated that it would be more appropriate to install an analytical program instead of an expert. Ho (2016) discussed that taking into account the disadvantaged people in terms of ethnic origin, race, socio-economic status, language fluency, etc. was emphasized however, in the study he carried out in the context of Los Angeles, the USA, he revealed that students who are not white and socio-economically disadvantaged are only identified and no remedial measures have been taken. Similarly, the integration of Syrian students into schools has been continuing in Turkey for about eight years now, and data regarding the problems are also present in this study, but the improvements regarding these data cannot be made at a sufficient level.

A small number of administrators stated that a great amount of data should be taken into consideration in decision-making and experiences should not be ignored. Participants stated that data such as student performance would not be sufficient for decision-making on their own, and that the student's individual background, cultural-environmental context, habits and behaviors should be evaluated as a whole as well. Epp (2011) found in his study that focusing only on the performance data of students has negative effects such as grouping in students and not being able to go beyond the curriculum for teachers. Abdusyakur (2015), who observed that schools in rural areas only make decisions based on students' performance data, attributed the research findings to the development level of the country and the lack of data literacy of educators in the context of Indonesia. Even though it seems paradoxical with the data-driven decision that some participants suggest using experience and intuition, Gary Klein, author of the book "The Power of Intuition" and Malcom Gladwell, author of the book "Blink" emphasized that people who make successful decisions also benefit from their intuition, and that intuition is the ability to "think without thinking" that emerges at the time of need of knowledge accumulated over the years. Clarifying this issue, Schmoker (1999) stated that general evaluations can be made about teaching and programs through intuition, but it is inevitable to use data to investigate individual or group learning in detail and to better understand strengths and weaknesses.

Some administrators who suggested creating data-driven criteria stated that it is important to set everything to a standard and to set realistic goals for data use. Referring to the importance of determining measurable goals at system, school and classroom levels and developing a curriculum for these goals, Datnow et al. (2007) state that the level desired to be reached will get closer to each other with the activities performed in this way, otherwise it will not be possible to reduce this difference. It would be fair to say that the elimination of uncertainties in schools and the establishment of data use culture will be achieved by setting data-driven realistic targets.

The suggestions of the administrators which are at the macro level are mostly that there should be legal regulations/sanctions. The centralized structure of the Turkish education system leads to actions taken only with directives from above levels, thus bringing the necessity of legal regulation. It is mentioned that necessary legislative changes will be made within the data-driven management action plans of 2023 Vision Document of Ministry of National Education. Otherwise, it does not seem possible to have data-driven decision-making in schools. Reichardt (2000), who examined the role of government policies and legislation in facilitating and promoting the use of data in decision-making processes of schools found that policy-making and legal regulations to encourage and support data-driven decision-making increase and improve the use of data-driven decision-making in schools. Another suggestion regarding the actions to be taken at a macro level is to establish data-driven decision centers on a regional basis. Danielian (2009) and Ezzani (2009) found out in their research that the support received from regions and districts guided school administrators in eliminating problems, creating vision, and establishing opportunities for cooperation.

Data usage awareness may be created among stakeholders by way of making their roles and responsibilities in data-based decision more specific, and including their expectations within their job descriptions. This study was performed with school directors serving at city centrum. It may further be performed at rural regions, or with teachers thereat. Leadership characteristics of the director comes to the for in terms of data-based decision-making. More in-depth studies can be performed on the school directors' impact on the creation and development of a data culture.

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Statements of publication ethics

We hereby declare that the study has not unethical issues and that research and publication ethics have been observed carefully.

Researchers' contribution rate

The study was conducted and reported with equal collaboration of the researchers.

Ethics Committee Approval Information

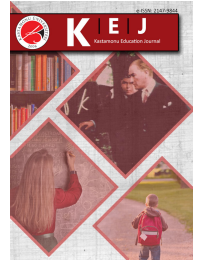
All stages of the study were carried out in accordance with ethical principles. At the meeting of Gazi University Institute of Educational Sciences Ethics Committee on 19.10.2020, it was decided that this study was in accordance with the ethical rules. The authors declare that they have no conflict of interest.

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| Research Article / Araştırma Makalesi |

Curriculum Implementation Approaches of Secondary School English Teachers: A Case Study

Ortaokul İngilizce Öğretmenlerinin Program Uygulama Yaklaşımları¹: Bir Durum Çalışması

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Keywords

1. Curriculum implementation
2. Curriculum implementation approaches
3. English curriculum
4. Qualitative study
5. English teachers

Anahtar Kelimeler

1. Programın uygulanması
2. Program uygulama yaklaşımları
3. İngilizce öğretim programı
4. Nitel çalışma
5. İngilizce öğretmenleri

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Abstract

Purpose: The purpose of this study is to identify the curriculum implementation approaches of secondary school English teachers.

Design/Methodology/Approach: The study group of this qualitative case study consists of 14 English teachers and students studying in the classes of these teachers. In determination of the study group, maximum variation and criterion sampling was used. The data of the study was obtained by observations, interviews, document review and it was analyzed by qualitative content analysis technique with an interpretive qualitative approach.

Findings: Study results indicated that English teachers have basically three different approaches while implementing the curriculum: curriculum fidelity, curriculum adaptation and curriculum design. In each three approaches teachers make student-based and exam-based implementations. However, under the curriculum adaptation approach, the student-based and exam-based adaptations made by teachers during their implementations are philosophically so different from each other that they worth mentioning under a different sub-title as student-based adaptation and exam-based adaptation. Teachers who adopt curriculum fidelity approach tend to apply the curriculum materials without making any change while teachers with curriculum adaptation approach make some adaptations in these materials. In the student-based adaptation approach, teachers make these adaptations by taking student characteristics into account, while in the exam-based approach, the focus of the teachers is to prepare students for national exams or the exam of the course. Teachers with curriculum design approach teach in private schools and do not make use of curriculum materials during their instruction. These teachers have more flexibility in their classroom practices compared to the teachers with curriculum fidelity and adaptation approaches.

Highlights: Based on the results of this study, it can be suggested to investigate the effect of teachers' curriculum implementation approaches on their professional development and on their students' motivation and academic success.

Öz

Çalışmanın amacı: Bu çalışmanın amacı ortaokul İngilizce öğretmenlerinin program uygulama yaklaşımlarını ortaya çıkarmaktır.

Materyal ve Yöntem: Nitel araştırma desenlerinden durum çalışması kullanılarak tasarlanan bu araştırmanın verileri ortaokul yedinci sınıflarda öğretim yapan 14 İngilizce öğretmeninden ve bu öğretmenlerin sınıflarında öğrenim gören ortaokul yedinci sınıf öğrencilerinden elde edilmiştir. Çalışma grubunun belirlenmesinde maksimum çeşitlilik ve ölçüt örnekleme tekniklerinden faydalanılmıştır. Katılımcı gözlem, görüşme ve doküman incelemesi yoluyla elde edilen veriler nitel içerik analizi tekniği kullanılarak çözümlenmiştir.

Bulgular: Araştırma sonuçları, öğretmenlerin ortaokul yedinci sınıf İngilizce dersi öğretim programını sınıflarında uygularken programa bağlılık, programın uyarlanması ve programın tasarlanması olmak üzere temelde üç farklı yaklaşım sergilediklerini göstermiştir. Öğretmenler her bir yaklaşım altında öğrenci-odaklı ve sınav-odaklı uygulamalara yer vermektedirler. Bununla birlikte, özellikle programın uyarlanması yaklaşımı altında öğrenci-odaklı ve sınav-odaklı uyarlamalar yapan öğretmenlerin gerçekleştirdikleri uygulamaların, benimsedikleri felsefe açısından birbirinden oldukça farklılaştığı görülmektedir. Bu nedenle programın uyarlanması yaklaşımı öğrenci odaklı uyarlama ve sınav odaklı uyarlama şeklinde daha detaylı ele alınmıştır. İlgili programı sınıflarında uygularken programa bağlılık yaklaşımı sergileyen öğretmenler MEB tarafından öğretim programı kapsamında temin edilen program materyallerini sınıflarında bire bir uygulama eğilimindedirler. Programın uyarlanması yaklaşımı sergileyen öğretmenler ise sınıflarında MEB program materyallerine yer vermekle birlikte bu materyallerde uyarlamalar yapmaktadırlar. Öğrenci odaklı uyarlama yaklaşımında, öğretmenler bu uyarlamaları öğrenci özelliklerini dikkate alarak yaparken, sınav odaklı uyarlama yaklaşımında ise öğretmenlerin odak noktası, öğrencileri ulusal sınavlara ya da dersin sınavına hazırlamaktır. Programın tasarlanması yaklaşımına eğilim gösteren öğretmenler özel okullarda çalışmakta ve MEB program materyallerine derslerinde hiç yer vermemektedirler. Dahası, bu öğretmenler sınıfta yaptıkları uygulamalarda diğer yaklaşımlara eğilim gösteren öğretmenlere kıyasla daha esnek davranmaktadırlar.

Önemli Vurgular: Bu araştırmadan elde edilen bulgulardan yola çıkılarak, ileriki araştırmalarda, öğretmenlerin program uygulama yaklaşımlarının mesleki gelişimleri ve öğrencilerin derse yönelik motivasyon ve akademik başarıları üzerindeki etkileri incelenebilir.

¹ This study was produced from the researcher's doctoral dissertation.

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INTRODUCTION

Curricula in Turkey are developed with a centralist approach by the Board of Education under the Ministry of National Education (MNE). In this direction, the official curricula prepared and approved by MNE, are implemented throughout the country. However, local differences in student interests, needs and characteristics make it difficult to implement the official curriculum as planned in every school and in every classroom (Bümen, Çakar & Yıldız, 2014). For this reason, teachers, who are the implementers of the curriculum, can transform the official curriculum into an operational curriculum while applying it in their classrooms. Although the official curriculum has been centrally developed in advance, the communication of teachers and students with the curriculum constitutes the operational curriculum, in other words the curriculum-in-use (Shawer, Gilmore & Banks-Joseph, 2009).

Although there are many factors that frame curriculum implementation, teachers have the utmost importance (Remillard, 2005). No matter how the official curriculum is prepared, it is the teacher who has the last word on it during classroom practices. Factors as teachers' self-efficacy and beliefs affect their curriculum implementation (Bümen et al., 2014; Çobanoğlu, 2011; Kabaoğlu, 2015). The fact that teachers' beliefs about teaching differ from each other shows that the curriculum cannot be applied by every teacher in a similar way. From this point of view, this research draws attention to identify the various approaches that teachers have while they are implementing the curriculum.

Theoretical Framework

Curriculum implementation in this study has been studied in the context of curriculum development and curriculum fidelity. According to Varış (1996), curriculum development, in its shortest definition, is the development of a designed curriculum in practice with an investigative approach. Curriculum development is the process of designing, implementing, evaluating and rearranging the curricula used in educational institutions in line with the data obtained as a result of the evaluation (Erden, 1998). Based on the definitions, it can be stated that curriculum development includes basically three stages as curriculum design, curriculum implementation, curriculum evaluation and the implementation process is an essential and inevitable phase of curriculum development. Official curriculum developed by experts on paper are put into practice by teachers who are the implementers of the curriculum. Thus, the implementation of the curriculum refers to the interaction process between the developers and the implementers (Kabaoğlu, 2015). When the literature on the subject is examined, the early studies, which put emphasis on the teachers' role to interpret the developers' intentions, were generally conducted by Ben-Peretz (1975; 1980). The studies on curriculum implementation show that teachers generally apply official curriculum in two ways: curriculum fidelity and curriculum adaptation. In this context, one of the issues as part of the application of curriculum materials is "fidelity" or "adaptation" (Ben-Peretz, 1990). While "fidelity" and "adaptation" approaches are commonly mentioned in the literature, a third approach named "enactment" was first added to these two approaches by Snyder, Bolin, and Zumwalt (1992).

Curriculum fidelity is the faithful implementation of the curriculum designed by experts (Bümen et al., 2014). As Jackson (1986) points out, most teachers do not bother to decide how the material they teach should be presented to students. Instead, they rely on commercially prepared teaching materials, such as textbooks, who make this decision for themselves (cited in Ben-Peretz, 1990). The fidelity approach restricts the curriculum to a textbook series, a guide and a set of teacher plans (Snyder et al., 1992, p. 427). Teachers with curriculum fidelity approach tend to transfer the units in the textbook in the order they are, without making any changes. The fact that teachers with curriculum fidelity approach limit themselves to the messages clearly stated in the teacher's guidebook also limits the creativity and autonomy of the teachers (Pinar et al., 2004). Researchers emphasize that the constraints of fidelity approach should be overcome by teachers through curriculum adaptation (Shawer, 2010a).

Curriculum adaptation, which is named as mutual-adaptation by Snyder et al. (1992), is the process in which the arrangements in the curriculum are made by the curriculum development experts and the teachers who apply it in their classrooms. In this approach, the useful and unworkable points are decided during the implementation of the official curriculum in the classroom, and it is shaped according to the context (Öztürk, 2012). Since the experts still define the curriculum knowledge, adaptation approach does not differ considerably from fidelity approach. However, it becomes more flexible as teachers have more active role in making adjustments in the curriculum to make it suitable for her/his classroom context (Shawer, 2010a). Those with adaptation approach state that the curriculum should be adapted to the school context in cooperation with the curriculum development experts and the teachers. While curriculum development experts cannot realize the unique characteristics of the teaching environment, teachers know and evaluate student characteristics better and provide important data to experts on this subject (Ben-Peretz, 1990). On the other hand, as a result of their research on the curriculum, experts also provide teachers with a planned and systematic material that they can apply (Bümen et al., 2014). Curriculum adaptation approach allows teachers to shape the curriculum according to the context in which they teach. However it is the curriculum enactment approach which assign the curriculum to the teacher (Snyder et al., 1992).

Teachers who enact curriculum act as curriculum development experts who make significant changes in the curriculum based on student experiences. According to this approach, the curriculum is shaped as a process created and experienced by teacher and students (Snyder, 1992). Teachers as curriculum developers become the composers of their own music, while in the fidelity approach, they are seen as "tools" to realize the intentions of curriculum development experts (Ben-Peretz, 1990, p.10). Teacher's tendency to follow fidelity, adaptation or enactment approach depends on how they use curriculum materials (Shawer, 2010a, p.175). In curriculum enactment approach, teachers often plan their instruction without referring to printed curriculum materials.

Literature Review

When the studies on teachers' curriculum implementation approaches are examined, it is seen that there is a theoretical framework for curriculum implementation approaches of teachers in the international literature (Ben-Peretz, 1990; Snyder et al., 1992). With the help of this theoretical framework, some studies were done regarding the curriculum approaches of teachers. According to study results conducted as PhD dissertation on English teachers by Shawer (2003, cited in Shawer, Gilmore & Banks-Joseph, 2008), teachers approach the curriculum in three different ways as curriculum transmitters, curriculum developers and curriculum makers. Accordingly, teachers who transmit the curriculum show fidelity to curriculum materials while those who develop the curriculum make adaptations such as skipping, removing, providing additional resources and activities in the curriculum materials in line with student interests and needs. On the other hand, teachers who make the curriculum, determine the applications to be carried out in the classroom based on student experiences and their own attitudes, beliefs and experiences. Other studies by the author and his colleagues were also conducted on examination of the motives that drive teachers to curriculum approaches and their implications on students and teacher professional development. According to the results of these studies, each approach adopted in the implementation of the curriculum has different implications for teacher, student, curriculum and school development (Craig, 2006; Shawer, Gilmore & Banks-Joseph, 2008; Schultz & Oyler, 2006). On the one hand, curriculum approaches transform the official curriculum into operational curriculum and on the other hand, since each approach leads to different roles and opportunities, it affects teachers' professional development differently (Craig, 2006; Randolph, Duffy & Mattingly, 2007, cited in Shawer, Gilmore & Banks-Joseph, 2008). Moreover, curriculum approaches of teachers directly affects students' learning and motivation (Shawer, 2010b; Shawer, Gilmore & Banks-Joseph, 2008; Eisner 1990; Erickson & Shultz, 1992; Shawer, Gilmore & Banks-Joseph, 2008). Studies have shown that teachers' adaptations in the curriculum in line with student interests, needs and characteristics positively affect student motivation and learning (Craig, 2001; Shawer, 2001, cited in Shawer, Gilmore & Banks-Joseph, 2008).

When the literature on the implementation of the curriculum in Turkey is examined, it is recognized that theoretically there is almost no such classification of teacher's approaches of curriculum implementation. Only in a study conducted as PhD dissertation by Tokgöz (2013), three different teacher profiles as curriculum followers, curriculum extenders and curriculum adapters were determined based on the similarities and differences of teachers in the implementation of the curriculum in their classrooms. According to this classification, curriculum followers adhere to the curriculum materials while curriculum adapters make up for the deficiencies in the curriculum materials by the help of other resources or their own experiences. Curriculum extenders focus on student success and therefore, while implementing the curriculum in their classrooms, they prioritize knowledge transfer in order to increase the success of students in national exams and improve their exam performance. In some other studies (Öztürk-Akar, 2005; Ünsal & Çetin, 2019), differences observed in curriculum implementation at the school level were examined, however no classification was made based on the differences in the practices of the teachers. Recently Bümen and Yazıcılar (2020) conducted a case study in which they compared the teachers' curriculum adaptations in state and private high schools. This study focused on curriculum adaptation of teachers by revealing the adaptation patterns and the reasons for the adaptation. It is also noteworthy that, by being a little away from the focus of this research, researchers investigating curriculum implementation in literature before have raised some concerns regarding the curriculum fidelity levels of the teachers (Bümen, 2019; Karakuyu & Oğuz, 2021; Sakalioğlu & Özudoğru, 2022), teachers' opinions and perceptions on curriculum implementation (Altay, 2020, Aykaç & Ulubey, 2012; Çelik, 2021; Dilekçi, 2019; Öztürk-Akar & Yıldırım, 2011; Tekbıyık & Akdeniz, 2008; Yaşar, 2012), the problems they experienced while implementing it (Adıgüzel, 2009; Karacaoğlu & Acar, 2010; Öztürk-Akar, 2014) and teachers' level of curriculum literacy (Çetinkaya & Tabak, 2019; Demir & Toraman, 2021; Kahramanoğlu, 2019; Kasapoğlu, 2020). Although there are some limited studies that investigate teachers' role in curriculum implementation, it is clear that previous research did not specified the curriculum implementation approaches of the teachers. This study mainly aims to fill such a theoretical gap in the literature. It is thought that such a classification of teachers' curriculum approaches help better understand the implementation process of the curriculum. Studying on the implementation of the official curriculum by teachers in their classroom is also important in terms of providing an understanding of how to improve the quality of implementation (Bümen et al., 2014). Moreover, such a theoretical framework on teachers' curriculum implementation approaches paves the way for new studies on the subject.

Given the numerous concerns raised in previous research, the aim of this study was to explore how teachers in general, English as a foreign language teacher in specific, approach curriculum while implementing it in their classroom. Specifically studying on English teachers' curriculum implementation approaches is also considered significant to better understand the teaching process and clarifying the practices in language teaching, especially in our country, where there have been difficulties in teaching English listening and speaking skills (Özer & Akay, 2022) although English curricula are designed with a communicative approach (MNE, 2018). While determining the curriculum implementation approaches of the teachers, their implementations were analyzed in line with the basic elements of the curriculum proposing the following research questions;

1. How can the curriculum implementation approaches be named as a result of the teachers' views and practices regarding the relevant curriculum?
2. What does the official English curriculum mean to the secondary school English teachers with different curriculum implementation approaches?
3. How do the secondary school English teachers with different curriculum implementation approaches plan their lessons?

4. How do the secondary school English teachers with different curriculum implementation approaches set the objectives of their lessons?
5. How do the secondary school English teachers with different curriculum implementation approaches decide the content of their lessons?
6. How do the secondary school English teachers with different curriculum implementation approaches carry out teaching-learning activities during their lessons?
7. How do the secondary school English teachers with different curriculum implementation approaches carry out the assessment and evaluation process?

METHOD/MATERIALS

Research Design

The purpose of this study was to conduct an in-depth investigation of secondary school English teachers' curriculum implementation approaches. Qualitative case study approach was applied to answer the research questions leading the study. Case study is specifically used when the how and why questions are asked on a contemporary set of events over which the researcher has little or no control (Yin, 2014). Case study is the study of the particularity and complexity of a single case, and understanding its activity in significant circumstances (Stake, 1995). According to Yin (2014), case study method allows researchers to retain the holistic and meaningful characteristics of real life events and by using case study, phenomena or events can be explained, described or explored in the context in which they occur. The most important characteristic of the case study is the limitation of the situation examined in the study (Merriam, 2013). The unit under study is a system with boundaries around it. Thus, the situation (case) can be a single person, a program, a group, an institution, or a community.

Qualitative case study design was most appropriate for this study, as qualitative research involves understanding social behavior in a specific context (Creswell, 2014), rather than a quantitative design which uses numerical data to measure relationships and provides an examination of the numerical data available (Denzin & Lincoln, 2011). The main research question of this study focused on learning from secondary school English teachers about their experiences on the implementation of the curriculum in their own classrooms and in their own words. This research question is best answered by conducting a qualitative research. Qualitative research emerges from the interpretivist paradigm. The interpretive paradigm, which is often combined with social constructivism, is concerned with understanding the world as it is from subjective experiences of individuals (Creswell, 2007). Moreover, case study as a qualitative research design, provides an in-depth perspective of a single issue (Creswell, 2014). In this case of the study, the single issue of teachers' curriculum implementation approaches were studied. Within the scope of this study, the approaches of teachers while implementing the seventh grade English curriculum in their classrooms were considered as a case and the implementation of the curriculum was examined in the classroom environment through observation, interview and archival documents. This multiple sources of data to explore the phenomenon also indicates that a case study is best suited for the research. As Heale and Twycross (2018) have asserted, case study is a holistic inquiry that entails detailed and in-depth data collection from multiple sources of data.

Study Group

Determining the study group of the research was carried out in two stages: determining the schools and determining the teachers. Maximum variation and criterion sampling techniques were used in determining the schools where the study would be conducted. In order to reveal the similarities and differences in teachers' curriculum approaches, schools that differ in terms of their 2016 TEOG (Transition from Basic Education to Secondary Education) national exam scores (high-middle-low) were preferred from the two different districts of Eskisehir. In addition, each teacher in the study group was observed in different classrooms to be able to understand whether his/her curriculum implementation differ according to characteristics of the student group taught. Thus, inclusion of the schools with a large number of students was determined as a criterion. At the stage of determining the teachers to be included in the study group, criterion sampling was used. Considering the effect of experience on teachers' curriculum implementations, teachers who have at least five years of experience were included in the study group. Moreover, in order to compare the practices of the teacher in different classes, it was required that the teacher should attend more than one class in the seventh grade. The aim of the maximum variation sampling used in determining the study group of the research is not to provide diversity for generalization, but to reveal the different dimensions of the problem by finding similarities and differences between different situations. In criterion sampling, the sample is created in line with the criteria predetermined by the researcher (Yıldırım & Şimşek, 2011).

In this study, in line with the criteria taken into account in the selection of the study group, a total of 8 secondary schools and 14 English teachers formed the study group. The age range of the teachers in the study group is between 27 and 50 and their experience ranges from 5 years to 27 years. Information about the schools and teachers that make up the study group is given in table 1.

Table 1. The participants' demographic profiling

	District	School Success Level	Teacher	Age	Experience (year)
State Schools	A	High	Öykü	35	14
			Emine	37	13
		Medium	Banu	45	21
		Low	Ali	39	13
		High	İpek	48	27
	B	High	Onur	50	27
			Esra	30	8
		Medium	Mehtap	30	7
		Nazan	38	17	
		Low	Ayşe	31	12
Private schools	A	High	İlknur	35	12
			Elif	31	10
	B	High	Aslı	27	5
			Tülay	36	15

Instruments

The data of the research were obtained through observation, interview and document analysis. Information on data collection tools is given below.

Semi-structured Interviews

The interviews were conducted with both teachers and students to collect the data of this study. Thus, interview questions were prepared separately for both teachers and students. The interview questions were open-ended and semi-structured. This semi-structured form of the questions allowed the researchers to reveal deeper explanations by follow-up questions. The semi-structured interview questions were written by the researchers considering the elements of the curriculum and the relevant literature to reveal the experiments of teachers and students regarding the implementation of the curriculum. The interview questions were also aligned with the research questions. In this direction, the questions were written to reveal the teachers' perceptions of the curriculum, their course planning processes, and their actions regarding the determination of course objectives, content, activities and evaluation processes. More specifically, the first two questions in the teachers' interview form were set to reveal teachers' understanding of the curriculum. The next three questions were designed to understand how teachers plan their lesson. The next question, which is the sixth question, was created to understand how teachers use the curriculum while determining the objectives of the lesson. The following three questions were written to reveal teachers' content determination process by asking them how the curriculum effect their selection of the content of their lesson and whether they include content that is not specified in the curriculum. If yes, in what situations they do that. Within the scope of the tenth question, which was created to reveal what kind of path teachers follow in their teaching process, they were asked whether the curriculum help them on how to proceed in the teaching-learning process and which materials and activities they frequently use in their lessons. Finally the last question in teachers' interview form was created to reveal the effect of the curriculum in determining the evaluation processes. Moreover, the questions in the interview form for the students were created in order to better understand the curriculum implementation approaches of the teachers. Accordingly, the first question was set to learn whether their teacher make reference to official curriculum during teaching. The second question was designed to reveal the resources teacher use and how she/he uses them. The next two questions were created to discover the teaching-learning and evaluation activities she/he refers to. Follow up questions were also posed to learn what students think about whether she/he considers their interests and wishes in the selection of resources to be used and in determining the activities they applied in the lesson.

The interview questions were reviewed by an expert panel. The panel included two experts working in the department of curriculum and instruction and an expert working in the department of measurement and evaluation in education. Some minor modifications concerning inappropriate dictions used in some interview questions (Q5, Q9 for teachers and Q1 for students) were made and follow up question(s) were added to some of the questions (Q10, Q11) for teachers' interview form in line with the experts' feedback. In addition, the interview questions were field-tested by two English teachers who did not participate in the study. Finally, the interview protocol included eleven open ended questions for teachers and four open ended questions for students to encourage them to share their own thoughts and experiences regarding the implementation of the curriculum. The questions were followed up with probes on the answers the teachers and students gave. Interview protocol is a list of questions and instructions that guide interviewers while making interviews (Vogt et al., 2012). It allows the researcher to ask the same questions of every participant in every interview (Creswell, 2014). The interviews were conducted by one of the researchers by following the interview protocol. Interviews with teachers were conducted face-to-face by the researcher in the schools where they worked, and they lasted an average of 25 minutes. The interviews with the students were carried out as focus group meeting with the whole class when the teacher was not in the classroom in order not to affect the students' responses. Interviews with the students lasted an average of 15 minutes.

Observations

According to Yin (2014) the use of multiple sources was necessary for a case study to have an accurate portrayal of the case. Some studies in literature have shown that direct observation was the most rigorous measurement when multiple sources of information such as participants and observer were used (Emshooff et al., 1897; Ruiz-Primo, 2005; Smith et al., 2007). The findings of these researches have indicated that participants' self-report scores differed significantly from observation scores. The credibility and dependability of the data of this study were increased by directly observing the applications in the classroom in order to determine the teachers' approach to curriculum implementation. The researcher participated in the lessons of the teachers in the study group, and observed the teachers' implementation of the curriculum in their classrooms. Despite the possibility of teachers not behaving naturally in the early stages of the observations, intensive classroom observation of 10-20 lessons delivered by the teachers was made. In order to see how the teachers applied the curriculum materials in the classroom, each teacher was observed throughout a unit (lecturing and implementation of the activities). Before the observations, teachers were informed about the purpose of the research and they were encouraged to act naturally by stating that there would be no evaluation of teacher performance. The researcher-created observation protocol was used to collect the data. Observation protocol covered the topics prepared within the scope of the research questions to be considered during the observation and ensured the researcher to adhere to research aim during observation period. During the observations, extensive field notes and reflections were written by the researcher. After each observation, informal post-lesson discussions were also done with the observed teacher to avoid misinterpretations and to capture the realistic picture of the overall curriculum implementation.

Archival Documents

In addition to interviews and observations, documents such as exam papers, worksheets, student notebooks were collected from some teachers in the study group concurrent to observations. Since these documents were used together with other data collection methods, no complex and detailed analysis was needed. The researcher can use the data obtained from the documents to support, disprove or provide alternative explanations from observations and interviews (Yıldırım & Şimşek, 2011). In this direction, within the scope of this study, the consistency of teacher's practices in the classroom with the data obtained from the observations and interviews was examined by analyzing the documents shared by the teachers. Besides, before starting the observations, the seventh grade English curriculum and the curriculum materials such as teachers' books, student books and workbooks prepared by the Ministry of National Education were also examined and during the observations, teachers' level of utilization of these resources were taken into consideration in determining the teachers' approaches to curriculum implementation.

Data Collection and Analysis

Before starting the research, permission was obtained from the Ministry of National Education to collect data from the schools affiliated to it. Approval from research ethics committee was also granted. Before collecting the data of the study, participants were informed about the purpose of the study and they were informed that they had the right to withdraw from the study at any time. Pseudonym was used in the presentation of the findings to ensure the confidentiality of the participants. During the collection of the data, firstly, the teachers were observed for at least ten lesson hours. The interviews were conducted once after the observations, in case the interview to be held affected the teacher's curriculum implementation. Observations started in October during 2017-2018 academic year. The documents were analyzed before and during data collection procedure.

Data analysis is an ongoing and interactive process in qualitative research (Miles & Huberman, 1994). Throughout the study an interpretive qualitative approach was used to interpret the data. Qualitative content analysis technique was used to analyze the data of this study. The qualitative content analysis procedure is category-based and research question oriented (Mayring, 2019). Accordingly, text evaluation is restricted to selected category system and research questions which are derived from the main aims of the research are answered at the end of the analysis. The procedure of category development in qualitative content analysis can be inductive or deductive (Mayring, 2000). Patton (2002) suggests both inductive and deductive approach in creating themes or categories, examining data that do not fit into categories or deviating situations. Corbin and Strauss (2014) draws attention to the necessity of using inductive analyzes if there is not enough study and solid theoretical structure to base the research subject. In this study the categories were derived from research questions and theoretical background. In all these stages, both the concepts existing in the literature were used and these concepts in the literature were enriched by adding new codes and categories obtained from the data set. Thus both inductive and deductive category development procedure of qualitative content analysis was applied.

During the analysis of interview and observation data, a general framework was formed on research' sub-problems and interview questions and this framework was developed based on the data set. General framework was created as "perceptions on curriculum", "planning the lesson", "setting objectives", "determining the content", "teaching-learning process" and "assessment and evaluation process". This conceptual frame played a leading role during content analysis. Before starting the analysis of interview data, the audio recordings were transcribed verbatim to make the data ready for analysis. Miles and Huberman's (1994) data analysis scheme was applied to analyze the raw data. Accordingly, the first stage is coding. Transcripts of each participants were read repeatedly and meanings of the expressions were coded. Open coding was performed on the transcribed interviews. Pattern coding was used as the second step. Through pattern coding data reduction was achieved by assembling similar codes together and re-coding. After completing the coding process, themes and subthemes were crystalized

based on the similarities and differences in the codes. Teachers' curriculum approaches were named within the scope of these themes. After the codes and themes were finalized, another expert who has studies on qualitative research and is competent in this field was asked to code some parts of the interview and observation data. Agreement between raters = Number of agreements/Total number of accepted and rejected codes formula proposed by Miles and Huberman was used to achieve the inter-rater agreement. After completion of coding process by the coders, the codes and themes were discussed based on the research aim and disagreements were resolved by follow-up discussions. When the reliability formula of Miles and Huberman was calculated, the confidence level was found as 95%. Miles and Huberman (1994) recommended that the reliability of the coding should be at least 80% concordance level for a good qualitative reliability. The concordance level value found in this research is an indicator of the reliability of the analysis results. As it has explained before under archival document title, no complex and detailed analysis were performed for the documents examined within this study. The data obtained from documents were used to support, disprove or provide alternative explanations to observation and interview data.

FINDINGS

The study is aimed to determine and define the curriculum implementation approaches of the secondary school English teachers by examining the implementations they make in their classes. In this part of the study, the findings are presented in line with the research questions.

1. How can the curriculum implementation approaches be named as a result of the teachers' views and practices regarding the relevant curriculum?

The data got from the observations, interviews and document analysis have shown that teachers in the study group have basically three different approaches while implementing the curriculum in their classrooms: curriculum fidelity, curriculum adaptation and curriculum design. Under each approach, teachers perform student-based and exam-based practices. However, student-based and exam-based practices carried out by teachers, especially under the approach of curriculum adaptation, differ considerably from each other in terms of the philosophy they are based on. This situation necessitated the detailed explanation of the curriculum adaptation approach as exam-based and student-based adaptations.

Within the scope of this study, curriculum fidelity was considered as commitment to the seventh grade English curriculum published by the Ministry of National Education and the textbooks prepared and distributed to schools in line with this curriculum. The main characteristic of teachers who tend to curriculum fidelity approach is that they adhere to the curriculum materials in the activities they do in the classroom. Onur and Esra Teacher, who tend to the curriculum fidelity approach, work in a public school. While Onur Teacher has 27 years of experience and works at a school with a high level of success, Esra Teacher has 8 years of experience and works at a school with medium level success.

Teachers, who have curriculum adaptation approach, use curriculum materials in their classroom, but they make some adaptations in these materials such as skipping, omitting, adding, changing exercises etc. The reasons for these adaptations made by teachers in the curriculum materials determine what kind of adaptation approach they have. Data get from the interviews and observations showed that one group of teachers consider student characteristics while making adaptations in the curriculum materials. On the other hand, some adapt the curriculum materials to prepare students for national exams. The main characteristic of the teachers, who adapt the curriculum according to student characteristics, is that they take into account the interests, wishes, needs and levels of the students while implementing the activities in the curriculum materials. In the study group, there are five teachers who adapt the curriculum materials according to student characteristics. These teachers work in public schools with different success levels. On the other hand, the main characteristic of the teachers who make exam-based adaptations is that they focus on increasing the academic success of students by preparing them for both national exams and the exams of the course. In the study group, there are five teachers who make exam-based adaptations the curriculum materials. Two of them work in private schools while three of them work in state schools.

The main feature of the teachers who tend to the curriculum design approach is that they follow another source other than the curriculum materials in-class activities. Two teachers in the study group who tend to the curriculum design approach work in a private school, and these teachers are not obliged to use the curriculum materials in their classes due to the school's curriculum implementation policy. Although the teachers under this approach did not design the curriculum themselves, the flexibility given to them by the private school they work for allows them to freely design their teaching processes. The past experiences of İlknur Teacher with 12 years of experience and Aslı Teacher with 5 years of experience in the study group are for private schools. The information of the teachers with different curriculum approaches is summarized in Table 2.

Table 2. Distribution of Teachers in the Study Group According to their Curriculum Approaches

Curriculum Approaches	Teacher	School	School Success Level	School Curriculum Policy	Age	Experience
Fidelity	Onur	A	High	Compulsory	50	27
	Esra	C	Medium	Compulsory	30	8
Student based	Öykü	D	High	Compulsory	35	14
	Mehtap	C	Medium	Compulsory	30	7
	Banu	B	Medium	Compulsory	45	21
	Ali	F	Low	Compulsory	39	13
	Ayşe	E	Low	Compulsory	31	12
	Emine	D	High	Compulsory	37	13
Exam based	İpek	A	High	Compulsory	48	27
	Nazan	C	Medium	Compulsory	38	17
	Tülay	G	High	Non-compulsory	36	15
	Elif	H	High	Non-compulsory	31	10
	Aslı	G	High	Non-compulsory	27	5
Design	İlknur	H	High	Non-compulsory	35	12

2. What does the official English curriculum mean to the secondary school English teachers with different curriculum implementation approaches?

Esra and Onur teachers, with curriculum fidelity approach, see the curriculum as a guideline and an instruction to follow. Esra Teacher has positive opinions about the curriculum and curriculum materials and follows the curriculum materials as she adopts the student-based philosophy of the curriculum. On the other hand, Onur Teacher states that the activities in curriculum materials are inadequate and not suitable for the student level, however, he still follows them as the questions in national exams are based on these sources. Teachers with student-based adaptation approach define the curriculum as a framework that draws the boundaries and state that it is up to the teacher to enrich this framework. In addition, these teachers note that they should be given more voice during curriculum development. On the other hand, teachers with exam-based curriculum adaptation approach define the curriculum as a tool that ensures unity in exams and think that it should be applied in order to act jointly. They see it as a necessity to apply the curriculum materials in the classroom, especially since they are taken into consideration in national exams. In addition to the curriculum materials, they also include resources that contain exercises and questions that prepare students for the exam. They state that there is a conflict between the constructivist and student-based philosophy of the curriculum and the national exams imposed by the education system. Teachers with curriculum design approach state that the implementation of the curriculum depends on the teacher in line with the characteristics of the students.

It was observed that the majority of the teachers in the study group perceived the textbooks published by the MNE as the official curriculum and they benefited from the textbooks instead of examining the official curriculum in the planning, implementation and evaluation of the course. For example, the answer given by Onur Teacher to a question asked by the researcher about what the official curriculum organized by the MNE means to them made it clear that the textbooks express the curriculum for him.

"We are literally processing the book. Curriculum. Because this is our duty. This is sent to us, if it is sent, we process it, but as I said, the issue of efficiency is debatable." (Onur teacher)

3. How do the secondary school English teachers with different curriculum implementation approaches plan their lessons?

Teachers with curriculum fidelity approach draw attention to the necessity of implementing the curriculum materials and do not make any planning other than those specified in the curriculum materials while planning their lesson. Teachers with curriculum-adaptation approach also make use of the curriculum and curriculum materials while planning their lessons. However they don't restrict them with curriculum materials. They take advantage of their own experiences or other materials while planning. Beside, teachers with curriculum design approach don't refer to curriculum materials while planning their course.

During the interviews, İlknur Teacher, who has a curriculum design approach, clearly states that she mostly uses her own experiences in planning the teaching and takes into account the opinions of the students.

"While planning the teaching, I put myself in the children's shoes and ask what kind of thing I would like to do. I remember my own childhood from my high school and middle school years... Planning is mostly improvised. Because sometimes very interesting things can come from children." (İlknur Teacher)

Moreover, the following section from the observations made in İlknur teacher's classroom shows that the teacher gives her students right to speak in the planning of the teaching.

Observation:

The teacher states that they will do a speaking activity in the next lesson:

Hande: You plan and it gets boring.

İlknur Teacher: This time you will plan.

Students: Hooray!

4. How do the secondary school English teachers with different curriculum implementation approaches set the objectives of their lessons?

Esra and Onur Teachers state that they refer to the curriculum and curriculum materials while determining the objectives of the lesson and that they do not include any objectives other than the ones specified in the curriculum.

"In determining the objectives of the lesson, I keep up with the curriculum as a guide, I consider the learning outcomes in the annual plan or in the curriculum." (Esra Teacher)

Since these teachers make the activities in the curriculum materials page by page, it is usually predictable which subject will be covered and which activities will be done in the course.

Teachers, who tend to student-based adaptation approach, adhere to the curriculum and curriculum materials while determining the learning outcomes, but also provide extra information such as including words and patterns related to daily life in line with student interests, needs and questions, and covering a topic other than those specified in the curriculum materials. The teachers were asked whether they give place to nonscheduled objectives during their teaching and the answers to this question made it clear that they can sometimes go beyond the formal curriculum by including different phrases and sentences in their lesson.

"I don't stick to objectives in the curriculum. For example, during my lecture, I include sentences, phrases that I like. The other day, in one of my classes, I mentioned about three proverbs to catch student's attention." (Öykü Teacher)

In addition, observations made in Öykü Teacher's classroom and interviews with her students prove that the teacher gives additional topics or explanations according to the student's needs.

Teachers with an exam-based adaptation approach, on the other hand, adhere to the objectives in curriculum and the curriculum materials, since they are taken into account in national exams. İpek Teacher emphasized the responsibility she has in preparing her students for national exams and expressed the necessity to consider the objectives in the curriculum materials.

"By considering the national exams, I have to teach the children whatever is provided in the curriculum. Because all students throughout the country learn the same subject. These children all take the same exam. Thus, we shouldn't ignore the curriculum." (İpek Teacher)

The observations also made it clear that the teachers who have the exam-based adaptation approach ignored the objectives of the curriculum regarding the language skills for listening and speaking, and focused more on the ones related to the teaching of vocabulary and grammar rules, which may be questioned in central exams.

Since İlknur and Aslı Teachers, who have curriculum design approach, used a source other than the curriculum materials, the objectives they teach to the students differ from the ones in the curriculum materials. For example, while "past tense" is taught in the second unit in the curriculum materials, "present perfect tense" is taught in the second unit in the lesson of Aslı Teacher. Moreover, the "present perfect tense" is not included in the curriculum materials prepared by the MNE for the seventh-grade students.

5. How do the secondary school English teachers with different curriculum implementation approaches decide the content of their lessons?

Esra and Onur Teachers, with curriculum fidelity approach, refer to the curriculum materials in determining the content and transfer the content as specified in the curriculum materials. The following scene from the observations clearly shows that, while determining the content, Onur Teacher remains within the boundaries of the curriculum and avoids including any content beside the ones in the curriculum.

Observation:

(On a question in the exam):

Ege: Teacher, I searched the internet for the word "family" and found out that "are" is also used in some cases.

Onur Teacher: Listen children, I worked in many schools, high school, middle school etc. We have a curriculum. The things outlined in that curriculum are taught. In secondary school English curriculum, it is used as "my family is" and it is required to be taught in that way... We only teach to the extent permitted by the curriculum.

Esra and Onur Teachers generally do not go beyond the content given in the curriculum and in the textbooks. While Esra Teacher adhere to the content in the curriculum as she thinks the content in the curriculum materials is appropriate and sufficient for the student level, Onur Teacher does not include any content beyond the curriculum materials as he thinks that it is his responsibility to transfer the content in the curriculum materials and to prepare students for national exams.

Teachers with student-based adaptation approach enriches the curriculum materials with worksheets, photocopies, slides, videos, etc. They also provide additional content such as vocabularies and grammar patterns. For instance, Banu teacher made an

extra explanation of the phrase "when I was a child" which was included in a sentence on the worksheet that was provided by the teacher. She mentioned about the use of the word "when" as a conjunction although in the relevant curriculum there was no objective for this. Similarly, Ali Teacher provides additional content in his lesson by presenting words that are not found in the curriculum materials.

Observation:

Ali Teacher: What is "documentary"?

Aylin: Belgesel (*Turkish of the word "documentary"*)

Ali Teacher: See, this word didn't appear in the "Television" unit. However, we mentioned about it before although it doesn't take place in the books, right?

Students: Yes.

Banu Teacher states that she usually includes additional content to meet the student's needs and interests. Öykü Teacher, on the other hand, frequently provides additional content in order to make learning more fun and meaningful by establishing a connection between daily life and the content.

"...if the student has an extra question, I try to answer it by giving additional information without confusing the student." (Banu Teacher)

"...I give additional information to catch the attention of the students. For example, the last week we talked about black Friday which is not included in the curriculum materials." (Öykü Teacher)

Ali Teacher states that the content in the curriculum repeats itself and it becomes monotonous. Thus, he enriches the content by using themes other than the ones in the curriculum materials and tries to make it more interesting for the students.

"I can take the tool (theme) out of the way and go directly to the goal (expressing preference) as the goal is specific in the curriculum. For example, the theme in the curriculum is "extreme sports" and the number of sentences that can be made with 6-7 extreme sports is very limited. We always find ourselves while repeating the same sentences with the words in this theme. However, we can make it more fun and meaningful by changing the tool. I ask my students to express their preferences not only on extreme sports but also on food, music, movie etc." (Ali Teacher)

On the other hand, teachers who make exam-based adaptations often add to the content in curriculum materials by providing extra sample sentences and making detailed explanations in order to reinforce the subject. For instance, while Elif Teacher handling the "expressing preferences" objective of the third unit in the curriculum, she explains the subject of "gerunds" and "infinitives" in detail by equating them as if solving a math problem on the board, although they are not mentioned in the curriculum in detail. Moreover, she refers to the curriculum and to the content that the students are responsible in the exam by saying "About infinitives, I just need to keep in mind these two words "want" and "would like for the seventh grade." Teachers with exam-based curriculum adaptation focus on reinforcing grammar topics rather than communicative elements of the language, thereby increasing the rate of correct answers for students in the exam.

When considered the curriculum design approach, it is seen that the content used by İlknur and Aslı Teachers in their lessons is completely different from the curriculum materials. For example, while the themes used in the first four units in the curriculum materials are appearance, biography, sports and wild animals, in Aslı Teacher's lesson, fashion, emotions, adventure, material world, etc. themes are included and the grammar topics covered in each theme are completely different from the curriculum materials. Moreover, Aslı Teacher clearly stated that the content she used was completely different from the content in the curriculum published by the MNE.

"Our subjects are not the same as MNE. We are further ahead. For example, we teach the present perfect tense, the perfect continuous tense, noun clauses. These subjects don't take place in 7th grade curriculum of MNE." (Aslı Teacher)

Both İlknur and Aslı Teachers adapt the content of the resources they use such as providing additional information or giving extra lectures in line with the interests and needs of the students. İlknur Teacher clearly states that she made additions to the content of the book she used in the classroom by giving extra lectures.

"I provide additional content. For example, while explaining the present perfect tense, I give more information than the book. In the book only sentence structure is provided. There is no information on "for, since, just, already, yet". I teach them all at once. For example, there were exercises in the book only on present perfect sentences. I gave extra worksheets to teach just, for, since, yet, already etc." (İlknur Teacher)

Alp, one of the students in Aslı teacher's class, states that Aslı Teacher give extra lectures in the classroom in line with the needs of the students.

Alp: "She makes additional explanations, for example, the difference between "have got" and "have" was not normally found in our book, but we had problem to understand, that's why Aslı Teacher explained it."

6. How do the secondary school English teachers with different curriculum implementation approaches carry out teaching-learning activities during their lessons?

Esra and Onur Teacher, who tend to curriculum fidelity approach, mostly adhere to the curriculum materials in-class activities and they do not bring any activity to the classroom except the activities in the curriculum materials. Therefore, in the classroom, they usually apply guessing, filling the gap, matching, marking, sequencing, storytelling, true-false etc. activities that take place in the textbooks.

Esra Teacher apply the activities in the curriculum without making any change as she thinks that the curriculum is well developed and is a good guide for teachers. On the other hand, Onur Teacher adheres to the activities in the curriculum materials as it is obliged to do so by MNE although he thinks that the activities in the textbooks are not suitable for the student level and that they are not well structured. The following scene from the observations clearly shows that Onur Teacher does not make any change in the implementation of the activities in the curriculum materials according to the interests and needs of the students.

Observation:

Students: Teacher, let's play a song.

Onur Teacher: No, we were doing it when we had time.

Students: Teacher, we learned the subject yesterday, and we have made the exercises today. Please let's listen to the song. Open the song in the book.

Onur Teacher: The book is very good, though. (The teacher insists that they resume on the activities in the book by opening the textbook on the smart board.).

During interviews, Esra Teacher also clearly stated that she transfers the units in the textbook in the order presented to them and she adheres to the activities in the curriculum materials.

"I teach the units in the order given in the textbook. I've never made any change until today... So I think I am 80% loyal to the curriculum. Mostly loyal, I can make little personal changes." (Esra Teacher)

The focus of teachers who make student-based adaptations in the curriculum materials is to shape the teaching in line with student characteristics. These teachers consider students' interests, needs and levels. They give importance to make the lesson more fun and to decrease the negative attitude towards English. Ayşe Teacher, one of the teachers who make student-based adaptations, remarked that she doesn't like the activities in the textbooks and changes the textbook activities or provides additional activities from other materials.

"... I decide on activities myself. I cannot say that I liked the activities in the textbook very much. So, I am changing and expanding them" (Ayşe Teacher).

Similarly, Banu and Öykü Teachers stated that instead of blindly adhering to the activities in the curriculum materials, they made adaptations in these activities in line with student characteristics. These teachers frequently apply student-centered methods and techniques such as game playing, role playing, peer teaching, brainstorming, and pair work. Thus, they diversify the teaching and try to appeal to every child.

"I am not affected by the curriculum as I usually try to choose the method that is more appropriate for student characteristics " (Banu Teacher)

"I don't always keep to the curriculum as each child is different. I verify the activities by using colored cardboards, opening music, making presentations etc. (Öykü Teacher)

Ayşe and Banu Teachers consider the student level while implementing the activities in the curriculum materials, and when the activities are not suitable for the student level, they skip or simplify them.

"There were some high-level reading texts in the curriculum materials. For instance, there were a detailed biography of someone. As I know the level of my students, I don't expect them to read and answer the questions related to this biography. Thus, I skipped it." (Ayşe Teacher)

"Students find some units difficult. I can speed it up a little more in the unit that I consider simple and spend a little more time for the one where the students have difficulty. I simplify some activities. Student level is very important while making activities." (Banu Teacher)

When the activities in the curriculum materials are insufficient to reinforce the subject, teachers with student-based adaptation approach compensate for this deficiency by providing additional exercises, extra worksheets, sample sentences and other sources. When the activities in the curriculum materials do not attract the attention of the students, they transform the activity or supply additional activities. For example, when the activities in the curriculum materials do not attract the attention of the students, Ali Teacher either turn these activities into more fun such as playing games or drawing pictures, or support them with fun activities such as songs, videos, animations, slides, flashcards, etc.

"For example, I played an English song to attract students' attention. I use activities that will make them learn the language with enthusiasm. Apart from the activities in the textbook, I try to include an English movie, animation." (Ali Teacher)

Similarly, Mehtap Teacher tries to attract the attention of the students to the lesson by providing a video on the subject. In an activity in the third unit with the theme of sports, there are explanations about different sports such as "street luge", "zorbining" and students are asked to match these explanations with the relevant picture. In this exercise, Teacher Mehtap made the students watch an entertaining video showing how these sports are done, even though it is not in the book, thus making the activity more fun and interesting so that students can better understand these sports, which are far from their own culture, and learn words more effectively.

On the other hand, teachers who make exam-based adaptations shape their teaching to increase students' exam performance. In this context, they generally ignore the activities (listening and speaking) aimed at improving communication skills in the curriculum materials and focus on teaching vocabulary and grammar. Vocabulary teaching is generally carried out for exam and memorization. For example, the following section from the observations made in Teacher İpek's classroom shows that the teacher

matched the vocabulary teaching with the success of the exam and emphasized that the students must memorize words in order to get high grades in the exam.

Observation:

İpek Teacher: Your first exam is over, there's still a second, third. You cannot do the exam unless you memorize vocabulary.

Ayla: I don't want to deal with memorizing words at all.

İpek Teacher: If you don't want to memorize, then I don't want to grade as well.

Similarly, the following statement of Pınar, one of the students in Nazan Teacher's class, clearly shows that Nazan Teacher focuses on teaching vocabulary to increase the exam grade and does not take student interests into account in her activities for teaching vocabulary.

Pınar: "In our teacher's class last year, we were writing the words of the unit on paper, and we were writing the meaning on the other side. We were matching and getting points by playing games. It was so much more fun and it made us learn better. She is not teaching us this year. This year, Teacher Nazan writes the words and asks us to write them in the notebook 5 times."

Teachers who make exam-based adaptations supply additional activities such as worksheets and tests in order to reinforce the grammar rules and prepare students for the exam. Teacher Elif, who works in a private school has clearly stated in the interviews that she includes multiple-choice tests as an additional activity to increase students' performance in exams.

"I start with grammar first, then move on to words. Then I go to the reading passages that include grammar and words, and finally I give a test. Because we get the feedback of the lesson, I teach through school practice exams. Therefore, children should be accustomed to the test technique so that they can do well in the exam. We need to solve a lot of tests on that subject." (Elif Teacher)

Teachers with exam-based adaptation approach often use direct instruction and question-answer methods in their lessons, and they perform a traditional teaching. In addition, they often skip entertaining activities such as games, songs, videos in the curriculum materials and emphasize the words and grammar rules in the activities. For example, Teacher İpek generally focuses on teaching vocabulary and grammar that will contribute to prepare students for the exam, and puts activities other than these into the background. She usually skips these activities in the curriculum materials, which she sees as a waste of time.

"I usually skip the fun ones. The games, the songs. Because we don't have time. If we finish the subjects, we usually leave them at the end of the year. I want to give it right away, but it doesn't happen because we have exams." (İpek Teacher)

Other teachers, who make exam-based adaptations in the study group, often skip the interactive exercises recommended to be done with a friend in the curriculum materials or turn them into individual activities. These teachers ignore the communicative teaching by transforming activities such as speaking and listening into writing and reading activities. The excerpt from the interview with one of these teachers shows that these teachers often skip fun, student-based and communicative activities that will not contribute to the exam.

"I'm skipping. For example, how shall I say, we often have to skip listening. Sometimes we read, sometimes we can't. There are activities that are very repetitive, for example, we had an activity in this unit, the reading of sports in different languages. What will this do for the student? So, I passed. There are some activities that I consider unnecessary, I skip them." (Emine Teacher)

It has been observed that teachers who make exam-based adaptations rarely include interactive whiteboards in their teaching processes. These teachers make use of the blackboard where more lectures and reinforcement questions are written during teaching. In addition, it has been observed that these teachers frequently emphasize the issues that may arise in the exam while doing the activities during the lesson.

Beside, the most striking features of the teachers who tend to the curriculum design approach are that they have more activities in their lessons, due to the fact that the course hours are longer than the state schools' course hours and they use different resources from the curriculum materials. These teachers have more time for reading-listening and speaking lessons. They take into account the interests, wishes and needs of the students in their practices. The following statement of Pelin, one of the students in Aslı Teacher's class, about her teacher supports that her teachers take into account the interests and wishes of students.

Pelin: "Teacher Aslı realizes that sometimes we are bored in the lessons. Then she let us talk about what we want. We talk a little bit, then we continue the lesson again. She usually listens to our request."

Both İlknur and Aslı Teacher give importance to student opinions in the activities they will do in the lesson. The following section, taken from the observations of Aslı Teacher's class, clearly shows that the teacher decides on some activities together with the student.

Observation:

Aslı Teacher: Okay, I ask you, should we read (Frankenstein) in this lesson or another lesson?

Students: This lesson.

Aslı Teacher: Okay, let's see, this time we will listen and read.

Sevgi: Hooray!

İlknur and Aslı Teacher, while doing the activities in the textbook they use, they make adaptations such as skipping, changing, providing additional activities, etc. according to the level and interests of the students. In addition, the views of İlknur Teacher

about the additional activities she brought to the classroom reveal that these teachers put emphasis on the activities that appeal to the students.

"I usually include more colorful activities with more visuals. Since we don't use official curriculum, the activities in my class in not very exam-based." (Ilknur Teacher)

The strategies, methods and techniques that Ilknur and Aslı Teacher use in teaching are question-answer, translation, direct instruction, role playing, dialogue creation, guessing, group work, game playing, etc. It is seen that teaching is predominantly student-based.

7. How do the secondary school English teachers with different curriculum implementation approaches carry out the assessment and evaluation process?

Esra and Onur Teachers, who have curriculum fidelity approach, consider formative evaluation such as homework and class participation in addition to the written exams during evaluation processes. As suggested in the curriculum, they do not immediately correct the pronunciation mistakes of the students during the lesson and give them the opportunity to speak. Again, the following scene from the observation clearly shows that Onur Teacher takes into account the curriculum materials while preparing the written exam questions.

Observation:

Ahmet: Teacher, we are depressed due to the exam. Well, you said "lovely" under "look like", and a lot of friends did it wrong.

Ayla: Yes teacher. You accept "beautiful" under "look like" but why don't you accept "lovely"? You accepted it while we were studying in the classroom that day, so it remained that way in my mind.

Onur Teacher: What did I tell you before the exam? I said not a word will come out except the book, did it?

Ahmet: No teacher, it didn't.

In addition, Esra and Onur Teachers, who adhere to the curriculum during assessment and evaluation process, take into account the annual plan to determine the examination times. On the other hand, during observations it was recognized that although alternative assessment techniques such as self-assessment, peer assessment, and portfolio assessment were suggested in the official curriculum, both Esra and Onur Teachers did not use these techniques and rarely applied portfolio assessment in their classes.

Teachers who make student-based adaptations mostly consider the objectives of the curriculum while preparing the exam questions. In addition to the written exam, they also take into account formative evaluation such as homework, class participation and oral exam. In addition, these teachers carry out vocabulary teaching in the process with quizzes they call "word box" or "pouch test" in their classrooms. In this context, students prepare a bag or box for themselves and whether they have learned the words is tested by quizzes made by their teachers from time to time. In addition, as Ayşe Teacher stated during the interviews, teachers who tend to the student-based adaptation approach take into account the exam results of the students and try to eliminate the learning deficiencies by making remedial teaching for the unachieved objectives.

"In the textbook there were some questions about "How often, frequency adverbs", they weren't sufficient. Did students understand or not understand the activity... they could not do it in the exam. I repeated that subject and provided extra worksheet. I asked students to solve more questions and make sentences on the subject." (Ayşe Teacher)

Banu Teacher emphasizes that learning is more important than grades in her lessons. The following section, taken from the observations made in Banu Teacher's class, shows that the midterm exams applied to determine the learning levels of the students are mostly aimed at improving English learning and communication skills of the students rather than preparing them for the exam.

Observation:

(Teacher holds a vocabulary test on Biographies -Unit 2- in the classroom)

Banu Teacher: It's a little difficult. I told you memorizing is not enough. You need to find the answer by understanding the meaning of the sentence.

Students: Will it affect the exam grade?

Banu Teacher: My son, the purpose of this test is to have cognition on your learning. Don't worry about the note. Think about whether you learned. Watch out for your mistakes.

Banu Teacher, who focuses on the students' ability to use and learn the language rather than the grade they will get, states that while preparing the exam questions, she focuses on the subjects that the students need to learn and that may be useful in the future.

"While preparing questions, I ask myself what the students will learn from this. In Unit 2, for example, students should know what a biography is and they should know where in the text they can find the answer for the questions of where and when someone was born. I prefer to give information that they will make use of in the future in their real life." (Banu Teacher)

On the other hand, teachers with exam-based adaptation approach take into account the objectives and content in the curriculum materials while preparing the exam questions and they do not go beyond them since the curriculum materials will be considered in the national exams. Elif Teacher clearly states that she adheres to the objectives and content in the curriculum materials to prepare students for the national exams.

“Curriculum is 100% effective during evaluation and assessment. Because there is a common test across Turkey. Thus, we don’t teach beyond the curriculum. All the students will take this exam and the questions will be based on the official curriculum.” (Elif Teacher)

Teachers with exam-based adaptation approach give importance to written exams rather than formative evaluation such as conducting a midterm exam (quiz), and they mostly emphasize the subjects and activities that might be in the exam. Students are not allowed to make mistakes, pronunciation and grammar mistakes are corrected instantly. These teachers often display an authoritarian attitude in their classrooms, unable to tolerate students' wrong answers. In order to prepare students for national exams, they usually include multiple-choice tests in the course's own exam.

When considered the implementations of the teachers with curriculum design approach, while the grade received from İlknur Teacher's course is reflected on the student's report card at the end of the semester, no grade is given in Asli Teacher's course. Thus, there is no written exam in Asli Teacher's class. However, Asli Teacher still applies unit assessment exams to test the learning outcomes of students, although it is not mandatory.

“Normally we don’t have a unit assessment requirement, but I do it because if I don't, I don't understand what the student learned and what difficulty he/she has while learning.” (Aslı Teacher)

İlknur Teacher, on the other hand, does not refer to the curriculum materials prepared by the MNE while preparing the exam questions. She tests learning with both written exams and the sentences formed by the students during the lesson in a process-oriented manner.

“I don’t refer to official curriculum materials while writing exam questions. I refer to the materials that I use in my class while teaching. As I don’t teach the content in the official curriculum materials, I can’t ask questions by referring them.” (İlknur Teacher)

It is seen that teachers with curriculum design approach are generally not exam-oriented while teaching but they aim at improving communication skills of students. Thus, unlike the teachers with curriculum fidelity and curriculum adaptation, they assess listening and speaking skills of their students during teaching and in exams.

CONCLUSION

The aim of this study was to define the curriculum implementation approaches of secondary school English teachers and to determine in-class practices of teachers with different approaches. In order to realize the purpose of the research, the data obtained from the teachers and students through interview, observation and document review were examined in line with the interpretative paradigm. The findings of this study have shown that teachers in the study group have basically three different curriculum implementation approaches named as; curriculum fidelity, curriculum adaptation and curriculum design. These teachers with different approaches have fundamentally different perceptions on the curriculum and make various implementations while planning and deciding the objectives, content, teaching activities and assessment processes of the course. In this conclusion part, the curriculum implementation approaches and the practices made by the teachers with different approaches are summarized briefly.

Teachers with curriculum fidelity approach, define the curriculum as a guide to be followed and draw attention to the necessity of using the curriculum materials. Thus they take the curriculum materials into account during instruction and almost never share anything other than those specified in these materials. They stick to the objectives and the content given in curriculum materials. These teachers generally follow the activities in these materials page by page. They generally don’t add or omit any activities. The timely and complete completion of the activities in the curriculum materials is often prior to student needs and interests. While assessing learning outcomes, they apply both formative and summative evaluations. However, even these teachers, who implement the curriculum as it is, don’t make use of alternative assessment techniques which are suggested in the official curriculum.

Teachers with curriculum adaptation approach, include curriculum materials in their teaching processes, but during the use of these materials they make adaptations as skipping, changing, simplifying, bringing additional activities, etc., either for student characteristics or for exam performance. While the factor that encourages the teachers, who make student-based adaptations is basically the level, interests, wishes and needs of the student, the focus of the teachers who make the exam-based adaptations is to increase the exam performance of the students. Teachers who make student-based adaptations define the curriculum as a framework that sets boundaries, and they state that it is up to the teacher to enrich this framework according to the student. These teachers generally use the curriculum materials as they are compulsory and compensate for the limitations in these materials with their own adaptations. In this direction, while implementing an activity in the curriculum materials, they make adaptations according to the level, interest, desire and need of the student. Sometimes they make these adaptations by skipping a reading passage that they know is not suitable for the student's level or replacing it with another text, and sometimes by bringing an additional activity to the class that will enable the student to learn while having fun. Thus, they adapt the content and activities in the curriculum materials to appeal to the characteristics of their students. Teachers who make exam-based adaptations define the curriculum as a tool that provides exam partnership and draw attention to the incompatibility between the constructivist philosophy of the curriculum and the exam-based educational system. These teachers include curriculum materials in their lessons, but they also use additional resources to prepare students for the exam. In the implementation process of the curriculum materials, since it is important to increase the student's exam performance, communicative elements are usually skipped and

activities to prepare for the exam in which the grammar rules are reinforced are added. For this reason, they make an adaptation that mostly ignores the communicative elements of the curriculum and the interests of the students.

Teachers who tend to the curriculum design approach don't use the curriculum materials in their class and they adapt the resources they use in line with the student's characteristics. These teachers working in private institutions can act much more flexible in teaching processes than teachers in other approaches. Since these teachers use different resources, they include different objectives, content and activities from the curriculum materials in their lessons. They take into account the student needs and interests and shape their teaching accordingly.

DISCUSSION

Since curricula in Turkey are prepared with a central approach, teachers are expected to adhere to these curricula and curriculum materials in their classroom practices. However, studies show that many factors such as teachers' beliefs, values, experiences, decision-making processes, and subject area are effective in the implementation of the curriculum (Azano et al., 2011; Barnes, 2005; Bay et al., 2017; Bümen et al., 2014; Cosden, 1991; Çınar, Teyfur & Teyfur, 2006; Erickson & Shultz, 1992; Kabaoğlu, 2015; Öztürk, 2012; Remillard, 2005; Sherin & Drake, 2004; Tokgöz, 2013). The implementation of the curriculum is a dynamic process that is influenced by the opinions and knowledge of teachers (Remillard, 2005). As a result of this research, it has been seen that teachers have basically three different approaches when applying the curriculum in their classrooms: curriculum fidelity, curriculum adaptation and curriculum design. This result is compatible with the previous studies on teachers' curriculum practices. Snyder et al. (1992) stated that teachers have approaches of fidelity, mutual adaptation and enact while applying the curriculum in their classrooms. Similarly, Shaver (2003, cited in Shaver, Gilmore & Banks-Joseph, 2008) stated that teachers approach the curriculum in different ways as curriculum transmitters, curriculum developers, and curriculum makers (as cited in Shaver et al., 2008,). The "curriculum fidelity" and "curriculum transmitters" in the literature and the "curriculum fidelity" approach named as a result of this research are similar to each other. In these approaches, teachers tend to apply the curriculum materials exactly. Since it is stated that teachers make adaptations in the official curriculum in all three approaches called "curriculum adaptation", "mutual adaptation" and "curriculum development", these approaches also overlap with each other. However, since the curriculum adaptation approach within the scope of this research reflects two different views as student-based and exam-based adaptation, and therefore the adaptation of the curriculum is detailed under these two approaches, it differs from the approaches of mutual adaptation and curriculum developers in the literature. As a result of this research, the last approach called "curriculum design" differs partially from the concept of "enactment" and "curriculum makers". In the approaches called enactment and curriculum makers, all the decisions from objectives to content, teaching-learning processes and assessment-evaluation processes are taken by the teacher, while the approach of curriculum design in this study is mostly instructional design. Because, although there are significant differences from official curriculum materials in terms of learning outcomes, content, educational situations and test situations in the applications made in this approach, the final decision about the source book and test situations that the teacher will use is largely taken by the private institution where the teacher works. In addition, teachers come together to discuss the selection of the source book to be used and make a decision and present the source they want to use to the school administration. Teachers with curriculum design approach have the most flexibility in teaching-learning process, and they can act much more flexible than the teachers in other groups in determining their in-class activities. Teachers with curriculum design approach were only seen in private schools in the sample of the study, and no teachers with this approach were found in state schools. Tokgöz (2013), who has a similar sample group with this research, determined three different teacher profiles in her study and these profiles were named as curriculum followers, curriculum extenders and curriculum adapters. According to this classification, curriculum followers and curriculum adapters are similar to the curriculum fidelity and curriculum adaptation approaches named as a result of this research. On the other hand, "curriculum extenders", named after teachers who focus on student success and prioritize knowledge transfer in order to increase students' success in national exams, correspond to teachers with "exam-based adaptation" approach in this study. Teachers who make exam-based adaptations often skip communicative and student-based activities such as listening and speaking in the curriculum materials, and do not show the necessary importance to these activities as they do not contribute to national exams. In other words, while these teachers are adding to the curriculum materials, they are also ignoring the activities in these materials and narrowing the communicative and student-based effect of the curriculum. Therefore, it is more appropriate for this study to name these teachers as those who have an exam-based adaptation approach rather than curriculum extenders.

The results of this research, which examines the curriculum approaches of teachers, have also shown that teachers perceive the textbooks as the official curriculum, and they mostly make use of the textbook, not the official curriculum, while planning the lesson. In similar studies, it is seen that teachers perceive the teacher's guidebook, textbook or annual plan as curriculum (Tokgöz, 2013), and therefore, in studies on this subject, the concept of curriculum refers to the resources and guides used by teachers (Remillard, 2005; Sherin & Drake, 2004). The teachers' perception of the textbooks as curriculum and therefore especially for the curriculum fidelity approach, their transferring the textbooks one-to-one causes problems such as the practices that are not in accordance with the constructivist philosophy of the curriculum.

Another remarkable finding in this study is that teachers, including ones with curriculum fidelity approach, generally use traditional assessment techniques in their classrooms. Although teachers sometimes include formative evaluation such as midterm exams, homework control and project assignments in addition to written and oral exams, they do not include the self-

evaluation techniques suggested in the curriculum in order to enable students to follow their own learning processes. Findings from the literature have shown that teachers mostly use traditional assessment techniques instead of alternative assessment techniques due to the pressure of national exams, lack of time and crowded classrooms (Apaydın & Kandemir, 2018; Büyükduman, 2005; Erdol & Yıldızlı, 2018; İzci, Göktaş & Şad, 2014; Kabapınar & Ataman, 2010; Karakuş & Öztürk, 2016; Tokgöz, 2013; Yapıcı & Demirdelen, 2007). The fact that teachers do not include alternative assessment techniques in their classrooms may be due to reasons such as the inadequacy of teachers in applying these techniques, the fact that the constructivist philosophy of the curriculum is not fully introduced to them or they are used to traditional assessment techniques (Alkan & Arslan, 2014; Çelik & Kasapoğlu, 2014; Demirtaş & Erdem, 2015; Tokgöz, 2013). There are studies in the literature showing that teachers feel inadequate in applying alternative assessment techniques (Demir, Tananis & Trahan, 2019; Gözütok, Akgün & Karacaoğlu, 2005; Güneş, 2009; Karamustafaoğlu, Çağlak & Meşeci, 2012; Nazlıçipek & Akarsu, 2003; Özenç & Çakır, 2015; Yamtim & Wongwanich, 2014). Teachers generally feel inadequate in alternative assessment techniques such as rubrics, self-assessment, peer assessment, portfolio, and projects (Birgin & Baki, 2009).

Finally, when the research findings are examined, it is seen that most of the teachers tend to the curriculum adaptation approach in their classrooms. This finding of the study is in good accordance with the findings of the previous studies (Bernard, 2017; Bümen, 2019; Tokgöz, 2013; Troyer, 2019; Yazıcılar & Bümen, 2019). Despite the pressure to adhere to the curriculum, the majority of teachers adapting the curriculum materials can be explained by the inadequacy of the textbooks and the contradiction between the national examination system and the constructivist philosophy of the curriculum. Teachers who state the inadequacy of textbooks in meeting student characteristics and preparing students for the exam make adaptations to the curriculum materials either to meet student needs and interests or to better prepare students for national exams. In the study carried out by Tokgöz (2013), the teachers who made adaptations in the curriculum stated that the curriculum was not suitable for implementation due to the contradiction between the examination system and the curriculum philosophy, and the differing classroom and school contexts. Within the scope of the teaching profession general qualifications, MNE (2017) stated that teachers should have sufficient skills to prepare the environment and materials that will enable all students to learn effectively and to conduct the learning-teaching process effectively. Teachers should prepare their plans in accordance with the curriculum, but at the same time, they should be flexible in their applications in the classroom, taking into account the individual differences and socio-cultural characteristics of the students. In addition, in the management of the learning-teaching process, teachers are expected to consider students with special needs, to associate the lesson with the daily life of the student, and to consider the characteristics of the environment. In this context, the adaptations made by the teachers in the curriculum materials are among the professional skills that all teachers should have.

RECOMMENDATIONS

The findings of this study have shown that for some teachers, the curriculum is synonymous with textbooks. This situation causes teachers to transfer the textbooks in their classes without considering the student characteristics. However, this approach contradicts with the philosophy of the constructivist curriculum. In addition, it is noteworthy that even the teachers with curriculum fidelity approach cannot fully implement the constructivist philosophy of the curriculum, especially in the evaluation processes. Therefore, informing teachers about the curriculum, its structure and philosophy, and supporting them during implementation process will be beneficial for the curriculum to be implemented in accordance with its intended purpose. In-service training programs can be organized for teachers in the profession. For pre-service teachers, who are the teachers of the future, precautions should be taken in this regard in pre-service education institutions. Precautions to be taken to increase the curriculum literacy levels of both teachers and teacher candidates can help teachers to better understand and implement the curriculum. In addition, increasing the pedagogical design capacity of teachers will also support them in understanding the philosophy of the curriculum correctly and making adaptations in accordance with this philosophy. Within pedagogical design capacity, in order to achieve educational goals, teachers; detect existing resources and interpret, evaluate limitations in class setting and find strategies (Brown, 2002).

When the findings regarding the teachers' approaches to curriculum implementation are examined, it is clear that most of the teachers in the study group made adaptations while applying the curriculum. Some of those with curriculum fidelity approach also stated that they adhered to the curriculum as they considered it as an obligation, but they were not satisfied with the curriculum materials. Thus strict policy on curriculum adherence should be reviewed. Even though they are still under the supervision of the Ministry of National Education, the fact that the teachers in private schools shape curriculum applications according to students' characteristics may be due to the more flexible policy of the private schools. In a study by Shaver et al. (2008), free college policy was the motive behind curriculum-development and making. Teachers' ability to choose textbooks appropriate to their classroom context will increase their autonomy and thus improve their adaptation skills (Canbolat, 2020). When teachers are given the opportunity and flexibility, they can tailor the curriculum to student characteristics.

In this study the curriculum implementation approaches of English teachers were determined. The findings of the study is thought to path a way for the new studies on curriculum implementation. Thus, some new study topics are also suggested for the researchers. Most researchers and teacher trainers state that professional development should be directly related to teachers' experiences in the classroom. (Sherin & Drake, 2004). Although teachers include the same curriculum in their classrooms, some teachers continue to improve themselves, while others either do not develop at all or show little improvement (Shaver, 2010a).

In this direction, the effects of different curriculum implementation approach of teachers on their professional development can be examined. Moreover, the effect of teachers with different curriculum implementation approaches on students can be investigated to improve the quality of learning.

This study has potential limitations. The generalizability of the findings are limited with a group of teachers who work in a city. However the criterion and maximum variation sampling were used to be able to include teachers with different conditions which have potential to represent a wide audience. Another limitation is about the lack of previous studies on the topic. The studies conducted are mostly take place in foreign literature. The domestic literature on the topic is very limited. Thus the theoretical foundations need to be examined in terms of suitability to the domestic conditions. The studies like this one seem significant to examine the cultural relevance of the theoretical framework. In this direction, studies that will be conducted with various study groups and with the curricula of different education levels will contribute to the theoretical framework of this topic. Moreover, this study did not focus on the factors that determine the curriculum approaches of the teachers. Therefore new studies explaining why teachers approached curriculum in these ways will contribute to the literature on curriculum implementation approaches.

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The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Statements of publication ethics

I/We hereby declare that the study has not unethical issues and that research and publication ethics have been observed carefully.

Researchers' contribution rate

The study was conducted and reported with equal collaboration of the researchers.

Ethics Committee Approval Information

Ethics Committee Approval Document of this research was provided by Eskisehir Osmangazi University in 15.08.2017 by Ethics Committee for Education and Humanities with number 2017-7.

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[Research Article/ Araştırma Makalesi]

Investigation of Sociocultural and Socioeconomic Factors Affecting the Academic Achievement: PISA 2018 Turkey Sample

Akademik Başarıyı Etkileyen Sosyokültürel ve Sosyoekonomik Faktörlerin İncelenmesi: PISA 2018 Türkiye Örneklemi¹

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Keywords

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Abstract

Purpose: The purpose of the study is to investigate the socioeconomic and sociocultural factors that affect the success of the PISA 2018 Turkey sample in the fields of mathematical literacy, science literacy and reading skills in terms of the indexes created by PISA.

Methodology: The sample of the study consists of 6890 students. In PISA 2018, the average of ten plausible values created for each student was taken and student achievement scores were obtained. Stepwise Regression Analysis was applied to determine the extent to which the indexes predict student achievement.

Findings: The most predictive variables are Economic, Social and Cultural Status Index, occupational status of parents and Cultural Possessions Index. Information and Communication Technology Index negatively affects the achievement.

Highlights: Non-formal education should be used to increase the education level of students' parents. In order to reduce the inequality of opportunity for students whose families have a low socioeconomic level, the opportunities offered to schools in disadvantaged regions should be increased. Parents should be educated on the use of information and communication technology at home.

Öz

Çalışmanın amacı: PISA 2018 Türkiye örnekleminin matematik okuryazarlığı, fen okuryazarlığı ve okuma becerileri alanlarındaki başarısını etkileyen sosyoekonomik ve sosyokültürel faktörleri PISA tarafından oluşturulan endeksler açısından incelemektir.

Yöntem: Araştırmanın örneklemini 6890 öğrenci oluşturmaktadır. PISA uygulamasında her bir öğrenci için oluşturulan on olası değer ortalaması alınmış ve öğrenci başarı puanları elde edilmiştir. Endekslerin öğrenci başarısını yordama derecesinin tespit edilebilmesi için Aşamalı Regresyon Analizi uygulanmıştır.

Bulgular: Başarıyı en fazla yordayan değişkenler Ekonomik, Sosyal ve Kültürel Statü Endeksi, anne ve babanın mesleki statüsü ve Evdeki Kültürel Eşyalar Endeksidir. Bilgi ve İletişim Teknolojisi Endeksi başarıyı olumsuz etkilemektedir.

Önemli Vurgular: Öğrenci anne ve babasını eğitim seviyesinin yükseltilmesi için yaygın eğitimden yararlanılmalıdır. Ailesi düşük sosyoekonomik düzeye sahip olan öğrenciler açısından fırsat eşitsizliğinin azaltılması için dezavantajlı bölgelerdeki okullara sunulan imkanlar artırılmalıdır. Evde bilgi ve iletişim teknolojisi kullanımı konusunda ebeveynlere eğitim verilmelidir.

¹This paper is adapted from the master's thesis study carried out in Gaziosmanpaşa University Institute of Educational Sciences Department of Educational Administration and Supervision Master Program entitled "Investigation of Socio-cultural and Socioeconomic Factors Affecting the Academic Achievement of the PISA 2018 Turkey Sample"

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INTRODUCTION

Globalization means an increase in political, economic and cultural interactions between societies and the development of world citizenship awareness (Karabağ, 2006; cited in Çınar, 2009). It can be said that globalization has accelerated with the technological developments in the world and especially the widespread use of social media. One of the areas that globalization has affected the most is education. While it is important for countries to convey their own values to their students, it is also important for students to acquire the skills and universal values necessary for working with people from other cultures in the international arena.

It is important to measure the effectiveness of the education systems of the countries and their success in reaching the determined targets. It is important for countries to measure the success of their education systems, as well as to determine their place and success in the field of education among the countries they compete with. Thanks to these results, deficiencies and mistakes in education systems are seen and necessary precautions can be taken.

Determining the factors affecting success is as important as determining the level of success. It is possible to talk about many factors that affect success in education. These can be listed as individual factors (e.g. gender), school factors (e.g. school culture), and socioeconomic and sociocultural factors. In this study, the effect of socioeconomic and sociocultural factors on success was examined. Data from the Program for International Student Assessment (PISA) were used in this study, as it gives the opportunity to examine student achievement level and socioeconomic status together.

PISA is an international test administered by the Organization for Economic Cooperation and Development (OECD) in three-year terms since 2000. With the PISA exam, the reading skills of fifteen-year-old students and their ability to use their mathematics and science knowledge in real life are measured. With the application of PISA in a three-year period, countries can see the development of their education systems and how the relationship between success and the factors affecting the success has changed (Pokrobek, Borgonovi & McCormick, 2017).

In PISA, success is expressed with the concept of "literacy" (e.g. mathematical literacy, science literacy). "Literacy" refers to the use of knowledge and skills acquired at school in daily life (Kastberg, Chan & Murray, 2016). The fact that productive and effective participation in social life, which is one of the aims of compulsory education, can be measured by PISA increases the importance of the application (Özmuş, 2013).

PISA exams are held in two stages. In the first stage, the literacy levels (success scores) of the students are determined, and in the second stage, a questionnaire is applied. The socioeconomic status of the students is determined by the applied questionnaire. In the light of the data obtained, the factors affecting the success of the students can be examined.

The Relationship Between Academic Achievement and Socioeconomic/Sociocultural Factors

Socioeconomic status is defined as the position of the individual in society determined by the level of access to wealth, prestige and power (Willms, 1992; cited in Thien, 2016). There are many studies showing that there is a strong relationship between student achievement and the socioeconomic characteristics of the family. These studies show that students from low socioeconomic backgrounds are more likely to fail (Önder & Uyar, 2018).

Families with high socioeconomic status are more advantageous in providing their children with books, computers and opportunities to support their cognitive and affective development, such as hiring a private tutor to help with their lessons. Having a high level of culture in the family also supports children's vocabulary and building social networks (OECD, 2016a). Families with a high level of education are more willing to attach more importance to their children's education and to actively participate in their children's education processes. This is extremely important for children's cognitive, affective and academic development (Boonk, Gijsselaers, Ritzen, & Gruwel, 2018).

The high level of education in the family is not only a factor affecting the academic success of students. Families with a high level of education help their children to understand the cultural values of the society they live in and gain the ability to live in this culture. With the advantages of having a high education level, they support their children's academic success as well as their cultural development (Martins & Veiga, 2010).

In 1966, Coleman and Jencks conducted a large-scale study of 640,000 students in 4,000 schools in the United States. According to the Coleman Report, called the Equality of Educational Opportunity Survey, the characteristics of the students' family are more influential on students' achievement than the characteristics of the school. The characteristics of the school determine only 10.0-20.0% of student success (Karabay, 2013; Karasu, 2019).

Although the effect of the socioeconomic status of the family on success cannot be ignored, it is seen that the students can be successful despite their low socioeconomic and sociocultural status. According to PISA 2012 exam data, about one million students were successful despite their socio-cultural disadvantages. In the same application, 7.2% of the disadvantaged students in Turkey showed high success (Önder & Uyar, 2018). This situation is expressed as "academic resilience" in the literature (Böreççi and Gerçek, 2017). This situation is thought to be a subject that needs to be examined in depth in terms of educational inequality.

Since it is very difficult and often not possible to change the socio-economic characteristics of the student, the academic resistance of the student should be preserved and developed. Academic resistance can be achieved by reducing the risk factors that cause failure and developing protective factors (Krovetz, 1999; cited in Önder and Uyar, 2018).

Students with low socioeconomic status are provided with much more limited resources by their families throughout their education life. As a result of this situation, the student fails academically. Due to low academic achievement, these students cannot continue their education in good schools in the future and work in low-status and low-paid jobs. Since his own family has a low socioeconomic level, he cannot provide adequate social, cultural and educational support to his own children, and these children also have low academic success. As can be seen, this situation is passed on through generations in the family.

The degree to which student success is affected by variables such as socioeconomic status, school factors, and gender, which cannot be changed by the student, reflects the inequality in the education system. The high degree of impact of socioeconomic factors on academic achievement reveals the gap between students with different socioeconomic status (Liu, Peng, & Luo, 2020). In other words, if socioeconomic and sociocultural factors are very effective on academic achievement in an education system, it can be said that education inequality is high in that system. Determining the relationship between success and the factors affecting success is considered important in terms of closing the success gap and ensuring equality (Long & Pang, 2016).

METHOD

Correlation type relational screening model was used in the research, since the relationship between the achievement scores and the socioeconomic characteristics of the PISA 2018 Turkey sample was examined. In the correlation type screening model, the level of change is tried to be determined (Karasar, 2019).

Population and Sample

The population of the research is students in the age group of 15 in Turkey. The sample consists of 6890 students who participated in the PISA 2018 exam in Turkey. 6890 students in 186 schools selected from 12 regions of Turkey participated in the PISA 2018 application. The information about the students in the sample is shown in the table below.

Table 1. PISA 2018 Turkey Sample

Student Characteristics	Categories	f	%
Gender	Male	3.494	50,4
	Female	3.396	49,6
School Type	Anatolian H.S	3.013	43,7
	Voc. and Tech. Anatolian H.S	2.143	31,1
	Anatolian Imam Hatip H.S	943	13,7
	Science H.S	226	4,2
	Multi-Program Anatolian H.S	273	4,0
	Social Sciences H.S	228	2,4
	Anatolian Fine Arts H.S	42	0,6
	Secondary School	22	0,3
Total		6.890	100

Of the students participating in the PISA 2018 exam in Turkey, 43.7% Anatolian High School, 31.1% Vocational and Technical Anatolian High School, 13.7% Anatolian Imam Hatip High School, 4.2% Science High School, % 4.0% of them are Multi-Program Anatolian High School, 2.4% of them are Social Sciences High School, 0.6% of them are Anatolian Fine Arts High School and 0.3% of them are secondary school students. While 49.6% of the sample consists of female students, 50.4% is male students (MEB, 2019).

Data Collection and Analysis

In the study, the PISA 2018 database, which is made available on the internet by the OECD, was used. In the PISA exam, the students answered the reading skills, mathematics and science literacy tests and the questionnaires revealing their demographic characteristics, socioeconomic and sociocultural status. In the study, the answers given by the students to the tests and questionnaires were used.

The data obtained through the OECD were analyzed with the SPSS 20 program. In the PISA 2018 dataset, instead of showing the success of the students with a single score, ten plausible values were created for each measurement area. The analyzes in the research were made by taking the average of these values.

In the analysis, the hypothesis of normal distribution was examined according to skewness and kurtosis values and sample size. For the normal distribution, histogram graphs were also used. In order to examine the linearity and normality assumptions, Mahalanobis, Cook's and Leverage values of the variables were examined and extreme values that made it difficult to meet the assumption were excluded from the analysis. The skewness and kurtosis values of the score types taken as the dependent variable in the study are shown in Table 2.

Table 2. Skewness and Kurtosis Values of Score Types

Score Types	Skewness	Kurtosis
Reading Skills	-.018	-.408
Math Literacy	.236	-.202
Science Literacy	.115	-.376

As Table 2 is examined, it is understood that the skewness and kurtosis values of all three score types are between +1.5 and -1.5. Therefore, skewness and kurtosis values are within acceptable limits, and the distribution is seen to be normal. The skewness and kurtosis values of the indexes created by PISA are shown in Table 3.

Table 3. Skewness and Kurtosis Values of the Indexes

Indexes	Skewness	Kurtosis
Economic, Social and Cultural Status Index (ESCS)	.21	-.68
Home ICT Index (ICTHOME)	-.21	-.39
Cultural Possessions Index (CULTPOSS)	.31	-.15
Home Educational Resources Index (HEDRES)	-.04	-.09
Family Wealth Index (WEALTH)	.14	1.42

As Table 3 is examined, it is seen that the kurtosis and skewness values of all indexes are between +1.5 and -1.5 and the normal distribution variance is seen.

Economic, Social and Cultural Status Index (ESCS), Home Information and Communication Technology Index (ICTHOME), Cultural Possessions Index (CULTPOSS), Home Educational Resources Index (HEDRES), Family Wealth Index (WEALTH), Mother's Occupational Status Index (MOCS) and Father's Occupational Status Index (FOCS) are included in the Stepwise Regression Analysis.

In the study, in addition to normal distribution estimates, it is also examined whether there is a multicollineity between independent variables. Multicollinearity is a high level of correlation between independent variables (Büyükoztürk, 2012). The correlation between independent variables is shown in Table 4.

Table 4. Correlation Between Independent Variables

	1	2	3	4	5	6	7
ICTHOME (1)	1						
CULTPOSS (2)	.382	1					
HEDRES (3)	.534	.453	1				
WEALTH (4)	.662	.482	.612	1			
ESCS (5)	.502	.517	.557	.706	1		
MOCS (6)	.217	.309	.246	.355	.583	1	
FOCS (7)	.254	.281	.289	.382	.722	.432	1

As Table 4 is examined, it is seen that the correlation between independent variables is below .80 and there is no multicollinearity.

The data is also examined in terms of extreme values. The error statistics table is examined and it is determined that the Std.Residual values are in the range of -3.29/+3.29 for each dependent variable and the Cook's Distance value is below 1. It is

observed that Variance Inflation Factor (VIF) values are below 2. When the findings are evaluated collectively, it is concluded that there is no multicollinearity.

The Economic, Social and Cultural Status Index was created using the information on the highest education level of the student's parents, the highest professional status, the possessions they own at home, and the number of books they own at home. Information on which data were used to create the other indexes included in the study is shown in Table 5.

Table 5. Variables That Make Up the Indexes (OECD, 2018)

Item	Description	WEALTH	CULTPOSS	HEDRES	ICTHOME
ST011Q01TA	A desk to study at			•	
ST011Q02TA	A room of your own	•			
ST011Q03TA	A quiet place to study			•	
ST011Q04TA	A computer			•	
ST011Q05TA	Educational software			•	•
ST011Q06TA	A link to the Internet	•			•
ST011Q07TA	Classic literature		•		
ST011Q08TA	Books of poetry		•		
ST011Q09TA	Works of art		•		
ST011Q10TA	Books to help with your school work			•	
ST011Q11TA	Technical reference books			•	
ST011Q12TA	A dictionary			•	
ST011Q16NA	Books on art		•		
ST011D17TA	Air conditioner (Turkey)	•			
ST011D18TA	A holiday (Turkey)	•			
ST011D19TA	TV subscriptions with payment (Turkey)	•			
ST012Q01TA	Television (number)	•			
ST012Q02TA	Car (number)	•			
ST012Q03TA	Rooms with a bath or shower (number)	•			
ST012Q05NA	Cell-phones with Int. access (number)	•			•
ST012Q06NA	Computer (number)	•			•
ST012Q07NA	Tablet computer (number)	•			•
ST012Q08NA	E-book reader (number)	•			•
ST012Q09NA	Musical instrument (number)		•		
ST013Q01TA	The number of books at home				

FINDINGS

Stepwise Regression Analysis was applied to determine to what extent the indexes predicted students' achievement scores in reading skills, mathematical literacy and science literacy. The results of the Stepwise Regression Analysis applied to determine which variables predict students' reading skills scores are shown in Table 6.

Table 6. Stepwise Regression Analysis of Which Variables Predicted the Reading Skills

Model	Predictor	B	SH _B	β	ΔR ²	t
1	ESCS	26.728	.892	.374	.140	29.949**
	Fixed	498.203	1.473			
2	ESCS	19.761	1.084	.276	.019	18.231**
	MOCS	.752	.068	.168		
	Fixed	471.646	2.787			
3	ESCS	13.353	1.406	.187	.008	9.497**
	MOCS	.740	.068	.165		
	FOCS	.488	.069	.126		
	Fixed	447.184	4.420			
4	ESCS	8.220	1.547	.115	.009	5.134**
	MOCS	.731	.067	.163		
	FOCS	.567	.069	.147		

Model	Predictor	B	SH _B	β	ΔR ²	t
	CULTPOSS	8.050	1.037	.112		7.762**
	Fixed	444.832	4.407			
5	ESCS	11.868	1.676	.166	.005	7.080**
	MOCS	.689	.067	.154		10.218**
	FOCS	.509	.070	.132		7.308**
	CULTPOSS	8.904	1.046	.124		8.515**
	ICTHOME	-2.620	.471	-.081		-5.565**
	Fixed	469.182	6.201			
6	ESCS	4.790	1.889	.067	.009	2.535*
	MOCS	.715	.067	.160		10.646**
	FOCS	.606	.070	.157		8.621**
	CULTPOSS	8.008	1.046	.112		7.658**
	ICTHOME	-4.652	.533	-.144		-8.724**
	WEALTH	14.849	1.866	.163		7.958**
	Fixed	488.924	6.647			
7	ESCS	2.728	1.921	.038	.004	1.420*
	MOCS	.744	.067	.166		11.070**
	FOCS	.639	.070	.165		9.080**
	CULTPOSS	7.056	1.057	.098		6.675**
	ICTHOME	-5.253	.543	-.163		-9.677**
	WEALTH	12.891	1.894	.142		6.805**
	HEDRES	7.344	1.326	.091		5.537**
	Fixed	488.483	6.630			

*p<.05 **p<.01 Note: N=6.890, At the first stage R²=.14, p=.00; Differentiation in R² at the second stage=.019, p=.00; Differentiation in R² at the third stage=.008, p=.00; Differentiation in R² at the fourth stage=.009, p=.00; Differentiation in R² at the fifth stage=.005, p=.00; Differentiation in R² at the sixth stage=.009, p=.00, p=.011 (ESCS); Differentiation in R² at the seventh stage=.004, p=.00, p=.156 (ESCS). Total R²=.194.

The analysis was completed in seven stages. In the first stage, the Economic, Social and Cultural Status Index variable, which explains the variance the most with 14%, entered the analysis. There is a positive relationship between the reading skills score and the ESKSE. As the students' ESKSE scores increase, their reading skills scores increase.

In the second stage, MOCS variable, which contributed 1.9% to the analysis, was entered and the variance increased to 15.9%. As the mother's occupational status score increases, the student's reading skills score also increases. In the third phase, FOCS was included in the analysis. The contribution of the FOCS variable to the variance is 0.8%. Thus, the variance increased to 16.7%. As the father's occupational status score increases, the student's reading skills score increases.

In the fourth stage, the CULTPOSS variable was included and contributed 0.9% to the variance. The total variance increased to 17.6%. As the student's cultural possessions index score increases, the reading skills score also increases. In the fifth stage, the ICTHOME variable, which contributed 0.5% to the variance, was included and the variance increased to 18.1%. There is a negative relationship between ICTHOME and reading skills scores.

In the sixth stage, the WEALTH variable was included in the analysis and increased the total variance with 0.9% contribution to 19.0%. As the WEALTH index score increases, the student achievement score also increases. In the seventh and final stage, the HEDRES index was included in the analysis. The contribution of the HEDRES index to the variance is 0.4%. Thus, the total variance was determined as 19.4%. As the educational resources index score increases, the student achievement score increases. The results of the Stepwise Regression Analysis performed to determine which variables predict students' mathematical literacy scores are shown in Table 7.

Table 7. Stepwise Regression Analysis of Which Variables Predicted the Math Literacy

Model	Predictor	B	SH _B	β	ΔR ²	t
1	ESCS	26.169	.863	.378	.143	30.321**
	Fixed	485.764	1.390			
2	ESCS	16.242	1.046	.278	.020	18.400**
	MOCS	.751	.066	.173		11.450**
	Fixed	459.294	2.689			
3	ESCS	12.229	1.357	.177	.010	9.010**
	MOCS	.736	.065	.170		11.288**

Model	Predictor	B	SH _B	β	ΔR ²	t
	FOCS	.533	.066	.143		8.040**
	Fixed	432.570	4.266			
4	ESCS	6.995	1.579	.101	.006	4.430**
	MOCS	.782	.065	.180		11.955**
	FOCS	.615	.067	.165		9.140**
	HEDRES	7.570	1.179	.097		6.421**
	Fixed	426.035	4.371			
5	ESCS	10.100	1.645	.146	.006	6.140**
	MOCS	.749	.065	.173		11.472**
	FOCS	.563	.067	.151		8.349**
	HEDRES	10.276	1.247	.131		8.241**
	ICTHOME	-3.091	.478	-.099		-6.467**
	Fixed	452.814	6.009			
6	ESCS	7.741	1.697	.112	.004	4.562**
	MOCS	.732	.065	.169		11.220**
	FOCS	.600	.068	.161		8.873**
	HEDRES	9.041	1.264	.115		7.152**
	ICTHOME	-3.306	.478	-.106		-6.911**
	CULTPOSS	5.585	1.023	.080		5.458**
	Fixed	454.272	5.999			
7	ESCS	4.421	1.863	.064	.003	2.373*
	MOCS	.741	.065	.171		11.379**
	FOCS	.645	.068	.173		9.439**
	HEDRES	8.010	1.285	.102		6.234**
	ICTHOME	-4.270	.528	-.137		-8.086**
	CULTPOSS	5.266	1.024	.076		5.141**
	WEALTH	7.896	1.845	.089		4.280**
	Fixed	464.538	6.452			

*p<.05 **p<.01 Note: N=6.890, At the first stage R²=.143, p=.00; Differentiation in R² at the second stage=.020, p=.00; Differentiation in R² at the third stage=.010, p=.00; Differentiation in R² at the fourth stage=.006, p=.00; Differentiation in R² at the fifth stage=.006, p=.00; Differentiation in R² at the sixth stage=.004, p=.00; Differentiation in R² at the seventh stage=.004, p=.00, p=.018 (ESCS). Total R²=.192.

The analysis was completed in seven stages. In the first stage, the ESCS variable, which explains the most variance with 14.3%, entered the analysis. There is a positive relationship between ESCS score and mathematical literacy score. As the students' ESCS scores increase, their mathematics scores also increase.

MOCS variable was added to the analysis with 2.0% contribution to the variance in the second stage. The explained variance increased to 16.3%. In the third stage, the FOCS variable was included in the analysis with 1.0% and the total variance increased to 17.3%. There is a positive relationship between the occupational status score of the mother and the father and the student's mathematical literacy scores.

In the fourth stage, the variable HEDRES was included in the analysis. The contribution of the variable to the variance is 0.6%. In the fifth stage, the ICTHOME variable, which contributed 0.6% to the variance, was included and the total variance increased to 18.5%. While there is a positive relationship between the HEDRES Index and the student's mathematical literacy, there is a negative relationship between the ICTHOME Index and mathematical literacy. As the ICTHOME Index score increases, the mathematical literacy score decreases.

In the sixth stage, the CULTPOSS Index, which contributed 0.4% to the variance, and in the seventh stage WEALTH Index were included in the analysis. There is a positive correlation between CULTPOSS and WEALTH indexes and mathematical literacy scores. Thus, the total variance was determined as 19.2%. The results of the Stepwise Regression Analysis performed to determine which variables predict students' science literacy scores are shown in Table 8.

Table 8. Stepwise Regression Analysis of Which Variables Predicted the Science Literacy

Model	Predictor	B	SH _B	β	ΔR ²	t
1	ESCS	24.922	.832	.374	.140**	29.953**
	Fixed	498.649	1.340			
2	ESCS	18.172	1.008	.273	.020**	18.029**

Model	Predictor	B	SH _B	β	ΔR ²	t
	MOCS	.732	.063	.175		11.577**
	Fixed	472.854	2.592			
3	ESCS	11.874	1.309	.178	.008**	9.070**
	MOCS	.719	.063	.172		11.423**
	FOCS	.478	.064	.133		7.486**
	Fixed	448.855	4.115			
4	ESCS	6.519	1.522	.098	.007**	4.282**
	MOCS	.765	.063	.183		12.137**
	FOCS	.562	.065	.156		8.672**
	HEDRES	7.744	1.137	.103		6.813**
	Fixed	442.170	4.214			
5	ESCS	9.231	1.587	.139	.005**	5.817**
	MOCS	.737	.063	.176		11.692**
	FOCS	.517	.065	.144		7.949**
	HEDRES	10.107	1.203	.134		8.402**
	ICTHOME	-2.699	.461	-.090		-5.853**
	Fixed	465.552	5.797			
6	ESCS	6.867	1.636	.103	.005**	4.196**
	MOCS	.719	.063	.172		11.432**
	FOCS	.554	.065	.154		8.496**
	HEDRES	8.869	1.219	.118		7.274**
	ICTHOME	-2.914	.461	-.097		-6.316**
	CULTPOSS	5.594	.987	.084		5.669**
	Fixed	467.012	5.787			
7	ESCS	3.465	1.797	.052	.003**	1.929*
	MOCS	.729	.063	.175		11.603**
	FOCS	.600	.066	.167		9.109**
	HEDRES	7.813	1.239	.104		6.305**
	ICTHOME	-3.902	.509	-.130		-7.663**
	CULTPOSS	5.268	.988	.079		5.333**
	WEALTH	8.093	1.779	.095		4.549**
	Fixed	477.536	6.222			

*p<.05 **p<.01 Note: N=6.890, At the first stage R²=.140, p=.00; Differentiation in R² at the second stage=.020, p=.00; Differentiation in R² at the third stage=.008, p=.00; Differentiation in R² at the fourth stage= .007, p=.00; Differentiation in R² at the fifth stage=.005, p=.00; Differentiation in R² at the sixth stage=.005, p=.00; Differentiation in R² at the seventh stage=.003, p=.00, p=.05(ESCS). Total R²=.188

The analysis was completed in seven stages. In the first stage, the ESCS variable was included in the analysis with an effect of 14.0%. There is a positive correlation between ESCS and science literacy scores. As the students' ESCS scores increase, their science literacy scores also increase. In the second stage, MOCS with 2.0% contribution and FOCS with 0.8% contribution in the third stage were included and the total variance increased to 16.8%.

HEDRES variable with 0.7% contribution in the fourth stage, ICTHOME variable with 0.5% contribution in the fifth stage were included in the analysis and the total variance increased to 18.0%. While science scores have a positive relationship with the HEDRES variable, there is a negative relationship between science scores and ICTHOME. As the students' ICTHOME scores increase, their science literacy scores decrease.

In the sixth stage, CULTPOSS Index with a contribution of 0.5%, and in the seventh and last stage, the WEALTH Index with a contribution of 0.3% were included in the analysis. As the students' CULTPOSS and WEALTH scores increase, their science literacy scores also increase. Thus, the total effect of the indexes on the science literacy score increased to 18.8%.

DISCUSSION

It was determined that the most predictive variable for reading skills, mathematical literacy and science literacy scores was the Economic, Social and Cultural Status Index. This index was created based on the variables of the highest education level of the student's parents, the highest occupational status, household possessions and the number of books in the house. Therefore, it is possible to say that all these socioeconomic factors have important contributions to student success in all three areas. There are many studies in the domestic and foreign literature showing the effect of socioeconomic factors on student achievement (Alacacı & Erbaş, 2010; Altun, 2007; Aslan, 2017; Ateş & Karadağ, 2017; Berberoğlu & Çelebi, 2003; Bouhlila, 2017;

Boztunç, 2010; Chiu & McBride Chang, 2006; Chiu & Xihua, 2008; Demir, Kılıç & Ünal, 2010; Dinçer & Kolaşın, 2009; Kalaycıoğlu, 2015; Kotte, Lietz & Lopez, 2005; NCES, 2001; Oral & McGivney, 2014; Özdemir & Gelbal, 2014; Sarier, 2010; Sarier, 2016; Sun & Bradley, 2011; Şirin, 2005; Usta, 2014; Yıldırım, 2012).

After ESCS, the variables that predict student success the most are the occupational status of student parents. The occupational status of the mother is more predictive for all three domains than the occupational status of the father. Numerous studies reveal that the professional status of students' parents is important for success (Akyüz & Pala, 2010; Çeçen, 2015; Dinçer & Kolaşın, 2009; Giambona & Porcu, 2015; Hazır Bıkmaz, 2001; Turkan & Alici, 2015; Usta, 2014; Zasacka & Bulkowski, 2017).

The index that predicts reading skills scores the most after ESCS and the indexes showing the occupational status of the parents is the index of cultural possessions at home. Considering that the CULTPOSS Index is created based on the literary works, poetry books, works of art, books written on art and the number of musical instruments at home, it can be said that these variables are important for the success of the students in the field of reading skills.

It was determined that the WEALTH Index is significant but not as effective as other indexes. There are studies that concluded that the financial wealth of the family is effective on success (Carnerio & Heckman, 2003; Giambona & Porcu, 2015; Hazır Bıkmaz, 2001). Turmo (2004) found that the cultural richness of the family has a greater effect on student achievement than family wealth. At the same time, there are studies that found that the occupational status and education level of the family have a greater effect on success than financial wealth (Xie & Ma, 2019) and that financial wealth is not a significant predictor of success (Dadandı, Dadandı & Koca, 2018).

ICTHOME is a variable that negatively affects success for all three measurement areas. The ICTHOME Index was created on the basis of the number of information and communication technology tools at home, not the availability of these tools. It can be said that the negative effect on student achievement scores is related to this. Therefore, as the number of technological tools increases, student success is negatively affected in reading skills, mathematical literacy and science literacy.

CONCLUSION AND RECOMMENDATIONS

Socioeconomic and sociocultural factors such as the education level of the student's parents, occupational status, household possessions and books owned at home are the ones that most affect success in reading skills, mathematical literacy and science literacy. It was found that the occupational status of the mother is more important than the occupational status of the father in terms of student achievement. The number of literary works, poetry books, works of art, books written on art and the number of musical instruments at home are among the factors that predict success the most. While having a computer and internet connection at home affects success positively, student success decreases as the number of these information and communication technology tools increases. It was determined that educational resources such as a desk at home, a quiet place to study, computers, supplementary textbooks, technical reference books and dictionaries are the factors that predict mathematics and science achievement the most. It was concluded that the financial wealth of the family is significant for the measurement areas, but its effect is not as high as the other factors. But financial wealth should not be considered independently of other variables. The socioeconomic status of the family and the opportunities provided to the students at home are related to financial wealth.

Education level of parents affects student achievement. It should be ensured that the parents of students with low education levels benefit from non-formal education and develop their thoughts on the importance of education. Considering that children who are currently students will become parents in the future, preventive measures should be taken in terms of school attendance and academic failure. Thus, the negative effect of parental education level, which is an important factor for student success, will be reduced.

In order to minimize the inequality of opportunity between students from low and high socioeconomic levels, the opportunities offered to schools where disadvantaged students receive education should be increased. In these schools, computer, internet and library facilities that students can use effectively should be provided, and more time and financial resources should be allocated for extracurricular activities. Free tickets and checks should be provided, and cultural trips should be encouraged so that students who are financially incapable can benefit from activities such as bookstores, cinemas and theaters. Schools should be transformed into places where students can see and create works of art. Parents should be trained on the efficient and safe use of information and communication technology.

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Statements of publication ethics

We hereby declare that the study has not unethical issues and that research and publication ethics have been observed carefully.

Researchers' contribution rate

The study was conducted and reported with equal collaboration of the researchers.

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| Research Article / Araştırma Makalesi |

Investigating the Predictive Effects of Attachment Styles on Coping Styles with Jealousy in Romantic Relationships

Bağlanma Stillерinin Romantik İlişkilerde Kıskançlıkla Başa Çıkma Biçimleri Üzerindeki Yordayıcı Etkisinin İncelenmesi¹

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Keywords

1. Romantic relationship
2. Jealousy
3. Styles of coping with jealousy
4. Anxious attachment
5. Avoidant attachment

Anahtar Kelimeler

1. Romantik ilişki
2. Kıskançlık
3. Kıskançlıkla başa çıkma biçimleri
4. Kaygılı bağlanma
5. Kaçınan bağlanma

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Abstract

Purpose: Jealousy in romantic relationships is a risk factor for individuals' happiness and relationship quality. Therefore, coping style with jealousy is important in addressing problems related to jealousy in relationships. The purpose of this study was to investigate the predictive effects of attachment styles (anxious and avoidant) on coping styles with jealousy (constructive, destructive-avoidant, and rival-focused) in romantic relationships.

Methodology: The sample of this study consisted of 301 people, 236 female and 65 males, who were in a romantic relationship. The Experiences in Close Relationships-Revised and the Communicative Responses to Jealousy Scale were used to collect the data. Linear regression analyses were performed to analyze the data.

Findings: The results showed that anxious attachment positively and avoidant attachment negatively predicted coping with jealousy in constructive communication. Both anxious and avoidant attachment positively predicted the style of coping with jealousy in destructive-avoidant communication. Anxious attachment positively predicted coping with jealousy in rival-focused communication, while avoidant attachment did not have a significant effect.

Highlights: The results showed that attachment styles are important in understanding the styles of coping with jealousy. The results were discussed along with the previous findings, and implications were provided for practitioners and future studies.

Öz

Çalışmanın amacı: Romantik ilişkilerde kıskançlık bireylerin mutluluğu ve ilişki kalitesi açısından bir risk faktörüdür. Dolayısıyla kişilerin romantik ilişkilerde kıskançlıkla baş etme yöntemleri, kıskançlıkla ilişkili sorunların ele alınmasında önem arz etmektedir. Bu araştırmanın amacı bireylerin bağlanma stillerinin (kaygılı ve kaçınan) romantik ilişkilerde kıskançlıkla baş etme yöntemleri üzerindeki (yapıcı, yıkıcı-kaçınan ve rakip odaklı) yordayıcı etkisini araştırmaktır.

Materyal ve Yöntem: Araştırmaya 236'sı kadın ve 65'i erkek olmak üzere, ilişkisi olduğunu belirten toplam 301 kişi katılmıştır. Araştırmada Yakın İlişkilerde Yaşantılar Envanteri-II ve Kıskançlık Karşısında Gösterilen İletişim Tepkileri Ölçeği kullanılmıştır. Veriler çoklu doğrusal regresyon analizleri ile analiz edilmiştir.

Bulgular: Bulgular yapıcı iletişim kıskançlıkla baş etme yönteminin yordanmasında, kaygılı bağlanmanın pozitif yönde ve kaçınan bağlanmanın negatif yönde etkisi olduğunu göstermiştir. Yıkıcı-kaçınan iletişim kıskançlıkla baş etme yöntemini, kaygılı ve kaçınan bağlanmanın pozitif yönde anlamlı düzeyde yordadığı bulunmuştur. Rakip odaklı iletişim kıskançlıkla baş etme yöntemini ise, kaygılı bağlanmanın pozitif yönde yordadığı ve kaçınan bağlanmanın anlamlı bir etkisinin olmadığı araştırmanın sonuçları arasındadır.

Önemli Vurgular: Bu bulgulardan hareketle bağlanma stillerinin bireylerin kıskançlıkla başa çıkma biçimlerinin belirlenmesinde önemli bir faktör olduğu söylenebilir. Araştırmanın bulguları alanyazındaki önceki bulgular ışığında tartışılmış ve alan uygulayıcıları ve gelecek çalışmalar için öneriler sunulmuştur.

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INTRODUCTION

One of the most important concerns in romantic relationships is jealousy (Richter et al., 2022). Jealousy in romantic relationships is thoughts, feelings, or actions that occur due to the (real or potential) romantic attraction between the person's partner and a third one (White & Mullen, 1989). Pfeiffer and Wong (1989) indicated that the concept of jealousy consists of emotional, cognitive, and behavioral dimensions. Jealousy is a risk factor for both people's self-esteem and the quality of the relationship. For example, Guerrero and Eloy (1992) found that as the level of jealousy levels increases, marital satisfaction decreases. In another study, Demirtaş and Dönmez (2006) found that jealousy negatively predicted a lower level of self-esteem. Therefore, jealousy in romantic potentially degrades both the quality of the relationship and the quality of life. At this stage, how people cope with jealousy becomes more important than whether or not it exists (Kara & Deniz, 2021). When people use ineffective coping mechanisms for jealousy, relationship issues including physical aggression, breakups, and communication breakdowns may arise (Nazlı & Karaman, 2021). Therefore, how people cope with jealousy matters to enhance the quality of relationships.

Previous findings showed that depression and anger were common emotional reactions to jealousy (Cano & O'leary, 1997). For example, Pines and Aronson (1983) found that the most dominant emotional reactions resulting from jealousy were anxiety, fear of loss, pain, hopelessness, anger, and vulnerability. While these emotional reactions occur differently for everyone, the methods used by individuals to cope with jealousy also differ. Guerrero et al. (2011) examined the communicative responses to jealousy under four categories: constructive, destructive, avoidant, and rival-focused communication and these four categories contain a total of 11 emotional responses. Constructive communication involves compensatory and responsive reactions to openly discussing and solving problems to repair and maintain the relationship. Destructive communication includes aggressive and manipulative responses to control or offend the partner. Rival-focused communication includes reactions such as protecting the partner by communicating with the opponent, cutting off the communication between the partner and the opponent, keeping the partner under surveillance, and possessing the partner. Finally, avoidant communication manifests itself as silence, avoiding talking about jealousy, and denial of the problem (Guerrero et al., 2011).

The styles of coping with jealousy are related to various factors. The literature showed that the styles of coping with jealousy are related to age, culture, the level of one's finding partner attractive (Bulut Genç & Topkaya, 2019), gender, relationship satisfaction, self-esteem, duration of the relationship (Demirtaş & Dönmez, 2006; Kara & Deniz, 2021), marital status (Aylor & Dainton, 2001; Demirtaş & Dönmez, 2006), personality traits (Cevheroğlu et al., 2022; Curun & Çapkin, 2014), and relationship satisfaction (Guerrero et al., 2011). Another factor related to individuals' jealousy experiences is their attachment styles (Hicks, 2020; Knobloch et al., 2001). People's expectations about their relationships can affect their jealousy and how they cope with jealousy (Knobloch et al., 2001). Although there is a theoretical link between attachment styles and jealousy in romantic relationships, the link between coping styles with jealousy and attachment is not well known. This study examined the effects of attachment styles on coping styles with jealousy. The following section further explained attachment theory and styles.

Attachment

Attachment theory explains the effects of the first relationship with the parents on the relationships with other people in the later stages of life (Eraslan Çapan, 2009). Attachment refers to strong emotional bonds that people develop with significant others (Morsünbül & Çok, 2011). Attachment especially becomes evident in stressful situations (Erözkan, 2011). When the caregiver and the child are under stress, bonding occurs through the support and sense of trust they give to each other (Tüzün & Sayar, 2006). Attachment begins in the first days of life and continues throughout life, but its expression can change over time (Kesebir et al., 2011; Soysal et al., 2005). A person's attachment style stays mostly stable after being determined as secure or insecure (Kesebir et al., 2011).

There is a vast literature on attachment, and previous studies offered various classifications of attachment styles. For example, Ainsworth et al. (1978) classified the attachment between mother and child into three categories: secure, anxious/ambivalent, and avoidant attachment. Bartholomew and Horowitz (1991) defined four attachment styles as a two-dimensional combination of people's positive and negative views of themselves and others: secure, preoccupied, dismissing, and fearful. On the other hand, Hazan and Shaver (1987) addressed attachment in romantic relationships and classified three attachment styles (secure, anxious-ambivalent, and avoidant) based on the classification offered by Ainsworth et al. (1978). Hazan and Shaver (1987) claimed that people with different attachment styles have different relationship experiences. An individual's attachment style and internal working model affect his or her perceptions of self and partner in romantic relationships (Yazıcıoğlu, 2011). In addition, the purpose of this study was to examine the effects of attachment in romantic relationships. Therefore, this study addressed the attachment styles based on the three-dimensional classification of Hazan and Shaver (1987).

An attachment style formed by the relationship between the infant and caregiver is determined by the attitudes of the attachment figure towards the infant (Bowlby, 1969). Caregivers who are available and consistent with the child's needs provide secure attachment. The caregiver's inconsistent or inadequate response to the child's needs and expectations or being irritable, anxious, and restrictive leads to anxious attachment. On the other hand, the caregiver's cold, distant, or angry attitude toward the child's need cause the child to have an avoidant attachment (Hazan & Shaver, 1994; Sümer et al., 2009).

Adult attachment is a direct continuation of childhood attachment, and attachment experiences in childhood affect personality and social relationships (Bowlby, 1969). The relationship between the infant and the caregiver enables the individual to develop positive or negative judgments about herself/himself and others, and these judgments affect the individuals' close relationships and expectations of success (Akbağ & İmamoğlu, 2010; Sümer & Şendağ, 2009). Because infant experiences love and care through warm relationships with the caregiver, he or she develops a positive attitude towards themselves and others by considering the environment a safe place (Çalışır, 2009). In other words, individuals with secure attachments can accept that they are lovable and consider others accepting and supportive (Bartholomew & Horowitz, 1991; Karakuş, 2012). Healthy relationships and positive attitudes toward others help them experience a sense of loneliness less than individuals with other attachment styles (Akbağ & İmamoğlu, 2010).

The literature documented that secure attachment was positively related to extraversion, openness to experience, responsibility (Deniz, 2011), self-esteem (Sümer, 2006), life satisfaction (Keskin & Çam, 2007), and well-being (Hazan & Shaver, 1990; Terzi & Cihangir Çankaya, 2009); and negatively related to efforts to please others (Deniz, 2011) and anxiety and anger (Hazan & Shaver, 1990). Individuals with secure attachment have a more positive approach to problems than individuals with anxious or avoidant attachment styles, and they use effective methods when coping with stress (Arslan et al., 2012; Terzi & Cihangir Çankaya, 2009). Therefore, such findings support that attachment styles can also be related to how people deal with problems.

Individuals with anxious attachment evaluate the self and others negatively and avoid establishing close relationships (Çalışır, 2009). Karakuş (2012) found that adolescents with anxious attachment feel more alone than others. In addition, individuals with anxious attachments use the avoidant coping method in stressful situations (Terzi & Cihangir Çankaya, 2009). Individuals with anxious attachment tend to use the avoidance strategy because they may not cope with stressful problems due to their negative self-perception.

Individuals with avoidant attachment accept themselves as valuable but cannot find others loveable since others for them seem unreliable (Karakuş, 2012; Kesebir et al., 2011). Because they do not trust others, it is not easy for them to establish close relationships. Their anxiety levels are generally low in relationships, and their avoidance behaviors are high (Eraslan Çapan, 2009). These individuals have less sense of responsibility towards others, and the sense of guilt they experience is less than other attachment styles (Akbağ & İmamoğlu, 2010).

In addition, the romantic experiences of individuals differ based on their attachment styles (Hazan & Shaver, 1987). For example, individuals with secure attachment tend to be adaptable in close relationships and closer to their partners than others. In addition, they are more committed to the relationship and invest more in their relationships (Tutarel Kışlak & Çavuşoğlu, 2006). Attachment styles also play a role in stressful situations, such as the possibility of losing a romantic relationship and the emergence of negative emotions (Curun & Çapkin, 2014). For example, individuals with an anxious attachment style can need more approval due to their negative self-perception, and their feelings of jealousy can be more intense (Curun & Çapkin, 2014; Tutarel Kışlak & Çavuşoğlu, 2006).

All in all, individuals' attachment styles affect their experiences of jealousy (Knobloch et al., 2001). However, to our knowledge, no research has examined the relationships between attachment styles and coping styles with jealousy. Therefore, the effect of attachment styles on individuals' coping styles with jealousy is unknown even though attachment style is an important factor for the quality of romantic relationships. Because jealousy can be a risk factor for individuals' well-being and relationship quality, coping styles with jealousy is also essential. Therefore, understanding such factors affecting coping styles with jealousy will be beneficial for prevention and intervention strategies. In this context, this study aimed to investigate the predictive effects of individuals' attachment styles (anxious and avoidant) on their styles of coping with jealousy (constructive, destructive-avoidant, and rival-oriented).

METHOD

Participants

The participants included 236 (78.4%) women and 65 (21.6%) men, a total of 301 people, who stated that they were in a relationship. The ages of the participants were between 18 - 47 (\bar{x} = 24.10; SD = 5.16). Regarding relationship status, 16.3% of the participants were married, 4.3% were engaged, and 79.4% were in a relationship.

Instrumentations

Personal Information Form

A personal information form was created to collect data about participants' gender, age, and relationship status.

The Communicative Responses to Jealousy Scale (CRJS)

The CRJS was developed by Guerrero et al. (1995) and revised by Guerrero et al. (2011). Hoşoğlu and Sevim (2018) adapted the scale to Turkish. The CRJS consists of 51 items on a 7-point Likert scale. While the original scale consisted of four sub-dimensions (constructive, destructive, avoidant, and rival-focused), destructive and avoidant dimensions were combined in the

Turkish form. Consistent with the Turkish form, this study considered styles of coping with jealousy under three dimensions: constructive, destructive-avoidant, and rival-focused. The validity and reliability study of the scale was conducted with university students who had a romantic relationship. Internal consistency reliability coefficients were reported as .84 for constructive communication, .85 for destructive-avoidant communication, and .90 for rival-focused communication (Hoşoğlu & Sevim, 2018). In this study, Cronbach Alpha internal consistency coefficients were .89, .88, and .89, respectively.

Experiences in Close Relationships-Revised (ECR-R)

The ECR-R was developed by Fraley et al. (2000) and adapted into Turkish by Selçuk et al. (2005). The Turkish form has a two-factor structure consistent with the original form. The scale consists of 36 items on a 7-point Likert scaling, 18 items measuring anxious attachment, and 18 items measuring avoidant attachment. The validity and reliability study was conducted with university students. Cronbach's alpha reliability coefficients were reported as .90 for the avoidant attachment and .86 for the anxious attachment. The internal consistency coefficients in this study were .88 and .89, respectively.

Process

Before starting the data collection process, required ethical and administrative permissions were obtained. The data collection tools were transferred to an online platform, and the link was shared with the participants. Before starting the survey, the research's purpose, scope, and importance were shared with the participants. In addition, the participants were asked a question about whether or not they volunteered to participate in the study. No personal information such as name and surname was asked, and confidentiality was ensured. The SPSS 22.0 package program was used to analyze the data, and an alpha level of .05 was set for interpreting the findings.

The data analysis process was carried out in two steps. First, the suitability of the data for multivariate analyses was tested. Then, the prediction of the dependent variables on the independent variables was tested. Three separate multiple linear regression analyses were conducted to test the predictive effects of independent variables (anxious attachment and avoidant attachment) on each of the three dependent variables (constructive, destructive-avoidant, rival-focused communications).

Before proceeding to regression analyses, outliers, normality, multicollinearity, variance inflation factor (VIF), and tolerance statistics were checked to determine whether the data set was suitable for multivariate analyses. One outlier was detected based on Mahalanobis distance values and removed from the data set. In terms of normality, skewness values were between .32 and -.84, and kurtosis values ranged between .03 and .45. Therefore, these results showed that the data set was normally distributed (Pallant, 2010; Tabachnick & Fidell, 2013). Regarding multicollinearity, the tolerance levels of the data were greater than .10, and the VIF values were less than 10. In addition, the relationship between independent variables was .31, so there was no multicollinearity problem. Thus, the data set met the necessary assumptions for multivariate analysis.

FINDINGS

The relationships between the variables, the means, and the standard deviations of the variables are shown in Table 1. Pearson Product Moments Correlation Coefficients showed that anxious attachment was positively correlated with constructive communication ($r = .19, p < .01$), destructive-avoidant communication ($r = .44, p < .01$), and rival-focused communication ($r = .46, p < .01$). On the other hand, avoidant attachment was negatively correlated with constructive communication ($r = -.25, p < .01$) and positively correlated with destructive-avoidant communication ($r = .32, p < .01$) and rival-focused communication ($r = .17, p < .01$).

Table 1. Descriptive statistics and correlation coefficients between variables

Variables	1	2	3	4	5
Anxious Attachment	1				
Avoidant Attachment	.31**	1			
Constructive Communication	.19**	-.25**	1		
Destructive-Avoidant Communication	.44**	.32**	.18**	1	
Rival-Focused Communication	.46**	.17**	.29**	.62**	1
\bar{X}	3.44	2.76	4.92	2.81	2.52
SD	1.09	1.01	1.27	.89	1.11

** $p < .01$

Three multiple linear regression analyzes were conducted to test whether anxious and avoidant attachment scores predicted constructive, destructive-avoidant, and rival-focused communication scores. The results of the regression analyzes are shown in Table 2. The anxious and avoidant attachment scores significantly predicted the constructive communication scores and explained 14% of the total variance. Avoidant attachment had a significant negative effect ($\beta = -.42$), while anxious attachment had a significant positive effect ($\beta = .34$). Regarding predicting destructive-avoidant communication, the model predicted significantly and explained 23% of the total variance. Both anxious attachment ($\beta = .31$) and avoidant attachment ($\beta = .18$) have significant positive effects. Finally, the model significantly predicted rival-focused communication scores and explained 21% of the total variance. Anxious attachment had a significant positive effect ($\beta = .46$) but the effect of avoidant attachment was not significant.

Table 2. The Results of Anxious and Avoidant Attachment Predicting Constructive, Destructive-Avoidant, and Rival-Focused Communication

Dependent Variables	Independent Variables	R ²	B	Standard Deviations	β	t	p	F
Constructive Communication		.14						23.45***
	Anxious Attachment		.34	.67	.29	5.14	.000	
	Avoidant Attachment		-.42	.07	-.34	-5.91	.000	
Destructive-Avoidant Communication		.23						44.58***
	Anxious Attachment		.31	.04	.38	7.02	.000	
	Avoidant Attachment		.18	.05	.20	3.79	.000	
Rival-Focused Communication		.21						39.89***
	Anxious Attachment		.46	.06	.45	8.27	.000	
	Avoidant Attachment		.04	.06	.03	.61	.541	

*** $p < .001$

DISCUSSION

The purpose of this study was to test to what extent individuals' anxious and avoidant attachment levels predict coping styles with jealousy in romantic relationships. The results showed that anxious and avoidant attachment significantly predicted coping styles with jealousy. The findings help to understand better the issue of coping with jealousy. Based on the findings, it can be concluded that attachment styles are important in coping styles with jealousy.

Anxious attachment positively and avoidant attachment negatively predicted coping with jealousy in constructive communication. The findings showed that as participants' anxious attachment scores increased and the avoidant attachment score decreased, they reported higher constructive communication coping strategy levels. This finding can be interpreted as individuals with anxious attachment prefer coping with jealousy in constructive communication because of the fear of losing the relationship. In addition, because individuals with avoidant attachment are not close in relationships, they generally do not use constructive communication. Even though there is no direct study in the literature about the association between attachment styles and coping styles with jealousy, individuals with avoidant attachment reject or avoid issues in case of conflict (Çelenoğlu, 2011). Avoidant individuals do not trust others; therefore, they have less sense of responsibility towards others (Akbağ & İmamoğlu, 2010; Eraslan Çapan, 2009). The finding related to avoidant attachment can be interpreted that the lack of sense of responsibility causes the person not to create a reason to act in a constructive way.

Regarding predicting destructive-avoidant communication, both anxious and avoidant attachment had positive effects. In other words, as the levels of anxious and avoidant attachment increase, individuals use destructive-avoidant communication more. Individuals with avoidant attachment avoid romantic relationships, so they may not be motivated to continue the relationship. People with avoidant attachment also avoid expressing their feelings when they are in a relationship (Şipit, 2019). Therefore, ones with avoidant attachment prefer to avoid jealousy instead of using constructive methods by expressing their feelings as a way of coping with jealousy. Çalışır (2009) stated that it might be possible that individuals with anxious attachment avoid close relationships because the model of others is negative for them. As the anxious attachment level increases, communication skills decreased (Koser & Barut, 2020). Accordingly, individuals with anxious attachment may avoid expressing their feelings and revealing themselves in an effective way (Şipit, 2019). This can also be explained by the fact that they do not express their feelings of jealousy to their partners in healthy ways and avoid them. Terzi and Cihangir Çankaya (2009) also stated that individuals with anxious attachment use avoidant coping in stressful situations. In addition, individuals with an anxious attachment tend to try to maintain the relationship more closely by attracting the attention of others with the avoidance strategy (Yazicioğlu, 2011). Thus, it can be concluded that the finding that individuals with anxious attachment use destructive-avoidant communication is consistent with the literature.

The results also revealed that the anxious attachment positively predicted coping with jealousy in rival-oriented communication. According to this result, individuals with anxious attachment use more rival-focused communication with coping jealousy. Individuals with anxious attachment are trying to save the relationship by communicating with the rival or cutting off the communication between their partner and the rival. This finding is important since no research directly investigated such associations. On the other hand, it is an unexpected finding that avoidant attachment did not significantly predict the rival-oriented communication style of coping with jealousy. Theoretically, individuals with avoidant attachment were expected to be less rival-oriented, but the findings did not confirm this hypothesis. More research is needed on this subject.

CONCLUSION AND RECOMMENDATIONS

It is necessary to regulate individuals' ineffective coping styles with jealousy since it can negatively affect the quality of relationships. The results of this study showed that understanding individuals' attachment styles would contribute to this process. For example, considering the attachment styles in couple and family counseling can contribute to the understanding and resolving issues that originated from jealousy. Attachment styles can also be helpful in the concern of violence against women due to jealousy. Ineffective management of jealousy and the use of destructive communication may lead to violence. In this case, the attachment styles should be considered to help individuals developing constructive ways of coping with jealousy. Attachment styles can also be integrated into couple counseling and interventions aiming to help couples prepare for marriage. In addition, attachment styles can also provide helpful information in individual counseling since jealousy and reactions to jealousy can be a risk factor for an individual's well-being. These results are important in terms of both contributing to the literature and providing practical suggestions.

There are some limitations to this study. The number of female participants is higher than male participants. Future studies with equal male and female participants will make the findings more robust and more generalizable. Although the directions of the effects were hypothesized based on theoretical assumptions, it is not possible to draw a definite cause-effect relationship in correlational studies (Gall et al., 2007). Future experimental or longitudinal studies will make possible to give a conclusion about causality.

Declaration of Conflicting Interests

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Statements of publication ethics

We hereby declare that the study has not unethical issues and that research and publication ethics have been observed carefully.

Researchers' contribution rate

T.İ and A.G. conceived of the presented idea. All authors involved the data collection procedure. T.İ developed the theory and wrote the introduction. A.G verified the analytical methods. All authors discussed the results and contributed to the final manuscript. The study was conducted and reported with equal collaboration of the researchers.

Ethics Committee Approval Information

"Certificate of Ethical Approval" undertaken for this study is received from the Sciences Ethics Committee of Düzce University with the meeting numbered 13 and 2021/234 protocol on the date of 30.09.2021.

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| Research Article |

Visual Appearance Features of Sign Language Avatars

İşaret Dili Avatarlarının Görsel Görünüm Özellikleri

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Keywords

- 3D avatar design
- Sign language
- Educational agents

Anahtar Kelimeler

- 3B avatar tasarımı
- İşaret dili
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Abstract

Purpose: 3D Sign language avatars communicate with individuals in digital environments, like educational agents. However, while designing educational agents, the target group comes to the fore. In the literature, it is seen that the visual appearance features that should be considered in the creation of avatar designs are specified in diverse ways. Main goal of this study is to evaluate the sign language avatars' visual appearance features in the literature and applications within the framework of educational agents.

Design/Methodology/Approach: In this study, seventy-nine different sign language avatars' images were evaluated within the framework of visual appearance features. Seven category and fifteen features were evaluated by four field experts through focus group discussions.

Findings: In the evaluation, seven important categories were determined in avatar visual appearance. It is seen that the eye and head designs of avatars are generally designed in normal size. If an iconic design process is being carried out, eye, head, arm, and finger visual appearances should be designed larger than normal. If a realistic design process is carried out, eye, head, finger, palm, and arm visual appearances should be designed in normal sizes.

Highlights: When designing sign language avatars, the upper body should be visible. In addition, what the target group will be affects the gender and iconicity of the avatar. Avatar should be designed simply so that individuals do not overload their visual channel. Also, different visual appearance features should be considered for iconic or realistic avatars. In addition to this, it is recommended that the hand and head sizes should be bigger than normal in order to understand the signs and non-manual signs more clearly.

Öz

Çalışmanın amacı: Üç boyutlu işaret dili avatarları eğitsel ajanlarda olduğu gibi dijital ortamlarda kullanıcı ile iletişim kurar. Eğitsel ajanlar tasarlanırken hedef grup etkili bir kriter olarak dikkate alınır. Literatürde avatar tasarımlarının oluşturulmasında dikkate alınması gereken özellikler çeşitli şekillerde ifade edilmektedir. Bu çalışmanın amacı ise işaret dili avatarlarının görsel görünüm özelliklerinin belirlenen kriterlere göre değerlendirilmesidir.

Materyal ve Yöntem: Bu çalışmada, yetmiş dokuz farklı işaret dili avatarına ait görseller, görünüm özellikleri çerçevesinde değerlendirilmiştir. Yedi kategori ve onbeş özellik, dört alan uzmanı tarafından odak grup görüşmeleri ile değerlendirilmiş ve kategorileştirilerek tartışılmıştır.

Bulgular: Değerlendirmede avatarların görünüm özelliklerinin değerlendirilmesi için yedi kategori belirlenmiştir. Avatarların göz ve kafa tasarımlarının genellikle normal ölçülerde tasarlandığı görülmektedir. İkonik bir avatar tasarımı yapılıyorsa göz, baş, kol ve parmak boyutları normalden daha büyük tasarlanmalıdır. Gerçekçi bir avatar tasarımı yapılıyorsa göz, baş, parmak, avuç içi ve kol boyutları normal ölçülerde tasarlanmalıdır.

Önemli Vurgular: İşaret dili avatarları tasarlanırken, vücudun üst kısmı görünür olmalıdır. Bunun yanında hedef grubun özellikleri avatarın cinsiyetine ve ikonikliğine etki etmektedir. İşaret dili avatarı bireylerin görsel kanalında aşırı yüklem yapmaması için sade tasarlanmalıdır. Ayrıca ikonik veya gerçekçi avatarlar için farklı görsel görünüm özellikleri dikkate alınmalıdır. Bunun yanında işaret ve el dışı işaretlerin daha net anlaşılabilmesi için el ve kafa boyutlarının büyük olması önerilmektedir.

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INTRODUCTION

Individuals of deaf society usually communicate among themselves and with those who know sign language by using sign language instead of written or spoken language (Adalı, 2019; Dikyuva et al., 2015; Xu, 2013). Sign language has a structure with its own grammar rules, finger alphabet, hand, face, and gestures (Karaca & Görgünoğlu, 2011; Kubuş, 2008; Solina et al., 2011). It is known that deaf individuals have serious problems in understanding written texts (Escudeiro et al., 2015; Solina et al., 2011). In addition, it is stated that deaf individuals use limited options to communicate with individuals who do not know sign language. These are paying attention to gestures, using a sign language translator, writing, lip reading, using slow sounds for those who have hearing residue and using assistive technologies (Gugenheimer et al., 2017).

When the sign language studies are examined, different computer-based technologies such as transforming text and voice into Gesture Mark-up Language (Brour & Benabbou, 2019; Eryiğit et al., 2016; Kayahan, 2019; Raghavan et al., 2013), three-dimensional (3D) avatars that translate text into sign language (De Martino et al., 2017; Ebling & Glauert, 2016; Gibet et al., 2016; Karaca, 2018; Vesel & Robillard, 2013), technologies that transfer the signs to the computers with image processing (Mahesh et al., 2017), sign language robots (Baranwal et al., 2017; Gürpınar et al., 2020; Meghdari et al., 2019; Özkul, 2015), dictionaries for sign language words (Hilzensauer & Krammer, 2015; Makaroğlu & Dikyuva, 2017; Milli Eğitim Bakanlığı, 2019; Solina et al., 2011) can be seen. By combining technologies such as gesture mark-up language, image and sensor detection, 3D environments, and sign language dictionaries, words or sentences can be animated with an avatar within the framework of human computer interaction. Studies are carried out with avatar technologies that provide sign language translation for different languages (Brock et al., 2018; De Martino et al., 2017; Li et al., 2014; Yousaf et al., 2018). Avatar studies generally focus on the methods of translation of spoken language into sign language, the systems and software used, however, the visual appearance of sign language avatars remain in the background. Avatars, which model sign language in 3D environment, communicate with individuals in digital environments, like educational agents. Educational agents are simulated human-like virtual characters to enhance the individual learning of the students (Z. Chen & Chen, 2014; Chou et al., 2003; Öngöz et al., 2015). Educational agents support learning in terms of emotional, social and cognitive aspects (Hong et al., 2014). Educational agents motivate students in the learning environment (Chin et al., 2016; Dinçer & Doğanay, 2017; Guo & Goh, 2015; Heidig & Clarebout, 2011; van der Meij et al., 2015) and support effective learning (Baylor & Kim, 2009; Goldberg & Cannon-Bowers, 2015; Grivokostopoulou et al., 2020; Lewis Johnson & Lester, 2018a). From this point of view, educational agents can provide functions such as warning, feedback and guidance (Gulz & Haake, 2006), while avatars can animate these functions in a virtual environment (Michael Gerhard, 2003). Gerhard, Moore, and Hobbs (2001) stated that the avatar is a character that reflects the identity of the person in virtual environments. Just as human body features are important in the formation of personality in the real world, avatar features in virtual environments are important as in the formation of virtual personality (Donath, 2001). Avatar represents the visual appearance characteristic of educational agents. In addition, an educational agent can provide feedback to the user thanks to its functions. From this point of view, avatars can be defined as the shape of educational agents.

When designing educational agents, determining avatars according to the target group and structural features that educational agents have are considered important in achieving the desired success (Z. Chen & Chen, 2014). For this reason, studies have been carried out on how the visual appearance features of the avatar such as age, gender, character should be (Z. Chen & Chen, 2014; Öngöz et al., 2015). Yılmaz and Kılıç Çakmak (2011) stated in their study that avatar's personality, ability of movement, gestures and facial expressions, emotional expressions, dialogue and speech features used in educational agents are significant. The literature emphasizes that the visual appearance features of avatars used in sign language studies are effective in the perception of signs (Adamo-Villani et al., 2016; Jen & Adamo-Villani, 2015). Considering the studies on avatar visual appearance used in educational agents, it is important to reveal the visual appearance criteria for sign language avatar design.

Visual Appearance Features of Pedagogical Agents

Agents are frequently used in mathematics, science, foreign language, and culture (Lewis Johnson & Lester, 2018b). Learning environment designers develop pedagogical agents that monitor students' problem-solving activities and respond through different channels. These agents have several types in different settings. Izmirli, Kirmacı, and Kahraman (2017) list these types as smart agents, interface agents, assistant agents, information agents, evaluation agents, pedagogical agents, advising agents and expert agents depending on the roles they play.

Some studies on avatars used as educational agents focused on the effects of avatars being remarkable in terms of design on the user (Gulz & Haake, 2006; Haake & Gulz, 2008; Sutcliffe & Al-Qaed, 2007). Nowak and Rauh (2005) stated that users prefer human-like avatars rather than non-human avatars (animals, robots, etc.) and that such avatars are more attractive and reliable. In addition, realistic human-like avatars increase social interaction and female avatars are preferred more than male avatars (R. F. Khan & Sutcliffe, 2014).

In the literature, the design features of avatars have been studied under different titles in many studies. Gulz and Haake (2006) stated that visual presentation, face, body and costume design and iconic level are important for avatar design. Visual representation is expressed by line thickness, drawing angle and line style in 2D avatars, while in 3D avatars it is addressed with the features of shape, texture, lighting, surface, shading and animations (Gulz & Haake, 2006). On the other hand, Haake (2009), gathered the avatar features under three topics: basic model, physical features, and graphic style. The basic model is classified as

human, animal, creature, inanimate object, fantasy-science fiction, or a combination of these. Physical features are classified as body shape, face shape, skin color, hairstyle, haircut, dress, and accessories. Finally, the graphic style is classified as iconic and detail levels. Yılmaz and Kılıç Çakmak (2011) classified avatar features as physical appearance, movement, voice, facial expressions, dialogue and speech, and emotional expressions. Avatars have different body structures and can be designed as tall, medium, and short, or fat, normal, and thin. In addition, the features as hair color, hair length, eye color, eye shape, tooth structure, ratio of hands and feet to body size, nose structure of avatars may vary depending on the content of the software and focus group (Yılmaz & Kılıç Çakmak, 2011). Ducheneaut et al. (2009), examining the customizable avatars in games, emphasizes the importance of hair and its role in determining the identity of the person besides many features.

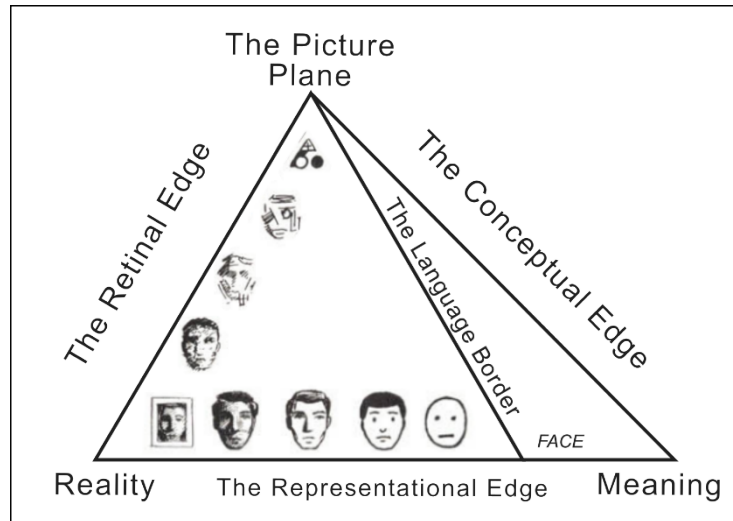


Figure 1. The Transition of Visuals Between Reality, Abstraction (The Picture Plane) and Meaning (McCloud, 1993)

Avatars can be designed as 2D, and 3D form. 3D avatars are classified as photorealistic, iconic or abstract (Sloan, 2015). A similar classification explains the transition between reality, abstraction and meaning of visuals by McCloud (1993) with the "Big Triangle" scheme (Figure 1). In McCloud's triangle, avatars are represented on the left in their most realistic form, and as they move to the right, they change to their most iconic form. The most iconic avatar changes to a semantic expression, or concept, when it goes beyond the language border. For example, when we examine a human face, there is a real photograph on the far left, a face drawing of a stylized character in the middle, a face emoji on the far right, and the word itself outside the language border. While the actual photo represents a person, the far-right face emoji and the word "face" outside the language border represent much more people. Similarly, Gulz and Haake (2006) expresses the transition between 2D and 3D iconic and realistic avatars with the visual in Figure 2. Manning (1998) states that a highly realistic avatar will represent only one person and therefore cannot have a widespread effect. The greater the iconicity of an avatar, the greater its meaning and influence (McCloud, 1993). For this reason, 3D iconic (lower middle region of the triangle) avatars with high representation degree can be accepted by many people compared to the realistic one. Besides, realistic avatars can create an "uncanny valley" effect (Mori et al., 2012). For example, humanoid avatars that are remarkably close to reality have a negative effect on users.

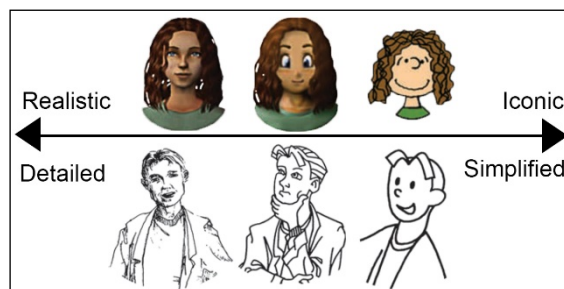


Figure 2. Iconic, semi-iconic and realistic image, adapted from Gulz and Haake (2006)

There are six basic emotions in the display of facial expressions: happiness, anger, surprise, sadness, disgust and fear (G. D. Chen et al., 2012). Nguyen and Canny (2009) stated that it is necessary to use facial expressions, hand and body movements and voices in order to add empathic features to the avatars. Facial expressions of avatars are important criteria for users (Clark & Choi, 2005). Additionally, interface designs with emotional facial expressions increase positive emotions and facilitate the recall of information (Uzun & Yildirim, 2018). Also, the smiling welcome and farewell of the avatar and empathic responses create positive feelings about the software.

Another feature that is considered important in educational avatars is the face design. Face plays a fundamental role in attracting the attention of learners (Gulz & Haake, 2006; Uzun & Yildirim, 2018). When educational avatars are examined, baby-faced avatars are more naive, honest, affectionate, and empathetic than other avatars. It has been stated that a face looking

downwards with eyes looking upwards expresses innocence and vulnerability (Gulz & Haake, 2006). Another important feature is neutral facial expression. People with a slight smile and a neutral facial expression in the resting position are viewed more positively. People with this type of facial structure are perceived as friendly and gentle (Branham, 2001; Gulz & Haake, 2005). However, people with low eyebrows, thin lips and a pulled mouth appearance are perceived as dominant, threatening, and aggressive. Such faces are not preferred in educational avatar designs (Gulz & Haake, 2006).

Body and costume design is another key factor in an avatar, and it plays an active role in communication. Therefore, the designs of the head, cheeks, mouth, eyes, hands, legs, and arms related to the costume or body structure should be emphasized separately. The three main body types defined by Sheldon et al. (1940) as thin, muscular and fat are still accepted today. Although muscular people are considered to be more attractive, healthy, courageous, competitive, and adventurous, they are seen as less knowledgeable, intolerant and temperamental (Ryckman et al., 1991).

The features mentioned above also vary according to gender. While human avatars are more interesting and reliable (Nowak & Rauh, 2005), female avatars are preferred more than male avatars (R. F. Khan & Sutcliffe, 2014). Considering that gender is one of the important variables for avatars, the color, shape, purpose and meaning of the clothes also differ according to gender.

Based on the above literature, Table 1 shows the features used in avatar designs of an educational agent. In addition, sub-features of each feature encountered are presented.

Table 1. Features of educational agents.

Educational Agent Features	Educational Agent Sub Features
1. Physical (Personal) Appearance	Gender Height Weight Hair color Hair length Head size Arm, hand, and finger sizes Facial structure Eye shape Eye color Tooth Eyebrows Nose
2. Moving Parts	Foot, knee, waist, back, shoulder, neck, head, arm, hand, finger, face
3. Communication	Facial (emotion) expressions, verbal communication
4. Iconicity	Realistic, iconic, abstract
5. Graphical Style	Line style, line direction, line shape Shape, texture, lighting, surface, shading
6. 2D and 3D	2D character, 3D character
7. Clothing and Accessories	Clothing type, clothing color, accessories

According to Table 1, seven basic features in the design of an avatar are specified. Accordingly, physical appearance is defined by gender, height, weight, hair color, hair length, size of body organs such as hands, feet, head, face shape, eye shape and eye color, teeth, eyebrows, and nose structure. In addition, moving parts such as foot, knee, waist, back, shoulder, neck, head, arm, hand, finger, face, are needed in avatars for more effective communication. Animated avatars provide a more flexible and impressive environment for individuals, especially by using body language, gestures, and facial expressions. Communication channels are also examined in educational avatars. Communication includes facial expressions and verbal communication elements that can express all emotions. Another feature, iconicity is an important feature in designs and expresses the change of avatar from reality to abstract. Iconicity has subcategories as realistic, iconic, and abstract. Graphical style refers to the drawing or modeling features of avatars. In addition, avatars can be used in two or three dimensions depending to the environment. Finally, considering the characteristics of the target audience, it is seen that the clothes in the avatars can be differentiated by type, color, and accessories.

Sign Language Avatars

Avatars are an important tool for converting texts into 3D sign language animations (Bouziid & Jemni, 2020; Do Amaral et al., 2011; Escudeiro et al., 2015). With the development of the entertainment and game industry in the virtual environment, advanced modeling and animation tools are emerging. Many animated avatars prepared with open-source tools, can be used for free. These avatars developed for the game industry are used in many studies on sign language. These studies aim to animate the sign language with sign language grammar and sign animations. Situations such as insufficient information on sign language grammar rules and sign language archives to be analyzed (Kaur & Kumar, 2016; N. S. Khan et al., 2015), the difficulty of analyzing the complex structure of sign language (El-Gayyar et al., 2016) and the situation of avatars not making or unable to make the movements of the external signs made with the mouth, eyebrows and eyes (Ebling & Glauert, 2016; Gonçalves et al., 2020) are some of the problems encountered in avatar-oriented sign language studies.

Considering the design problems and limitations of sign language; Avatar design studies can facilitate the integration of deaf people with avatars, social communication, and comprehensibility of sign language. In the studies examined, it is seen that while developing educational agents, the tasks and general characteristics of the agents were focused on (Gulz & Haake, 2006), but the avatar visual appearance of the agents were ignored. From this point of view, this study will fill this gap in the literature by thoroughly examining the visual features of sign language avatars.

METHOD

This study was conducted based on qualitative research approach using the document analysis method. Document analysis is a qualitative research method aimed at extracting meaning and generating detailed information from both printed and electronic documents. (Corbin & Strauss, 2008). This study was carried out in three-stage within the framework of this method. In the first stage, a review of the literature was performed to create an evaluation form for avatar design features. In the second stage, avatars in both sign language studies in the articles and the mainstream application stores were determined by the literature review method. Finally, the determined avatars were evaluated based on the avatar design features form.

Study Group

In this study, five experts in the field of educational technology are involved. The researchers have at least a decade of experience in educational technology and possess extensive project experience in developing technology supported educational materials for the deaf. Within this scope all researchers contributed to the process of literature review and the determination of avatars. In addition, the determined avatars were evaluated by the researchers in the study group with the focus group study method.

Data Collection

A systematic literature review was conducted to determine the avatar design features. Search words ("pedagogical agent design" OR "educational agent design" OR " pedagogical avatar design " OR " educational agent design") were used for scanning. As a result of the search, 445 articles were found. Examination of these articles, 23 articles were found related to design features. The avatar design features in these articles were examined and similar features were brought together. Research on avatars visual appearance may differ in terms of avatar features. As a result of the literature review, avatar design features were categorized. These categories are physical appearance, movement features, communication features, iconicity, graphical presentation level, the character being 2D or 3D, and the features of clothing and accessories. Evaluation form including these categories and their features and criteria was listed on Table 2.

Table 2. Evaluation form

Category	Feature	Feature Items
1. Physical appearance	Gender	Woman, Man, Other (robot & animal)
	Hair color	Colors
	Head	Large, Medium, Small
	Arm	Long, Normal, Short
	Palm	Large, Normal, Small
	Finger	Long, Normal, Short
	Eye shape	Large, Medium, Small
	Eye color	Colors
	Hair long	Long, Short, Empty
	Eyebrow	Yes, No
2. Movement features	-	
3. Communication features	-	
4. Iconicity	Level of iconicity	Realistic, Iconic
5. Graphical presentation	Level of quality	1 (<i>poor</i>) to 5 (<i>excellent</i>)
6. Dimension	Dimension	2D, 3D
7. Features of clothing and accessories	Clothing type	Different clothing types
	Accessories	Different accessory types

Since the many avatars' animation could not be reached, evaluations were made on the still images. For this reason, movement, and communication features didn't take into evaluation. Besides, some features in the physical appearance category, which are difficult to determine objectively from graphics were also not considered in the evaluation. In conclusion, all sign language avatars in the study are 3D. Therefore, the line style, line direction and line shape criteria of 2D avatars could not take into evaluation.

Feature of gender which is in the category of physical appearance is grouped as women, men and other (robot, animal). Eye and hair colors in the same category were categorized by color. Finger, palm and arm length, head and eye sizes and weight in the physical appearance category were evaluated on three levels (Large, Medium, Small / Long, Normal, Short). The eyebrow feature,

which is another physical feature, was examined whether the avatar had it or not. The level of iconicity was evaluated in the category of iconicity. For this, realistic and iconic values were used as the iconicity level. In the graphical presentation category, the features of shape, texture, color, lighting, surface, and shading, among the features of avatars, were evaluated over five point scale (very high[5], high[4], medium[3], low[2], very low[1]). In the Dimension category, the design method of avatars, whether 2D or 3D, was examined. As last, clothes and accessories were evaluated by making their own categories.

In order to determine sign language avatars, systematic literature review and examination of application stores were carried out by the researchers. This process is summarized in Figure 3. In the literature, there are many studies developed for sign language translation using avatars (Hansen et al., 2018; Liu et al., 2009; Ward et al., 2017; Yang et al., 2014; Yousaf et al., 2018). In addition, there are also accessible sign language avatars used in Google Play application platform and web environment. In this context, a search was made with the search query ("deaf" OR "hearing impaired" OR "hard of hearing" OR "hearing loss") AND ("avatar" OR "pedagogical agent" OR "virtual human"). As a result of the search query, forty-three studies having sign language avatars were found in 723 publications. When these forty-three articles were examined that the same avatar design was used in some of them. In this context, as a result of the literature review, 28 unique sign language avatars were found. In addition, based on the articles reviewed, a total of 18 avatars used in eSIGN (eSIGN, 2021), ViSiCAST (ViSiCAST, 2021) and Vcom (Vcom3D, 2019) projects were found. As a result of the search made on the Google Play application platform with the term "sign language", twenty avatars were found in 273 applications examined. Apart from this, thirteen more avatars used in sign language studies obtained through web searches were found. Some avatars have been found to take place more than once in both different studies and different applications. As a result, a total of seventy-nine unique sign language avatars were examined. The reviewed avatars can be found in the appendix section.

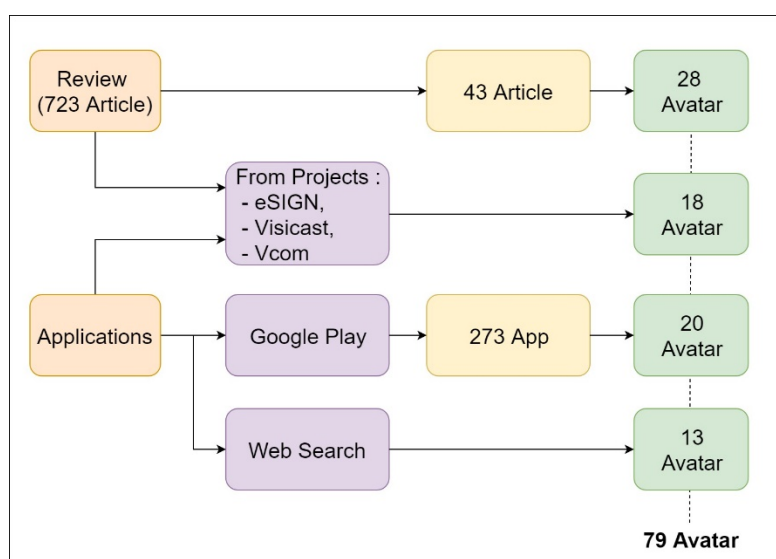


Figure 3. Search process of sign language avatars

Focus Group Discussions

Using the evaluation form (Table 2), seventy-nine sign language avatars were evaluated by researchers. This evaluation was carried out to determine the features of the avatars have in terms of design rather than their suitability for sign language. For this reason, it is aimed that experts should be competent in terms of evaluating design rather than knowing sign language. In this context, the process was carried out in the form of focus group discussions. Focus group meetings are generally considered as interviews that consist of a small number of members and allow group discussion on a specific topic (Remler & Van Ryzin, 2021). In this research, with the focus group discussions, it is aimed to discuss the points that can be disputed on the visual appearance categories, to find common decisions and to evaluate all the criteria in detail. Evaluations were made within the framework of the avatar design features specified in Table 2. In this process, the designs of 79 sign language avatars were examined one by one by the researchers. Owing to the focus group discussions, it was aimed that all researchers make an evaluation with a consensus by minimizing individual errors. Focus group discussions were completed in three sessions in a total of 4 hours and 40 minutes using video conferencing on an online platform. Graphics of each sign language avatar were shared on the screen in the sessions, and instant evaluations were made by all participants until a common opinion was reached within the relevant categories.

Data Analysis

As a result of the focus group discussions, the number of repetitions of the avatar design features specified in Table 2 was evaluated. In this context, how many times each feature was repeated in 79 avatars examined. The obtained results were presented in the findings section in table form.

FINDINGS

The first noticeable detail in the visual features of the avatars is that the perspective typically displays the avatar from the waist up (Table 2). 79 out of the 73 (%92,4) avatars have this appearance. As a result of the evaluation of sign language avatar visual appearances, it is seen that 38 of 79 avatars are modeled as male (48.1%) and thirty-six as female (45.6%) in terms of gender.

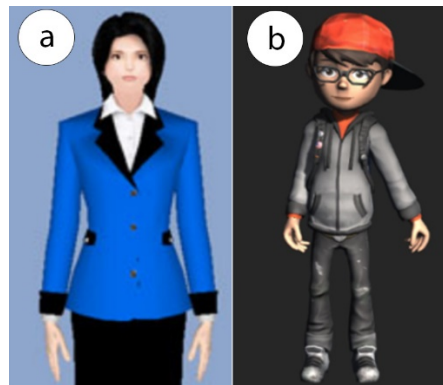


Figure 4. Realistic and Iconic Sign Language Avatar Examples (Realistic avatar on the left, iconic avatar on the right)

It is seen that five avatars (6.3%) are modeled in robot, rabbit, cat, fox, and panda form. 41 of 79 avatars' visual appearance are iconic (51.9%) and thirty-eight of them are realistic (48.1%). An example of realistic and iconic avatars is presented in Figure 4.

Table 3. Iconicity according to the source

Iconicity	Publications	Applications	Publication and Applications	Total
Realistic	17	18	3	38
Iconic	11	29	1	41
Total	28	47	4	79

While 28 of 79 avatars examined are found in scientific studies, forty-seven of them are found in mobile and web applications for sign language. Small amount of the avatars ($n = 4$) has been used both in the articles and in the applications. Table 3 summarizes the environments where avatars are presented as realistic or iconic. So, it is seen that while realistic avatars are preferred in publications, iconic avatars are preferred in applications.

Table 4. Iconicity and graphical presentation level

Graphical presentation level	Iconic (n)	Iconic (%)	Realistic (n)	Realistic (%)
Very High (5)	13	31,7	1	2,6
High (4)	12	29,3	7	18,4
Medium (3)	7	17,1	21	55,3
Low (2)	8	19,5	5	13,2
Very Low (1)	1	2,4	4	10,5
Total	41	100	38	100

Another finding about realistic and iconic avatars is that the graphical presentation levels of avatars are different. Table 4 shows the graphical presentation levels of iconic and realistic avatar visual appearance. It is seen that the visual graphical presentation of forty-one avatars designed as iconic is generally high (29.3 %) and very high (31.7%) graphical presentation (61%). On the other hand, it is seen that realistic avatars generally (55.3%) have a medium level ($n = 21$) graphical presentation level.

When Table 4 is examined, it is seen that while the number of realistic avatars designed with a very high level of graphical presentation is 1, the number of iconic avatars is 13. On the other hand, the number of realistic avatars designed with a very low level of graphical presentation is four, the number of iconic avatars with a very low graphical presentation level is only one. Examples of realistic and iconic designed avatars with very low (a, b) and very high (c, d) graphical presentation feature are shown in Figure 5.

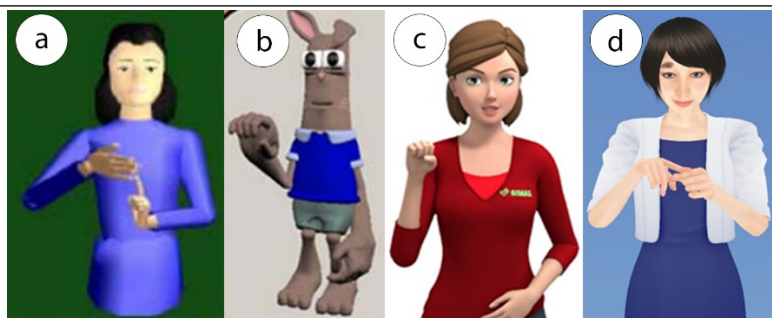


Figure 5. Realistic (a, d) and Iconic (b, c) Designed Avatars with Low (a, b) and High (c, d) Graphical Presentation

Another finding of the study is related to the lengths used in avatar designs. In this context, finger, palm, arm, head, and eye sizes were evaluated. In Table 5, frequencies of head and eye sizes are presented according to realistic and iconic avatars.

Table 5. Frequencies of avatars' head and eye sizes

Parts	Eye		Head	
	Realistic	Iconic	Realistic	Iconic
Big (n)	1	35	1	31
Big (%)	2,6	85,4	2,6	75,6
Normal (n)	37	6	36	10
Normal (%)	97,4	14,6	94,7	24,4
Small (n)	0	0	1	0
Small (%)	0	0	2,6	0
Total	38	41	38	41

When Table 5 is examined, it is seen that eyes in realistic avatar are generally designed in normal sizes (n = 37, 97.4%). However, in iconic designs, it is seen that eyes are designed larger than normal (n = 35, 85.4%). When head size is examined, it is seen that realistic avatars are generally designed in normal (n = 36, 94.7%) sizes, whereas iconic avatars are designed in large size (n = 31, 75.6%). Another noticeable finding is that the eye or head measurements are not designed in small sizes except for only one avatar.

Table 6. Frequencies of finger, palm, and arm lengths

Parts	Finger		Palm		Arm	
	Realistic	Iconic	Realistic	Iconic	Realistic	Iconic
Big (n)	1	15	1	9	1	6
Big (%)	2,6	36,6	2,6	22	2,6	14,6
Normal (n)	37	20	36	27	37	32
Normal (%)	97,4	48,8	94,7	65,9	97,4	78
Small (n)	0	6	1	5	0	3
Small (%)	0	14,6	2,6	12,2	0	7,3
Total	38	41	38	41	38	41

Table 6 shows frequencies related to finger, palm, and arm lengths in avatar visual appearance. In the evaluations of finger length, it is seen that realistic avatars have normal sized designs (n = 37, 97.4%). However, finger lengths are generally designed as normal (n = 20, 48.8%) or large (n = 15, 36.6%) sizes in iconic avatars. As for the evaluations of the palm, it is seen that realistic avatars have normal sized designs (n = 36, 94.7%). However, it was determined that palm lengths were generally designed as normal (n = 27, 65.9%) or large (n = 15, 36.6%) in iconic avatars. Considering the arm lengths, it is seen that the arm lengths of normal sizes are generally used in both realistic and iconic avatar designs.

In Table 7, head-eye, hand-finger-arm lengths were evaluated in terms of gender. Accordingly, it is seen that the head and eye sizes are designed as normal or larger than normal in male and female avatars. On the other hand, arm, finger, and palm sizes are mostly designed in normal sizes.

Table 7. Eye, head, arm, finger and palm sizes and lengths according to gender

Gender	Parts	Big		Normal		Small	
		n	%	n	%	n	%
Male	Eye	17	44,7	21	55,3	0	0
	Head	17	44,7	20	52,6	1	2,6

	Long		Normal		Short	
	n	%	n	%	n	%
Arm	4	10,5	31	81,6	3	7,9
Finger	9	23,7	26	68,4	3	7,9
Palm	6	15,8	29	76,3	3	7,9

	Big		Normal		Small	
	n	%	n	%	n	%
Eye	14	38,9	22	61,1	0	0
Head	10	27,8	26	72,2	0	0

Female	Long		Normal		Short	
	n	%	n	%	n	%
Arm	2	5,6	34	94,4	0	0
Finger	5	13,9	31	86,1	0	0
Palm	3	8,3	33	91,7	0	0

When the eye colors used in avatars are examined, the most preferred two eye colors are black (n=27) and brown (n=25). As the third color, blue (n=16) is used in avatar visual appearance. Green (n=9), white (n=1) colors are also used. In addition, the eye color of two avatars could not be determined. Hair colors used in avatars were also evaluated. Similarly, to eye color, black (n=32) and brown (n=27) is mostly preferred color in avatars' hair designs. Yellow (n=7), red (2), blue (n=2), orange (n=1), and green (n=1) colors are also used for hair designs. On the other hand, hair color could not be determined in 7 avatars.

When the avatars are examined in terms of costume design, it is seen that they are often designed with trousers (n=42), t-shirts (n=35), shirts (n=15) and skirts (n=10). When the type of costume was examined according to gender, male avatar designs usually use trousers (n=25), t-shirt (n=22), and shirt (n=5). Other types of costumes used in male avatars are blouse (n=1), vest (n=3), suit (n=3), sweater (n=2), shorts (n=2), singlet (n=1), jacket (n=2), dress (n=1), costume (n=1), coat (n=1), and astronaut costume (n=1). On the other hand, female avatar designs usually use trousers (n=17), t-shirts (n=13), skirts (n=10), shirts (n=10) and blouses (n=6). Other types of costumes used in female avatars are blouse (n=6), vest (n=1), sweater (n=4), jacket (n=4), and dress (n=4). Common types of costumes are presented in Table 8.

Table 8. Types of costumes common in avatars

Type of costume	Male		Woman	
	n	%	n	%
Trousers	25	36	17	25
T-Shirt	22	32	13	19
Shirt	5	7	10	14
Skirt	0	0	10	14
Blouse	1	1	6	9
Other	17	24	13	19
Total	70	100	69	100

When the accessories and clothing details of avatars are examined, it is obvious that some designs do not contain accessories (n_{male} = 11, n_{female}=18). However, some designs include one or two accessories. It was observed that the number of accessories used in male avatars (n=38) was higher than the number of accessories used in female avatar (n=19) visual appearance. While eight types of accessories are used in female avatars, nineteen types of accessories are used in male avatars. Other types of accessories used in female avatars are belt (n=5), logo (n=4), necklace (n=3), pattern (n=3), necktie (n=1), glove (n=1), earring (n=1), and badge (n=1). Similarly, accessories used in male avatars are: Belt (n=13), Tie (n=5), Glasses (n=3), Logo (n=2), Turban (n=2), Glove (n=1), bag (n=1), pattern (n=1), button pattern (n=1), handkerchief (n=1), bow tie(n=1), cape (n=1), colorful clothes (n=1), hat (n=1), crown (n=1), collar (n=1), name badge(n=1), and vest (n=1). The most used accessory in avatars is the belt (n=18). The distribution of accessories is presented in Table 9.

Table 9. Accessory used in avatars

Accessory	Male		Female	
	n	%	n	%
Belt	13	34	5	26
Tie	5	13	0	0
Glasses	3	8	0	0
Pattern	0	0	3	16
Necklace	0	0	3	16

Logo	2	5	4	21
Other	15	40	4	21
Total	38	100	19	100

While avatars mostly did not use cultural clothing ($n = 76$), only three avatars had cultural visual appearance. The most used accessory for both male and female avatars was the belt.

DISCUSSION

In studies on avatar designs, it is seen that the gender of the avatar is a significant factor. In the study of Plant et al. (2009) conducted with middle school students, it was determined that female avatars were more effective than male avatars. In addition, Baylor (2011) stated that the most effective social avatar model is a young, calm, and female avatar. While realistic human-like avatars increase social interaction, female avatars are more preferred than male avatars (R. F. Khan & Sutcliffe, 2014). Although it is stated in the literature that female avatars are more effective, the number of male and female designs used in the examined avatars is close to each other.

Sign language avatars are often seen above the knee ($n=73$, %92,4). This may be due to the creation of sign languages around the upper part of the body and the head region. Similarly, in the study conducted by Pfau and Quer (2010), it was stated that facial expressions, head and body movements, and mouth movements are used in addition to hand signs in sign languages. It is known that eyebrow movements (eyebrow lowering, eyebrow lifting), directional gaze, speaking, lip movements, head movements and body tilting movements are widely used in sign languages (Zeshan, 2004).

Although eye (55%) and head (53%) are usually designed in normal sizes, there are also avatars with big eye (45%) and big head (45%) sizes, which cannot be underestimated. When avatars are evaluated in terms of iconic or realistic visual appearance, it is seen that the head and eyes are designed bigger than normal in most of the iconic characters. The big head and big eye designs used in iconic characters are a common feature in sign language avatars as well. Mehta, Pai, and Singh (2020) emphasize that children's avatar preferences are in the form of an iconic character with big eyes. Similarly, it is stated that designs with a thin body and big head add cuteness to the character (Bancroft, 2006). In addition to this, it is recommended that the hand and head sizes should be bigger than normal in order to understand the signs and non-manual signs more clearly (Lopes, 2016).

Finger, palm, and arm lengths are designed normally in iconic and realistic avatars. However, long-fingered designs are often found in iconic avatars. In this context, it would be beneficial for realistic avatars to choose hand and arm lengths close to human dimensions. On the other hand, for iconic avatars, it would be useful to choose normal or long finger lengths according to the target group. However, finger, palm, and arm lengths should not be designed in small sizes. This type of design stands out as a feature that should be considered in terms of understanding finger signs. Sign language is a communication method limited by the eyesight (Siple, 1978). For this reason, speed and spatial resolution are important for the sign language to be fully recognized on digital screens (Muir, 2005). In this context, the dimensions of the elements (finger, hand, arm, eye, and head) that perform the sign are expected to be in traceable dimensions.

The number of iconic and realistic avatars are close to each other in the studies examined. While iconic avatars are generally used in applications ($n = 29$, 62%), realistic avatars are generally used in publications ($n = 17$, 61%). Kipp et al. (2011) stated in their study on individuals with hearing impairment between the ages of 20-50 that iconic avatars (cartoon animation) are mostly preferred. However, in the same study, it is emphasized that it would be more appropriate to use realistic avatars in adult groups and iconic avatars in younger groups. In another study, McCloud (1993) states that the increase in the iconicity of the avatar, the more people will adopt the avatar. In other words, a realistic avatar will be adopted by more limited sample group due to its lower representation level. In addition, thanks to the preference of iconicity in avatars, it supports more effective designs by staying away from the effect of the uncanny valley (Mori et al., 2012). Adamo-Villani and Anasingaraju (2016) also state that iconic characters look more attractive than realistic characters. When we evaluate the level of iconicity in these terms, it is seen that iconic avatars have an important effect in product-oriented sign language avatar studies. However, it seems that iconic avatars should be evaluated according to the environment where they will be used.

It requires time and effort to design a realistic avatar with high quality. But designing processes become easier with the developing 3D technologies (Min, 2004). On the other hand, according to the uncanny valley (Mori et al., 2012) theory, realistic avatars are expected to be designed with high quality and almost flawlessly. Otherwise, if an avatar with realistic features is not designed with high quality, it will have negative effects on users. The high level of graphical presentation of realistic avatars can cause difficulties in terms of modelling and the infrastructure. Especially, increasing the resolution, texture and shadow detail can cause various problems in rendering times and graphic infrastructures. At this point, high graphical presentation levels are more applicable to iconic avatars. Jen and Adamo-Villani (2015) determined in their study that non-photorealistic signs presented in finger alphabet teaching, increase readability more than realistic signs. Furthermore, Adamo-Villani and Anasingaraju (2016) state that although there is no difference between realistic and iconic visual appearances in the recognition of signs, iconic characters have a significant effect on the attractiveness of the avatar.

Avatar clothing and colors should also be taken into consideration to see the sign more clearly. When the clothes and accessories are examined, it is seen that 32% of the avatars have a plain clothing without details. It was determined that the most preferred clothing types in avatars are trousers, t-shirts, shirts, and skirts. Considering that sign language interpreters also try to

increase contrast and sharpness by wearing plain and dark colors (Siple, 1978), plain clothing is important in transferring sign language. On the contrary, it is seen that some avatars are designed with detailed and colorful elements. It is thought that these avatars can be preferred to attract the attention of young individuals.

CONCLUSION AND RECOMMENDATIONS

Sign language avatars differ from avatars used in games or educational materials. It is important to transfer the movements appropriately to maintain communication in sign language. However, educational agents used in games or educational materials can directly use channels such as text and voice to communicate with individuals. At this point, when designing sign language avatars, body parts including sign language movements should be designed more carefully and functionally compared to agents in game or educational settings. For this reason, one of the important findings that we come across is that most of the sign language movements are performed in the upper part of the body. Therefore, avatars for sign language should be designed in a way that the upper part of the body is visible. Contrary to the scientific research that female characters are more effective in avatar designs, there is no difference in terms of gender distribution in avatars examined for sign language. On the other hand, it is necessary to consider the target group in the selection of iconic or realistic visual appearances. Iconic or realistic avatar visual appearance have distinctive features. Eye, head, arm, and fingers should be larger than normal to develop an iconic design. Eye, head, finger, palm, and arms should be in normal sizes to develop a realistic design. Finally, the visual channel is significant in the formation of information for deaf individuals. For this reason, it is important to convey information directly to the visual channel when communicating with deaf individuals. Therefore, in order to avoid overloading the visual channel, choosing simple designs in the use of clothing and accessories in avatars will be beneficial for an effective communication process.

Declaration of Conflicting Interests

On behalf of all authors, the corresponding author states that there is no conflict of interest.

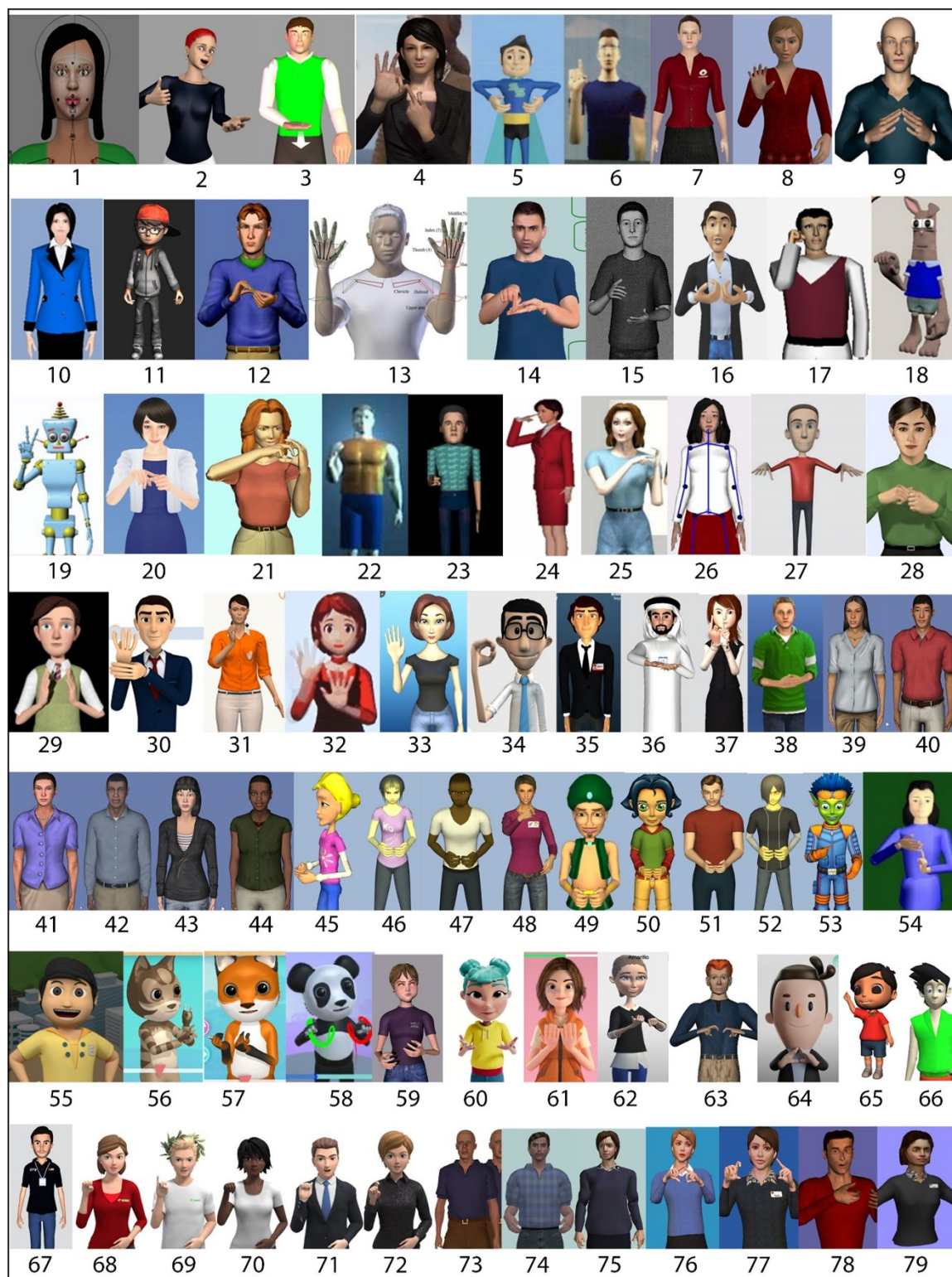
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Statements of publication ethics

We hereby declare that the study has not unethical issues and that research and publication ethics have been observed carefully.

APPENDIX



1: (de Araújo et al., 2013; Silva et al., 2012), 2: (V. López-Ludeña et al., 2014; Verónica López-Ludeña et al., 2013), 3: (López-Colino & Colás, 2012), 4: (J. Oh et al., 2014), 5: (Adamo-Villani et al., 2013), 6: (Al-Khalifa, 2011), 7: (De Martino et al., 2017), 8: (Ebling & Glauert, 2016; JASigning, 2012), 9: (Bouزيد et al., 2016, 2015; Bouزيد & Jemni, 2014, 2017), 10: (Li et al., 2014; Wang et al., 2010), 11: (Mehta et al., 2020), 12: (Hansen et al., 2018; Vcom3D, 2008), 13: (Punchimudiyanse & Meegama, 2017), 14: (Elliott et al., 2008; Kennaway et al., 2007; San-Segundo et al., 2012), 15: (Vesel & Robillard, 2013), 16: (Yousaf et al., 2018), 17: (Bouزيد & Jemni, 2013a, 2013b; Ghouل & Jemni, 2009), 18: (Adamo-Villani et al., 2004), 19: (Adamo-Villani & Wilbur, 2010), 20: (Balayn et al., 2018), 21: (Braffort et al., 2016; Braffort & Dalle, 2008), 22: (Brega et al., 2014), 23: (Papadogiorgaki et al., 2005), 24: (Liu et al., 2009), 25: (Segouat & Braffort, 2009), 26: (Y. J. Oh et al., 2007), 27: (Ward et al., 2017), 28: (McDonald et al., 2016), 29: (Naert et al., 2020), 30: (Engelsiz Çeviri, 2018), 31: (Turkcell İletişim Hizmetleri, 2020), 32: (MDI.inc, 2016), 33: (Posibillian Tech, 2020), 34: (Hand Talk, 2013), 35: (ProDeaf, 2013), 36-37: (Mind Rockets, 2019), 38-39-40-41-42-43-44: (Vcom3D, 2008), 45-46-47-48-49-50-52-53:

(JASigning, 2012), **51:** (JASigning, 2012; Patel et al., 2020), **54:** (Yang et al., 2014), **55:** (BAXS Technology, 2017), **56-57-58:** (MocapLab, 2018), **59:** (Signlab Nuevas Tecnologías, 2012), **60:** (StorySign, 2020), **61:** (Leepi, 2020), **62:** (Sign Accessible Technologies, 2019), **63:** (Reem Ibrahim, 2017), **64:** (Hear Me ID, 2021), **65:** (IMI Creative Sdn Bhd, 2020), **66:** (Team Crazy Developers, 2019), **67:** (Mind Rockets Inc, 2019), **68-69-70-71-72:** (Sign Time, 2021), **73-74-75-76-77-78-79:** (eSIGN, 2021)

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| Research Article / Araştırma Makalesi |

An Intended or Alternative Profession?: ELL Undergraduates' Attitudes towards Being an English Teacher

Öncelikli Meslek Tercihi mi Yoksa Alternatif mi?: İDE Öğrencilerinin İngilizce Öğretmeni Olmaya Yönelik Tutumları

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Keywords

1. Teacher education
2. English language teaching
3. Pedagogical formation
4. Attitudes towards teaching
5. Teacher self-efficacy

Anahtar Kelimeler

1. Öğretmen eğitimi
2. İngiliz dili eğitimi
3. Pedagojik formasyon
4. Öğretmenliğe ilişkin tutumlar
5. Öğretmen öz-yeterliliği

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Abstract

Purpose: Prospective teachers are trained with essential knowledge and skills in teacher education programs of all teaching fields at education faculties of universities in Türkiye. In addition, graduates of specific departments at faculties also have a chance to become a teacher by successfully completing pedagogical formation certificate programs. Thus, it is a matter of question what the main purpose of undergraduate students when beginning to study or studying at these departments is: becoming a teacher or not. Along with this inquiry, this paper presents a quantitative study focusing on reasons for department choice of undergraduates studying at English Language and Literature (ELL) department and their attitudes towards being a language teacher within the scope of teacher self-efficacy beliefs.

Design/Methodology/Approach: Data of this quantitative study were collected from 220 undergraduates studying at English Language and Literature department of a state university in Türkiye by administering scales on the research purpose.

Findings: The findings suggested that the primary reason reported was an interest in the department with knowledge and skills to be gained, which was followed by becoming an English language teacher with high level of teacher self-efficacy.

Highlights: Even though there is no explicit focus on becoming an English teacher as part of curricula of non-ELT departments, undergraduates studying at these programs consider being an English teacher as the primary career option, which could lead to a need to evaluate curricula of these programs and teacher education.

Öz

Çalışmanın amacı: Türkiye'deki üniversitelerin Eğitim Fakültelerinde öğretmenlikle ilgili tüm alanlarda öğretmen adaylarına gerekli bilgi ve beceriler kazandırılmaktadır. Bunun yanı sıra, çeşitli fakültelerin belirli bölümlerinden mezun olanlar pedagojik formasyon sertifika programını tamamlayarak öğretmen olma şansını edinmektedirler. Bu durum göz önünde bulundurulduğunda, bu bölümlerde eğitime başlayan ya da eğitimine devam eden üniversite öğrencilerinin bölümlerini tercih etme sebeplerinin "öğretmen olmak" olup olmadığı merak konusudur. Bu araştırma konusu doğrultusunda, bu makale İngiliz Dili ve Edebiyatı bölümünde öğrenim gören üniversite öğrencilerinin bölümlerini tercih etmelerindeki öncelikli sebebi ve bu öğrencilerin öğretmen olmaya yönelik tutumlarını öz-yeterlik inançları çerçevesinde araştırmayı amaçlamaktadır.

Materyal ve Yöntem: Nicel araştırma olarak tasarlanan çalışmanın verisi Türkiye'de bir devlet üniversitesinin İngiliz Dili ve Edebiyatı bölümünde öğrenim gören 220 üniversite öğrencisinden araştırma amacına uygun ölçeklerin uygulanmasıyla toplanmıştır.

Bulgular: Çalışmanın bulguları, çalışmanın katılımcılarının bölümlerini tercih etmedeki öncelikli sebebin kazandırdığı bilgi ve beceriler açısından bölüme olan ilgileri olduğunu ortaya koymuştur. Bununla birlikte, katılımcıların büyük çoğunluğunun bölüm tercihindeki öncelikli sebeplerinin İngilizce öğretmeni olmak olduğu ve öğretmenlik tercihi olan katılımcıların öz-yeterlik inançlarının yüksek olduğu ortaya çıkmıştır.

Önemli Vurgular: İngilizce öğretmenliği bölümü dışındaki bölümlerin müfredatlarında öğretmenlikle ilgili bir odak olmamasına rağmen bu bölümlerde öğrenim gören öğrenciler öğretmen olmayı amaçlamaktadır. Bu doğrultuda, bu programların müfredatlarının ve öğretmen eğitiminin gözden geçirilmesi ihtiyacı ortaya çıkabilir.

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INTRODUCTION

This paper presents a quantitative study aiming to examine attitudes of undergraduates studying at ELL department towards becoming an English teacher with regard to teacher self-efficacy beliefs. As part of pre-service teacher education, teacher candidates are trained with essential knowledge and skills to teach in various training programs. Being successful in fulfilling tasks demanded by these programs is dependent on factors one of which is teacher candidates' self-efficacy beliefs. In this sense, existing research provides insight into readiness of pre-service teachers for the profession and their self-efficacy beliefs. Yet, the focus is on teachers in either long-term or short-term initial training programs such as pedagogical formation certificate program in Türkiye. It is not addressed if undergraduates studying at a department providing an opportunity to attend a pedagogical certificate program, thus, to become a teacher consider teaching as the first career option. Therefore, the current paper, first, introduces theoretical framework for aspects of pre-service teacher education and teacher self-efficacy. Then, details of the study, data collection procedures and analyses, findings and discussion are presented.

Background of the Study

Choosing to become a teacher as profession is the result of consideration of a number of conditions. According to OECD (2022) report on teacher initial education in countries, intrinsic motivation plays a significant role in choosing to become a teacher as the first career option. However, in the same report, it is stated that in *Teaching and Learning International Survey* (TALIS) countries, one-third of teachers who considered teaching as an alternative option before starting to the profession preferred it due to flexible work schedule, better work life conditions and the prestige in the society. With that decision to become a teacher, ongoing educational process starts by shaping teacher identity from being a prospective teacher to an experienced teacher.

Pre-service teacher education or initial teacher training is presented in various forms and duration of programs throughout the world. To this end, in a report published by UNESCO's International Institute for Educational Planning (IIEP) (2021) on pre-service teacher preparation, it was stated that requirements of becoming a teacher could involve a degree program, a diploma or certificate, and the quality of pre-service education programs is based on the content rather than the time spent on the program. However, according to this report, completing a bachelor's degree is the minimum condition associated with achieving highest student performance. Moreover, it is indicated that teacher candidates being trained in short-term programs are inclined to need more support and training when they begin the profession. The training carries on in the form of in-service teacher education or teacher training/development practices.

Pre-service teacher education in Türkiye dates back to 19th century with initial form of schools (Bilir, 2011; Köksal & Ulum, 2018). Since then, faculties of education at universities have provided four-year pre-service teacher education programs for prospective teachers of various fields to help them be qualified with necessary theoretical and pedagogical knowledge and skills. Keeping up with time and socio-cultural changes, educational systems and, thus, curricula of these programs have been renewed to meet emerging needs. In addition, language teacher education dates back to 19th century in Türkiye starting with training to teach French and carrying on with English that spread around the country in the mid of the century (Balbay & Doğan, 2021). Now, English language teacher education programs are available at faculties of education at about a hundred universities in Türkiye. These programs provide courses and teaching practice to develop prospective English teachers' skills and pedagogical, subject matter and general knowledge (Karakaş, 2012). With latest changes, 30-35 % of courses are on pedagogical knowledge; 15-20 % on general knowledge and 45-50 % on subject matter knowledge in the curriculum of English language teacher education programs. Besides, prospective English teachers practice teaching through practicum experience at basic and high school level in the last year of their four-year training at the faculty. Thus, they get prepared to start their career in teaching.

In addition to pre-service teacher education provided at faculties of education, graduates of various departments at faculties could become a teacher by attending one-academic year pedagogical formation certificate program. In this program, teacher candidates take intensive courses on general and pedagogical knowledge as well as subject matter courses specific to their teaching field, and they practice teaching through a two-term practicum process. Specific to English language teaching, graduates of English Language and Literature, American Culture and Literature, Translation and Interpreting, Translation Studies and Linguistics departments can apply to the program. Therefore, they are trained to be an English teacher through common courses on language knowledge and courses on teaching methods specific to English language teaching. Furthermore, they have teaching experience through practicum at the same type of schools as graduates of bachelor's degree in ELT, which contributes to their readiness to become a teacher.

When the related literature is reviewed in the global context, also in Türkiye, it could be stated that existing research tends to address psychological aspects such as motivation and wellbeing, views of undergraduates studying at departments of education faculties or attending a pedagogical formation certificate program about becoming a teacher and effectiveness of the courses they take during their studies (e.g., Corcoran & O'Flaherty, 2022; Crowe & McGarr, 2022; Holzberger et al., 2021; Mairitsch et al., 2021; Özdemir & Güngör, 2017; Karakış, 2021; Toraman et al., 2016). For instance, in one of the studies, Crowe and McGarr (2022) investigated 42 undergraduates' career preferences for choosing to become a teacher with regard to shaping their teacher identity. The findings suggested that teacher candidates in the study had high level of commitment to teaching profession, so they chose it as the main career option without exploring other options. On wellbeing of pre-service teachers, Mairitsch et al. (2021) conducted a qualitative comparative study through 14 semi-structured interviews in two countries and found out that individual and environmental factors such as work-life balance, social interaction, and the quality of teacher education program are likely to

influence pre-service teachers' wellbeing. Within the scope of pre-service teachers in pedagogical formation certificate program, in Turkish context, Karakış (2021) explored professional engagement, career development goals and motivation of prospective teachers in various fields who were attending that program. Quantitative data collected from 460 participants revealed that their motivation was high to become teachers. In a similar vein, in an earlier study, Toraman et al. (2016) investigated attitudes of teacher candidates in various fields towards teaching profession and their views about pedagogical formation certificate program they were attending. The research findings indicated that 202 participants in the study were relatively satisfied with effectiveness of the program and there was a positive change in their attitudes towards the profession.

Concerning English language teacher education context, research tries to shed light on views of teacher candidates at pedagogical formation certificate program despite very limited number of studies in question (e.g., Mirici & Ölmez-Çağlar, 2017; Köksal & Genç, 2019; Sarıçoban & Kırmızı, 2018). In this sense, Mirici and Ölmez-Çağlar (2017) focused on how non-ELT teacher candidates reflected on practicum experience during the program, and it emerged that these prospective teachers needed more teaching practice since they did not have many opportunities to observe lessons and practice teaching as part of the program. Additionally, Sarıçoban and Kırmızı (2018) searched for how prospective English teachers who attended pedagogical formation program considered the impact of program on their teaching. The findings of that study carried out with 63 participants who were either taking courses on the program or teaching after completing the program set forth participants' positive views about the program as it was beneficial. Overall, findings are likely to suggest perceived effectiveness of the program fostering positive attitudes towards teaching in various fields of teaching one of which is ELT.

Teacher Self-efficacy Beliefs

The concept of self-efficacy referring to an individual's thoughts about his or her capabilities to fulfil a specific task (e.g., Bandura, 1986; 1997) is considered as a fundamental motivational construct in shaping behaviors (Bandura, 1997). To this end, strength of these beliefs and the nature of task to be fulfilled are determinant of self-efficacy levels, in turn, strong sense of self-efficacy is regarded as a path to success. As for the sources of self-efficacy, it has been indicated that an individual's past achievements in tasks similar to the target one (mastery experiences), achievements of a model (vicarious experiences), encouragement (verbal persuasion) and mood (physiological and affective states) could lead to a sense of success, and when these beliefs are established strongly, they are difficult to change (Bandura, 1997). Consequently, it has been related to various areas in human life one of which is learning. To this end, self-efficacy is associated with positive outcomes in learning such as high level of motivation, learner autonomy, self-regulated behaviors, and student achievement (e.g., Bong, 2002; Chong & Reinders, 2022; Jiang et al., 2014; Kim et al., 2022; Pintrich & Schunk, 2002; Zimmerman, 2000).

Teacher self-efficacy, on the other hand, defined as a teacher's beliefs about his or her abilities to perform teaching related tasks even in challenging situations (Tschannen-Moran & Hoy, 2001) is stated to affect student achievement (e.g., Caprara et al., 2006; Shahzad & Naureen, 2017) and motivation (e.g., Mojavezi & Taviz, 2012). In the literature, teacher self-efficacy is commonly addressed through "can do" statements on specific teaching related tasks about *instructional strategies, classroom management and student engagement* (Tschannen-Moran & Hoy, 2001) or more specific tasks about *instruction, adapting education to individual students' needs, motivating students, keeping discipline, cooperating with colleagues and parents, and coping with changes and challenges* (Skaalvik & Skaalvik, 2007). Providing a powerful source to deal with these challenging tasks, teacher self-efficacy also has teaching related psychological outcomes which are commitment to teaching, job satisfaction or burn-out and intention to quit (e.g., Skaalvik & Skaalvik, 2007; 2010; 2014; Klassen & Chiu, 2010). As evidence for positive and negative teacher related outcomes, Klassen and Chiu (2010) put forward that high level of self-efficacy for classroom management and instructional strategies was significantly related to high level of job satisfaction. Regarding possible factors influencing teacher self-efficacy, in the same study conducted with 1430 in-service teachers, it emerged that female teachers had higher level of workload and classroom stress, thus lower level of self-efficacy for classroom management. Moreover, the effect of years of teaching experience was not straight as it increased from early to mid-years in teaching while it decreased through the end of the profession. Similarly, Skaalvik and Skaalvik (2014) examined if teacher self-efficacy and autonomy were associated with engagement, job satisfaction and emotional exhaustion in a study conducted with 2569 Norwegian teachers, and they revealed that teacher self-efficacy and autonomy were significantly related to all three concepts in positive or negative sense. Overall, research findings conclude that the higher level of self-efficacy beliefs is, the more positive teaching related outcomes are.

While teacher self-efficacy is associated with concepts abovementioned regarding in-service teachers, strong sense of self-efficacy beliefs is also connected to readiness of pre-service teachers (e.g., Knoblauch & Woolfolk Hoy, 2008; Pendergast et al., 2011). Furthermore, research on the change in self-efficacy beliefs during pre-service teacher education has suggested that teacher candidates tend to have high level of efficacy beliefs throughout their training, but the level of self-efficacy beliefs decreases when they start to profession particularly in their first year of teaching (e.g., Hoy & Woolfolk, 1990; Moseley et al., 2003), which is referred to "reality shock" (e.g., Mintz et al., 2020). For instance, Pendergast et al. (2011) examined the change in self-efficacy beliefs of beginning pre-service teachers throughout their teacher preparation. The findings suggested that while the teacher candidates had high level of teacher self-efficacy even in the first weeks of their education, it decreased in the last semester of the final year of education, which emphasizes the reality of facing the real conditions.

Specific to pre-service language teacher education in Türkiye, studies conducted with undergraduates studying at faculty of education set forth that prospective language teachers with high level of self-efficacy feel ready for the profession with positive thoughts about their teaching abilities (e.g., Ercan-Demirel, 2017; Külekçi, 2011). In one of these studies, Külekçi (2011) explored

self-efficacy beliefs of 353 prospective English teachers at two universities in Türkiye with regard to several variables through a quantitative study, and it emerged that the participants had positive efficacy beliefs. Moreover, the variables of academic achievement and study grade were found out to be effective in their self-efficacy. Similarly, the study of İnceçay and Dollar (2012) searched for self-efficacy beliefs of Turkish pre-service English teachers and their readiness for the profession in relation to real teaching conditions. The findings indicated that there was a relationship between teacher self-efficacy regarding classroom management and readiness to handle classroom issues. However, there was no significant difference in self-efficacy beliefs reported concerning transferring management skills into real classroom conditions. Likewise, in a later attempt, the study of Ercan-Demirel (2017) conducted with 208 pre-service ELT teachers in their last year of studies at two state universities in Türkiye addressed their self-efficacy beliefs about teaching career that they were about to begin. The findings of that quantitative study revealed that the participants had high level of self-efficacy for their teaching, and they felt ready for the profession.

Within the scope of pre-service teachers' self-efficacy beliefs, prospective teachers attending pedagogical formation certificate program were sample of studies in Turkish contexts as well as undergraduates studying at faculties of education (e.g., Güngör & Özdemir, 2017; Şahin, 2013; Yazıcı & Yıldırım, 2017). The studies searching for self-efficacy beliefs of prospective teachers at pedagogical formation program and their attitudes towards teaching profession have revealed that they have positive attitudes towards teaching with high level of teacher self-efficacy (e.g., Şahin, 2013). Yet, there is lack of related research in the field of ELT, and to the knowledge of the researcher, no study has investigated whether these prospective teachers tend to become a teacher when beginning their departments or carrying on studies at their departments. Therefore, the current study aims to examine main reason for department choice of undergraduates studying at departments that provide opportunities to become a teacher when graduating within the scope of teacher self-efficacy in English language teaching context. For this purpose, the following research questions are to be addressed:

1. What is the main reason of undergraduates of ELL department for choosing their departments to study?
2. What is their attitude towards becoming an English teacher when graduating?
 - a. If it is positive, how do they perceive their teacher self-efficacy?
 - b. How does educational experience relate to teacher self-efficacy beliefs?

METHOD/MATERIALS

In order to address the research questions, the study was designed in two phases based on quantitative research methods. Before data collection, approval was obtained from Ethical Board of the university that the study was aimed to be conducted. Then, quantitative data were collected from the whole sample through a background information questionnaire in the first phase, and in the second phase, a valid and reliable scale on language teacher self-efficacy was used to collect data from the participants whose response was to become a teacher. Data were analyzed through appropriate statistical tests on Statistical Package for Social Sciences (SPSS) version 20. Detailed description of the sample and data collection/analyses procedures is as follows:

Setting and Participants

The setting was English Language and Literature department at Faculty of Human Sciences of a state university in Türkiye. As part of four-year undergraduate education, the department provides courses on English Language and Literature as well as compulsory courses suggested by Council of Higher Education in Türkiye. Students studying at this department may have academic career opportunities. Furthermore, they could prefer being an English teacher by attending one-academic year pedagogical formation certificate program after they graduate. In this program, they are provided with teacher education courses as well as teaching practicum.

The participants were 220 undergraduates studying at each grade at the department including students studying English at prep-school before going on their studies at the department. Before pooling the participants through convenient sampling method, the target group were explained about the procedures and ethical issues through an informed consent form, and the ones agreeing to participate into the study constituted the sample. Description of the sample could be found in Table 1.

Table 1. Background information about the sample

Grade (M=2.44, SD=1.58)	N= 220	Gender (M=1.34, SD=.52)	N=220	Age (M=1.52, SD=.55)	N=220
Prep-school	110	Female	150	18-20	109
1 st year	6	Male	65	21-25	107
2 nd year	37	Prefer not to say	5	26-30	3
3 rd year	31			30+	1
4 th year	36				

As seen in background information about the sample presented in Table 1, most of the participants were students studying English at prep-school before carrying on studies at their departments, which made it possible to examine if the participants started to university with an intention of becoming a teacher. The target was to collect data from groups with almost equal numbers, but due to data collection principle of voluntary participation, the number of the participants in groups was unequal. However, except for prep-school and first year students, the number of participants in other grades were similar. The only

background variable considered in research purposes was educational grade, so gender and age variables are presented in the table to only present details about the participants.

Data Collection Procedures

Having decided on setting and sample, the researcher focused on data collection procedures. In line with quantitative research method, a fit-for-purpose instrument to be used was determined. To this end, one of the data collection instruments was a background information questionnaire including multiple-choice items on gender, study year, self-efficacy about language knowledge, the primary reason for choosing to study at the department and their attitudes towards being a language teacher. Appropriateness of the questionnaire was checked by a field expert, and revisions were made accordingly before using it. This questionnaire was administered to all participants. Besides that, for further inquiry to address teacher self-efficacy, the study was carried on with the participants who reported that their primary reason for choosing the department was to become a teacher. To prevent any misunderstanding, explanations were added into the questionnaire, and the researcher noted the procedures while administering the instruments. A 23-item scale on pre-service language teacher self-efficacy developed by the researcher was used to address teacher self-efficacy beliefs. The scale had "can do" items on components of planning, teaching, assessment, and professional development in 7-Likert scale response options from 1 (a little) to 7 (a lot) for the strength of beliefs. To prevent any effect of assumptions that could mislead the participants' responses, 0 (do not know/not applicable) option was added into the scale. The items were translated into Turkish for better understanding of related concepts and terms on the scale, and backward translation process was held for the concern of validity. Furthermore, before employing the scale for data collection, a pilot-study was conducted for reliability analyses, and Cronbach alpha score was found to be .94 suggesting appropriateness of the scale to collect data. As a result, it was administered to the sample in spring term of 2021-2022 academic year.

Data Analyses

Based on quantitative research methods, data were analyzed statistically. To this end, descriptive statistics, frequencies, Kolmogorov-Smirnov normality test and one-way ANOVA test were performed. The findings of these analyses are as follows:

FINDINGS

This quantitative research sought to explore primary reason for department choice of undergraduates having a chance to become an English teacher by obtaining pedagogical formation certificate. For this purpose, background information questionnaire included two Likert-scales questions. One of the questions focused on the main reason for choosing to study at the department by presenting three response options: an interest in the department with knowledge and skills to be gained, academic career opportunities when being graduated and becoming an English teacher by obtaining pedagogical formation certificate. Responses are demonstrated in the table below:

Table 2. Findings about department preferences

Primary reason	Frequency	Percentage
An interest in the department	101	45.9
Academic career opportunities	26	11.8
Becoming an English teacher	93	42.3

As could be seen in the table on findings about department preferences, the primary reason of ELL undergraduates for preferring to study at the department was reported to be their interest in the department followed by the option of becoming a teacher with a small difference between them. The second item included in the questionnaire to sustain the finding about department choice was a 5-Likert scale response question in which participants were asked how much they agreed on becoming a teacher when graduating. Responses are as follows:

Table 3. Responses about preferences for becoming a teacher

How much do you agree on the following statement? "My primary goal when being graduated is to become an English teacher."

Responses	Frequency	Percentage
Strongly disagree	30	13.6
Disagree	32	14.5
Partially agree	65	29.5
Agree	30	13.6
Strongly agree	63	28.6
Total	220	

In Table 3 presenting responses about preferences for becoming a teacher, it is demonstrated that while the response of *Partially Agree* had the highest value, most of the participants responded as *Strongly Agree* and *Agree*, which matches and sustains the frequency value of the previous item. Thus, further analyses addressed teacher self-efficacy beliefs.

Teacher self-efficacy beliefs of the participants who reported that their goal is to become a teacher (N=93) were investigated through an item on the background information questionnaire and the pre-service language teacher self-efficacy scale. In this regard, first, the participants reported on how they perceived their teaching abilities, which is illustrated in Table 4.

Table 4. Participants' perceptions about their teaching abilities (N=93)

How do you consider your teaching abilities?

Responses	Frequency	Percentage
Bad	4	1.8
Fair	47	21.4
Good	36	16.4
Very good	6	2.7

With regard to Table 4 demonstrating participants' perceptions about their teaching abilities, it could be stated that participants' thoughts about their teaching abilities tend to be positive when the responses of "very good", "good" and "fair" are considered, and the highest frequency of "fair" response could be regarded as a reliable result as these students do not have any teaching related course in their program. In addition to that general item suggesting average level of perceived efficacy, analysis of data collected through the scale revealed specific findings about the participants' perceived teacher self-efficacy beliefs. That median of the given scores was ≥ 5 for each item could be considered as high level of efficacy. Details about descriptive statistics of the sub-scales could be found in Table 5.

Table 5. Descriptive statistics of teacher self-efficacy beliefs (N=93)

Sub-scales	Mean	SD
planning	5.75	.93
teaching	5.60	.89
assessment	5.67	1.04
professional development	5.68	1.05

As seen in Table 5 on descriptive statistics of teacher self-efficacy, there is no significant difference in the mean values of the sub-scales. Overall, it could be concluded that the participants had high level of teacher self-efficacy beliefs.

Another research concern of the study was to explore if year of education influenced teacher self-efficacy or if it changed through years. Therefore, the participants' (N=93) efficacy beliefs about the sub-scales above were associated with their year of education. For this purpose, Kolmogorov-Smirnov normality test was performed to determine the correct type of variance analysis. The output of the test revealed that the data had normal distribution ($p=.06$) with skewness of -1.13 ($SE=.25$) and kurtosis of 2.16 ($SE=.49$). Thus, parametric one-way ANOVA test was carried out as there were five target groups concerning participants' year of education. The analyses suggested that there was no statistically significant effect of education year on teacher self-efficacy beliefs [$F(4, 88)=.52$ $p=.72$]

To conclude, findings suggested that the participants' main reason for choosing to study at their department was an interest in the department with respect to knowledge and skills provided, and a high number of them aim to become an English teacher by attending a pedagogical formation certificate program. In addition, the participants whose goal is to become a teacher had high level of teacher self-efficacy regardless of their education year.

DISCUSSION

In accordance with the findings abovementioned, this study provides supporting evidence for the related literature. To start with, research on pre-service teacher education around the world and in Türkiye focuses on attitudes of teacher candidates either in faculties of education or at pedagogical formation program towards teaching profession (e.g., Corcoran & O'Flaherty, 2022; Crowe & McGarr, 2022; Holzberger et al., 2021; Özdemir & Güngör, 2017; Karakış, 2021; Toraman et al., 2016). These studies are inclined to suggest either positive psychological aspects such as motivation and wellbeing related to pre-service teachers in a long-term teacher education programs or positive attitudes of teacher candidates attending a pedagogical formation certificate program towards becoming a teacher. In this sense, this study takes it a step further by exploring views of non-ELT undergraduates about becoming a teacher even before attending a pedagogical formation certificate program. Thus, it sheds light on the state of academic studies and teacher education related to English language in Türkiye, which has been reported to be either positive (e.g., Sarıçoban & Kırmızı, 2018) or negative (e.g., Mirici & Ölmez-Çağlar, 2017) concerning pedagogical formation programs. To this end, the current study revealed that students studying at ELL department who also have a chance to become an English teacher by attending a pedagogical formation certificate program have chosen to study at their department mainly because of their interest in it. Yet, a great number in the whole sample (N=93 out of 220) had positive attitudes towards becoming a teacher after graduating, which supports existing research about positive views of prospective teachers (e.g., Özdemir & Güngör, 2017; Karakış, 2021; Sarıçoban & Kırmızı, 2018; Toraman et al., 2016).

Another research purpose of the study was to search for teacher self-efficacy beliefs of undergraduates who intend to become a teacher when graduating from their departments as it was connected to preliminary analyses and what has been proposed in the related literature. Teacher self-efficacy is a motivational construct suggested to influence in-service teachers' performance based on related concepts such as commitment to the profession and job satisfaction or burn-out when the level of it is low (e.g., Skaalvik & Skaalvik, 2007; 2010; 2014; Klassen & Chiu, 2010). It has also been indicated to affect student achievement and motivation (e.g., Caprara et al., 2006; Mojavezi & Taviz, 2012; Shahzad & Naureen, 2017). Moreover, teacher self-efficacy is associated with readiness of pre-service teachers (e.g., Ercan-Demirel, 2017; Knoblauch & Woolfolk Hoy, 2008; Külekçi, 2011; Pendergast et al., 2011), which was congruent with positive attitudes towards teaching profession. Based on the definition of teacher self-efficacy and pre-service teacher education context, this study has focused on how prospective English teachers considered their abilities about their probable future teaching practices. Findings suggested that they were inclined to have positive perceptions and high level of self-efficacy beliefs considering positive responses ranging from fair to very good to the question on the background information questionnaire and their responses on the teacher self-efficacy scale. High level of self-efficacy even before attending a teacher training program is not in line with research findings suggesting positive change in self-efficacy beliefs by attending a pedagogical formation certificate program in other fields of teaching since they have already reported high level of self-efficacy (e.g., Güngör & Özdemir, 2017; Şahin, 2013; Yazıcı & Yıldırım, 2017). In the same vein, considering change in the beliefs, the last research purpose of the study was to examine if self-efficacy beliefs differ in relation to year of education, and the findings indicated no significant difference in teacher self-efficacy levels among participants regardless of their educational experience. This finding is partially in line with previous research suggesting high level of self-efficacy when starting to pre-service education (e.g., Hoy & Woolfolk, 1990; Moseley et al., 2003; Pendergast et al., 2011). The high level of teacher self-efficacy stated by the participants could be regarded as overestimated as these students did not have any teaching background, and they did not experience real classroom teaching, which is considered as "reality shock" in the literature (e.g., Mintz et al., 2020). Overall, it could be concluded that findings about readiness, positive attitudes towards teaching profession and teacher self-efficacy provide more insight into existing research by presenting recent data from a sample different from common ones in the available studies within the scope of a neglected field: ELT (e.g., Ercan-Demirel, 2017; Külekçi, 2011).

CONCLUSION AND RECOMMENDATIONS

This paper presents findings of a quantitative study addressing attitudes of non-ELT students studying at English Language and Literature department towards becoming an English teacher with reference to teacher self-efficacy beliefs. The findings indicated that the main reason for department choice was an interest in academic studies of the department. However, study goals of the participants to become a teacher cannot be underestimated as the frequency of the responses was significant, and they had high level of perceived teacher self-efficacy indicating these students' readiness to become an English teacher. As for suggestions for further studies, it could be useful to investigate if it is the case with other participants with the same background in settings since the findings of the current study was limited to one specific setting. On the condition that the trend is the same across other settings, educational implications of the study highlight a need to consider content of the programs. To clarify, pre-service language teacher education is mainly provided at faculties of education through four-year training including essential knowledge areas and skills to become a teacher. In addition, even though there is no explicit focus on becoming an English teacher as part of curricula of programs, graduates of specific departments at faculties have a chance to become a teacher by completing one-year pedagogical formation certificate program. Although it is reported that quality of pre-service education is dependent on content of education rather than duration of it (UNESCO IIEP, 2021), it is clearly stated in the same report that pre-service teachers trained in intensive, short-term programs such as a diploma or certificate program tend to need more support when they start teaching. Therefore, considering the amount of the courses, time spent on the programs and intention of undergraduates studying at non-ELT departments to become an English teacher, it could be concluded that the notion of "becoming an English teacher" is to be reconsidered also by looking through structure of related programs.

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Statements of publication ethics

I hereby declare that the study has not unethical issues and that research and publication ethics have been observed carefully.

Researchers' contribution rate

The study was conducted and reported only by the author.

Ethics Committee Approval Information

The ethics committee approval for the study was obtained from Zonguldak Bülent Ecevit University, Türkiye (30.03.2022-2022/132).

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| Research Article / Araştırma Makalesi |

Investigating Students' Views Regarding the Effectiveness of Teaching-Learning Processes Developed for 9th Grade English Course

9. Sınıf İngilizce Dersine Yönelik Geliştirilen Öğretme-Öğrenme Süreçlerinin Etkililiğine Dair Öğrenci Görüşlerinin İncelenmesi¹

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Keywords 1. Teaching-learning processes 2. Teaching English as foreign language 3. Effective language teaching 4. Action research 5. Views of students	Abstract <i>Purpose:</i> This study aims to investigate students' views regarding the effectiveness of teaching-learning processes designed to achieve the objectives set in the 9 th grade English curriculum. To this end, teaching-learning processes were prepared according to the objectives of the first four themes of the ninth grade English curriculum. <i>Design/Methodology/Approach:</i> This study adopted action research. Participants were selected through convenient sampling method. 52 ninth graders from two different classes were selected to implement teaching-learning processes. The implementation process lasted for 15 weeks. Semi-structured focus group interviews were conducted with 24 students, 12 from each class, in groups of six students after the implementations. The focus group interviews were conducted via semi-structured interview form prepared by the researcher. Data were analyzed through descriptive analysis using MAXQDA qualitative data analysis software. <i>Findings:</i> The data obtained through interviews showed that students were satisfied with the teaching-learning processes. Students believed that their speaking and writing skills improved the most and they stated that the presentations were of great importance in this improvement. Students' listening comprehension skills improved more than their reading comprehension skills. Reading comprehension was the least improved skill, which can be attributed to the reading-focused instruction they received in the secondary school. <i>Highlights:</i> The results of the study revealed that in order to ensure high-quality and effective foreign language teaching, teachers should prepare their own teaching-learning process according to the objectives set in the curriculum rather than following the course books and materials provided to them. In this way, teachers not only free themselves from the limitations and shortcomings of course books and teacher's books but also teach more effectively with the teaching-learning processes designed according to the characteristics and needs of their schools and students. Öz <i>Çalışmanın amacı:</i> Bu çalışmanın amacı ortaöğretim 9. sınıf İngilizce dersi öğretim programındaki hedefleri gerçekleştirmeye yönelik düzenlenen öğretme öğrenme süreçlerinin ne derece etkili olduğunu öğrenci görüşlerine göre değerlendirmek olarak belirlenmiştir. Bu amaçla araştırmacı tarafından 9. sınıf İngilizce dersi öğretim programının ilk dört ünitesinde yer alan hedefleri gerçekleştirmeye yönelik öğretme-öğrenme süreçleri hazırlanmış ve uygulanmıştır. <i>Materyal ve Yöntem:</i> Eylem araştırması yöntemi kullanılan bu çalışmaya iki farklı sınıfta öğrenim gören 52 dokuzuncu sınıf öğrencisi katılmıştır. Katılımcılar kolay ulaşılabilir örnekleme yöntemiyle belirlenmiştir. Uygulamalar 15 hafta sürmüştür. Uygulamaların sonunda her iki sınıftan 12 toplamda 24 öğrenci ile altı öğrenciden oluşan gruplar halinde yarı yapılandırılmış odak grup görüşmeleri gerçekleştirilmiştir. Veriler MAXQDA programı kullanılarak betimsel analiz yöntemi ile analiz edilmiştir. <i>Bulgular:</i> Araştırmada toplanan veriler öğrencilerin genel olarak uygulanan öğretme-öğrenme süreçlerinden memnun olduğunu göstermektedir. Öğrenciler en çok konuşma ve yazma becerilerinde ilerlediklerini düşünmektedirler. Öğrenciler bu ilerlemede hazırladıkları sunumların büyük öneme sahip olduğunu belirtmişlerdir. Öğrencilerin dinlediğini anlama becerileri okuduklarını anlama becerilerinden daha fazla gelişmiştir. Okuma becerileri öğrencilerin en az geliştikleri beceri olmuştur. Bu durum öğrencilerin ortaokulda okuma becerileri temelinde bir eğitim almalarına atfedilebilir. <i>Önemli Vurgular:</i> Çalışmadan elde edilen sonuçlar, daha nitelikli ve etkili bir yabancı dil eğitimi için öğretmenlerin kendilerine verilen kitaplardaki materyallere bağlı kalmak yerine, ilgili kademenin öğretim programında yer alan hedeflere göre kendi öğretme-öğrenme süreçlerini tasarlamalarının önemini ortaya çıkarmıştır. Böylece öğretmenler yeterli bulmadıkları ders kitaplarının sınırlayıcılığından kurtulup öğrencilerinin ilgili, ihtiyaç ve seviyesine uygun öğretme-öğrenme süreçleri tasarlayabilirler.
Anahtar Kelimeler 1. Öğretme-öğrenme süreçleri 2. Yabancı dil olarak İngilizce öğretimi 3. Etkili yabancı dil öğretimi 4. Eylem araştırması 5. Öğrenci görüşleri	
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INTRODUCTION

The increase in communication opportunities, the spread of the internet, and the ease of international travel have made the distance between societies almost obsolete. The rapid spread of the Covid-19 pandemic gives us an indication of how the world becomes so small in terms of interaction. Another issue pandemic teaches us is that the Internet makes it easy to communicate with others around the world. Online courses allow people from different cities and countries to share the same environment. Many business, health, and political meetings are also conveniently held online. However, this pandemic and online communication have shown that people need more than just the Internet to make the most of technological opportunities and communicate easily with people around the world. All these changes that people are going through make us realize once again how important it is to know a foreign language.

Teaching foreign languages has been a priority in Türkiye's education policy for a long time and English is accepted as the predominant foreign language in primary, secondary, and higher education in Türkiye. The rise of the U.S. as a global superpower after World War II and the impact of the British colonies contributed to English becoming the most spoken and most taught language, and this widespread acceptance of English was one of the reasons for this situation in Türkiye. Moreover, the fact that English is widely used in commerce, tourism, science, and technology makes English the dominant foreign language in most countries, including Türkiye. For example, 90% of students in Europe learn English as their first foreign language.

The annual school hours devoted to teaching English in Türkiye are almost equal to the European average. Assuming that an average school year lasts 35 weeks, students in Türkiye attend 210, 490, and 560 hours of English classes in primary, secondary, and high schools, respectively (MoNE, 2021). Students completing their twelve years of compulsory education have approximately 1260 hours of English classes. According to the Cambridge Assessment (2022), every 200 hours of instruction corresponds to a level of the Common European Framework of Reference for Languages. This means that every student in Türkiye should graduate from high school with a C2 English proficiency level. However, studies conducted in Türkiye have shown that 90% of students graduate from high school with an A1 level of English (British Council & TEPAV, 2013).

Another indicator that can be used to better understand the level of English in Türkiye is the English Proficiency Index (EPI), which was prepared and published by Education First, an institution that has language schools in more than 112 countries. According to EPI, with 478 points, Türkiye ranked 70th out of 112 countries (Education First, 2021). With this score, Türkiye falls far behind countries that are at the same economic and social level. Moreover, Türkiye's score and ranking have declined over the last five years. The report, released along with the rankings, claims that the country's priorities have changed since Türkiye's hopes of joining the European Union faded, that English instruction in schools focuses mainly on grammar and translation, and that secondary school graduates have very low English proficiency, often requiring intensive English preparation courses before entering University (Education First, 2019).

These results show that although a lot of effort and money has been invested in foreign language teaching, especially English, in Türkiye, the desired results cannot be achieved. In order to increase the effectiveness of English teaching in Türkiye, teachers must take responsibility. In order to create a high-quality and productive teaching-learning environment, teachers should reflect curriculum into the course, adapt teaching-learning processes to students' needs, prepare teaching materials, and develop appropriate assessment tools (UNESCO, 2017). However, the studies conducted in the field show that the teachers who implement the curriculum in schools have very limited curriculum knowledge (Doğan & Semerci, 2016), do not know how to implement the curriculum (Akdeniz & Paniç, 2012), cannot prepare appropriate environments for the objectives stated in the curriculum (Güneş & Baki, 2012; Erdoğan et al., 2015) and only use the curriculum to prepare annual plans (Dursun et al., 2017).

Teachers generally use textbooks which were supposed to be prepared according to the curriculum rather than the curriculum itself to guide the teaching-learning process, and they follow these books in their lessons. However, the English course books prepared and sent by the Ministry of National Education (MoNE) are inadequate in many respects (Erdoğan et al., 2015; Dursun et al., 2017; Çelik, 2011; ERG, 2018; Dilekli, 2018; Büyükduman, 2005; Güven & Saracaloğlu, 2020; Öz & Erdamar, 2019; Özmat, 2017; Özer & Korkmaz, 2016; Yıldırım & Tanrıseven, 2015; EARGED, 2008). And the teacher's books that teachers relied on to teach were reported to be insufficient to guide teachers (Keleş et al., 2012; Çelik, 2011; Güven & Saracaloğlu, 2020; EARGED, 2008). Teachers mostly use teachers' books to write the topic on the class register which they require to fill in (Dursun et al., 2017).

The shortcomings of the English textbooks mentioned in the literature can be summarized as follows: they do not have connection with real life situations and do not contain language used in everyday life. The textbooks do not take into account the cultural characteristics of the target language (Çelik, 2011). The exercises in the books are insufficient (Büyükduman, 2005), the same throughout the book, and cannot promote critical, reflective and creative thinking (Çelik, 2011). They are not consistent with the objectives of the curriculum. The order of the subjects does not follow the principle of "from the known to unknown" (Büyükduman, 2005; Dursun et al., 2017).

Considering these shortcomings, teachers would prefer to use to additional supplementary books. However, it is forbidden and both ethically and economically inappropriate to make students buy these additional sourcebooks. Therefore, teachers who are responsible for teaching should select, organize, implement, and monitor external experiences according to the characteristics of students and the teaching-learning process (Senemoğlu, 2013). In other words, teachers should prepare their own teaching-learning processes. With their own teaching-learning processes, teachers not only free themselves from the limitations and

shortcomings of course books and teacher's books but also teach more effectively with the teaching-learning processes designed according to the characteristics and needs of their schools and students.

Based on these, the present study aims to investigate the effectiveness of the teaching-learning processes prepared to fulfill the objectives of the 9th grade English curriculum. To this end, the following questions were asked.

1. What are the students' opinions about the teaching-learning processes in general?
2. What are the students' opinions about the teaching-learning processes designed to improve listening comprehension?
3. What are the students' opinions about the teaching-learning processes designed to improve reading comprehension?
4. What are the students' opinions about the teaching-learning processes designed to improve speaking skills?
5. What are the students' opinions about the teaching-learning processes designed to improve writing skills?

METHOD

This study, aiming to investigate the effectiveness of teaching-learning processes prepared to fulfill the objective of the 9th grade English curriculum, was conducted as an action research. Action research, also known as teacher research, is a systematic research that aims to gather information about how teachers teach and students learn in teaching-learning environments (Mills & Gay, 2019). Action research aims to solve the problems that teachers encounter daily, thereby increasing the effectiveness of the instruction. These studies can be more meaningful when teachers want to improve their teaching, do something better, and fix a problem that occurs in the classroom environment (Fraenkel et al., 2012). In addition, if teachers plan and conduct their own action research, they may discover more effective ways to improve their skills. (Creswell, 2012). Moreover, action research is a useful tool for developing effective lesson plans and teaching-learning processes (Stringer, 2007; Stringer et al., 2010).

In this study, one of the researchers, who has been teaching for more than a decade, wanted to find a solution to a problem he encounters in foreign language teaching in Türkiye. In order to provide solutions to this problem, the researchers aimed to develop an action plan, conduct it, and present conclusions. Thus, through action research, the researchers developed and implemented teaching-learning processes that could be used and improved by others.

Study Group

Convenient sampling was used to determine participants. Teachers can use action research to improve their students' knowledge and skills by developing student-centered and flexible teaching-learning processes (Stringer, Christensen, & Baldwin, 2010). Therefore, convenient sampling method is one of the most appropriate sampling methods for action research planned and conducted for this purpose. In the convenient sampling method, researchers work with a group that they can easily reach and collect information from (Creswell, 2007; Fraenkel et al., 2012; Mills & Gay, 2019). Thus, for this study, two 9th grade classes in "Konya Anadolu İmam Hatip" High School, the school where the teacher researcher teaches, were selected for the implementations. In order to determine the groups, a cognitive entry behavior test developed by the researcher was administered during the first week of the school year and two out of five equal groups were selected.

While one of the classes was taught by teacher researcher, an English who has a 17-year teaching experience taught the other class in order to maintain objectivity and avoid researcher bias. The other teacher was informed about the research and teaching learning processes to be implemented. Moreover, they met every other day, if not every day, to talk about the implementations.

Data Collection Tool

In order to find out the students' opinions about the teaching-learning processes, a semi-structured focus group interview form was developed by the researchers. To develop the interview form, a question list that was appropriate for the purpose of the study and the level of the students was created. The question list, along with the problem statements of the study, was sent to English teachers, curriculum development specialists, and assessment and evaluation specialists to get their opinions. After receiving feedback from the experts, an initial version of the interview form was prepared. The initial version of the form was tested on five 9th grade students who were not part of the action research groups to determine if it was understandable and appropriate for the student's level. After the implementation, necessary changes were made and the form was given its final form.

Data Collection Process

The teaching-learning processes implemented for the study were developed before the start of the 2021-2022 school year and expert opinions were taken regarding whether they are developed in accordance with the teaching-learning process development principles and were appropriate for the objectives of the curriculum. The intervention was implemented with two groups for 15 weeks by two teachers in each class. Semi-structured focus group interviews were conducted following the implementation.

Students were randomly selected for focus group interviews and four focus group interviews (six students each) were conducted. The interviews were conducted in an empty classroom assigned by school administrators and lasted 18-25 minutes. With the consent of the students, the interviews were audio recorded.

Data Analysis

The audio recordings of the interviews were transcribed by using a deciphering software. The researcher listened to all recordings sentence by sentence to correct any errors that occurred during the deciphering process. During this listening process, the researcher also performed pre-coding, also referred to as verbal coding by Bernauer (2015), which aims to identify important parts by listening to the audio recordings.

The transcribed and corrected data were uploaded into MAXQDA qualitative data analysis software and analyzed using descriptive analysis. Descriptive analysis presents an organized data set to the researcher by categorizing the data at the basic level (Saldana, 2016). In the descriptive analysis, the data were categorized into predetermined themes such as research questions (Yıldırım & Şimşek, 2016). In the present study, data were analyzed under the listening, reading, speaking, writing, skills themes and the views regarding the practices in general. Furthermore, the data were supported with direct quotes. For direct quotes, participating students were ranked from one to 24 and given the code names S1, S2, etc.

To ensure the internal consistency and reliability of the study, the obtained data were coded by another coder and inter-coder reliability was calculated using Cohen's Kappa. Inter-coder reliability is a comparison of codes independently coded by two coders. This agreement provides important information about the consistency and reliability of qualitative studies. Therefore, creating a coding table that informs the second coder about the research and codes can provide a more reliable and consistent study (Creswell, 2016). This study benefited from an adapted version of the code table developed by Guest et al. (2006) and suggested by Creswell (2016). In this code table, the name of the code, its description, and an example citation to the code were provided. In this way, a guide was provided to the second coder.

The data coded by the researcher and the second coder were combined in MAXQDA. The Cohen's Kappa inter-coder reliability coefficient was calculated using this software and reported as 0.89. An agreement above 0.80 indicates perfect agreement between coders (Creswell, 2016; Miles et al., 2014).

FINDINGS

Students' Views Regarding the Overall Teaching-Learning Processes

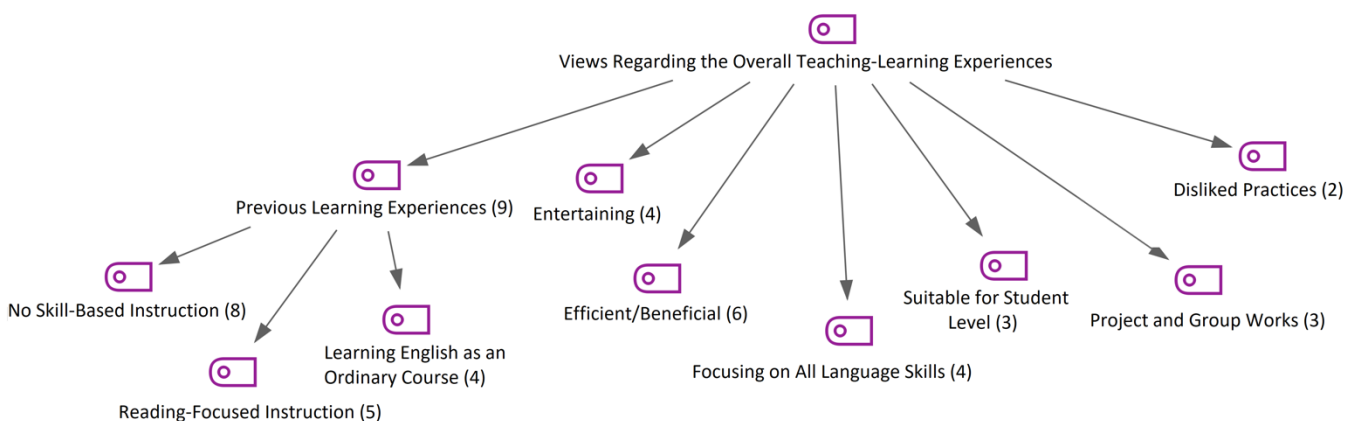


Figure 1. Students' views regarding the overall effectiveness of the teaching-learning processes

As it can be seen from the model (figure 1) revealed at the end of the analysis, students mainly mentioned their previous learning experiences when they reported their views about the overall teaching-learning processes.

Regarding their previous learning experiences students stated their previous teachers had focused only on reading skill in the English classes and almost completely ignored other language skills. They also expressed that no skills-based instruction was provided and that this was the reason why their awareness of language learning was limited. Moreover, they mentioned that their learning experiences consisted of learning English out of the real-life context. They emphasized that language courses were conducted similar to other lessons rather than following the language acquisition procedures.

"...Since we were solving multiple choice questions previously, I mean, you know the word and you answer the question. There was no such speaking, writing, listening. This year was pretty good..." (S18)

"...You know we separated (the language) like speaking, writing, listening, it wasn't like this in the secondary school. We didn't write at all or didn't do presentations. This year, when we did it in this way we studied them in a pretty detailed way, spared time for each (of the skills)..." (S17)

"...In eighth grade, we were studying textbooks and it was completely exam-focused and (we felt) as if it had not been English but a different lesson. I mean, it was not like a language but when we started ninth grade, I felt that English is a language..." (S8)

The results revealed that students' views regarding the overall teaching-learning processes were positive, their English proficiency was improved, and they started to love learning English. They stated that the teaching-learning processes implemented were efficient/beneficial, entertaining and suitable for level. Students also expressed that conducting a skills-based English lesson contributed to their development, and they learned better in this way. Moreover, students said that the project works were also important in terms of improving their language proficiencies.

"... I think, I need to learn English very well for my future and conducting the lessons in this way has been very good for us. It would be quite be quite ordinary if we followed MoNE book. But this is better..." (S11)

"...the project studies, theaters (role-plays), presentations... I really had a very good term. We had lots of fun with our friends..." (S14)

In summary, it was found out that students generally liked the implemented teaching-learning processes and these practices helped them develop a positive attitude toward English. Students compared these practices with their previous learning experiences and they argued that previously they learned English in a way similar to other subjects and they did not focus on language skills other than reading.

Students' Views Regarding the Teaching-Learning Processes for Listening Skills

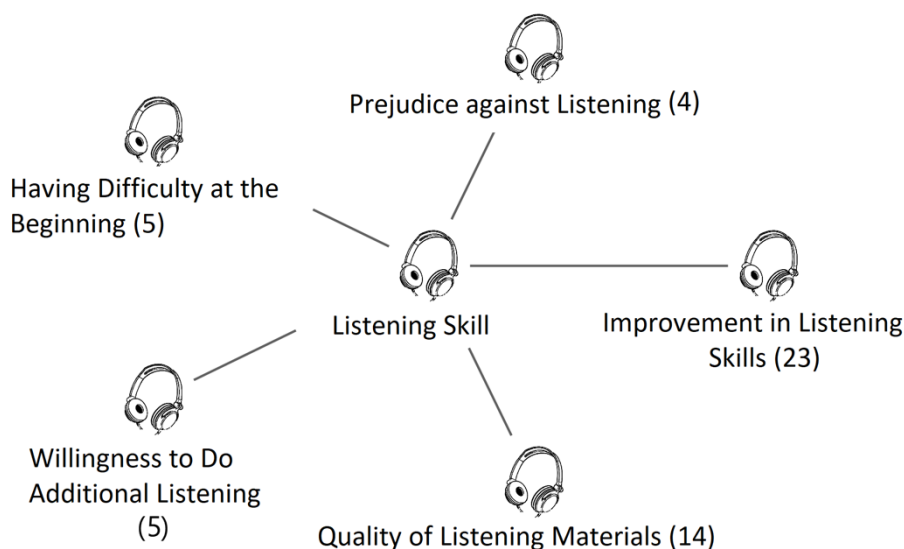


Figure 2. Students' views regarding the effectiveness of the teaching-learning processes for listening skills

As can be seen in the results of the analysis, almost all of the students think that their listening skills were improved with the implementations that were carried out. They shared their prejudice against listening skill which dates back to their secondary school experiences. Students mentioned that although they thought understanding listening materials was impossible no matter how hard they tried, their views started to change as the implementations progressed and they realized that they can do it. Participants indicated that listening skill was neglected in their previous language learning experiences. However, after the implementation of the teaching-learning processes they began to watch movies in their original language with subtitles, moreover they started watching the videos that teenagers frequently watch such as unboxing videos without using any subtitles or translation apps. Some of the views of the students are as follows:

"...My listening skill has developed greatly, I feel it. For example, I watch movies in English. Even when I use Turkish subtitles, I remember those words all the time, I mean I (can) understand now..." (S2)

"...In listening sometimes, they speak fast or so. At first, I get confused, but then when I start understanding, it feels good. That sense of understanding (you know), it makes me so happy..." (S11)

Students indicated that they had difficulty at first because they did not engage enough in listening in their daily lives, but they explained that this difficulty disappeared as they continued to listen.

Students cited the quality of the listening materials as a reason for their enjoyment of the listening activities and the development of their listening skills. They reported that in their previous listening experiences the sound was muffled, the pronunciation of the recorded people was poor, not enough attention was paid to intonation, so they were bored by the monotonous speech, and last but not least, an authentic context for listening was missing. However, the listening materials that were presented in this intervention were recordings of native speakers whose pronunciation and intonation was good. Therefore, the students were engaged in listening, and they paid better attention while listening. Some of the views of the participants are given below;

“...they were speaking as if they were forced to speak in the listening materials in the books distributed by the school. They were speaking as if the microphones had been in their throat. But in the listening activities we did (this year), it is a more natural English and more listenable English. I understand, and such, it is a very good feeling...” (S7)

“...Sir, they were speaking as if they had been reading a text, like they had been reading a plain text. But in the ones in this year, the intonations and such were quite natural. They were like the speech from the people in the real life...” (S9)

Several students expressed a constant desire to listen to English, and do additional listening exercises as they began to understand what they were hearing in the listening exercises conducted as part of this study and enjoyed it.

“...This year, as we constantly listen, I developed a desire to listen. I always listen to English songs, podcasts, YouTube videos and such. I pay attention to the pronunciation in these and try to pronounce myself as well. I look up the words and such...” (S16)

“...You recommended BBC podcasts, I downloaded them, and I listen to them when I am on the bus to or from the school. It makes me happy to understand a content that is produced in different countries...” (S4)

In summary, it was found out that students do not have enough previous listening experience and since the materials or recordings they listened were lower quality materials, they developed a prejudice during their secondary school education. This led them to have difficulties in listening activities at first. However, as they proceeded with listening activities and noticed that they can understand these, their prejudice against listening disappeared, their listening skill improved, and their willingness to do additional listening increased. Students mentioned the quality of the listening materials as the reason for this.

Students' Views Regarding the Effectiveness of the Teaching-Learning Processes Reading Skills

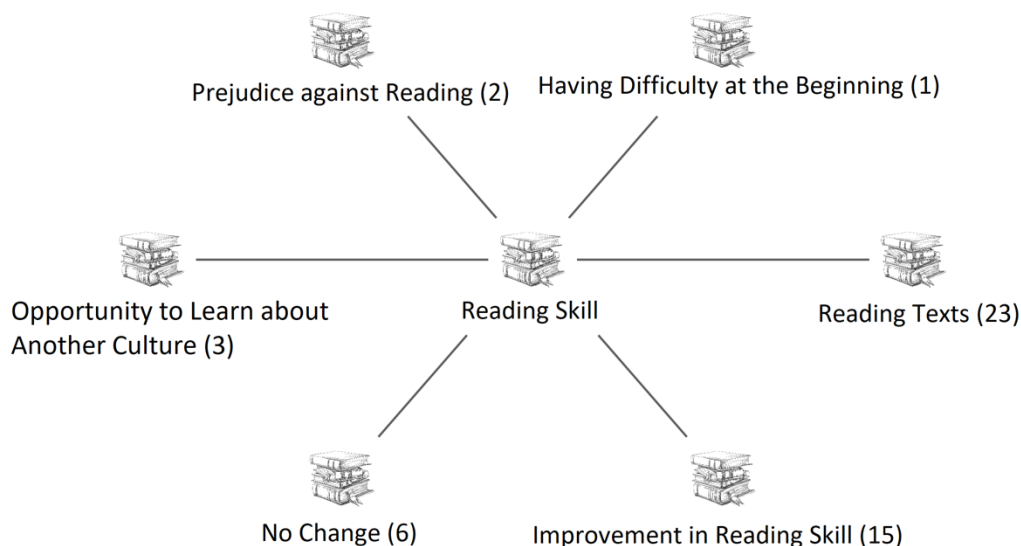


Figure 3. Students' Views Regarding the Effectiveness of the Teaching-Learning Processes Reading Skills

As can be seen from the model above, reading skills were the least improved area according to the students. Even though they felt they had made progress, they indicated that this progress was not as visible as other skills. Students explained this by saying that they did reading activities in secondary school, and since the other language skills were not emphasized enough their time was used for reading as well. Another important point mentioned by the students was that the High School Entrance Exam (HSEE) only measured reading comprehension. Therefore, they mainly focused on this skill throughout their eighth grade. Some of the students claimed that there was no change in their reading comprehension. Similarly, the reading skill was the skill that they experienced the least difficulty at the beginning of the instruction under the scope of this study. Some of the views of the students on this issue are as follows:

“...Actually, we did reading during the secondary school education, that is, there was not big difference, when you understand the main idea of the text you can answer the questions easily...” (S17)

“...Because we have been doing this (reading) since the secondary school it was not difficult for me, I am already good at this. Therefore, from my point of view nothing much has changed...” (S21)

Some of the students stated that they improved in terms of reading skill although it was not as much as the other skills. These students said that previously they used online dictionaries while using social media or the Internet, but now they do not need to do so. They added that understanding a foreign language while reading created a sense of satisfaction for them. The students who felt that their reading skills had improved compared to last year commented as follows:

“...I have never read English books, but I enjoyed reading the English story books you sent a lot and I felt that I understand (them)...” (S8)

“...I follow the current TV series, and there are websites where theories (on TV series) are shared. Of course, these are not in Turkish. First time ever, this year, I noticed that I understand these. I was able to read them without using translation (tools)...” (S12)

Students who shared their views on the reading texts used in the teaching-learning processes, expressed that the texts they read in secondary school were too easy and not fluent so the reading process was not fun. However, according to students, the texts used in this study were interesting, entertaining, fluent, and engaging. Students asserted that as the books were written by the native speakers of the target language, they had the opportunity to learn about another culture as well. They mentioned that the texts were slightly above their level, and this was a challenge that led them to study more and improve more. Their views about the texts are as follows:

“...As you know, I came (to this school) two weeks later with additional placement and we had already started the book at the school I came from. So, when I compare the reading passages in the book with the ones you brought, there is a quite obvious difference in the quality. The reading passages you brought were more fun and engaging...” (S9)

“...The texts you brought were more difficult, therefore they encouraged us to learn. Also, they gave us the opportunity to learn about different cultures...” (S11)

In Summary, reading comprehension is the skill that students thought they experienced less difficulty at the beginning and it is also the domain that they felt they improved the least. This can be attributed to the dominance of reading skill in their previous learning experiences as well as to the HSEE. Students thought the reading passages used in the teaching-learning processes were enjoyable, interesting, and challenging. They also stated that they had the opportunity to learn about different cultures.

Students' Views Regarding the Effectiveness of Teaching-Learning Processes for Speaking Skills

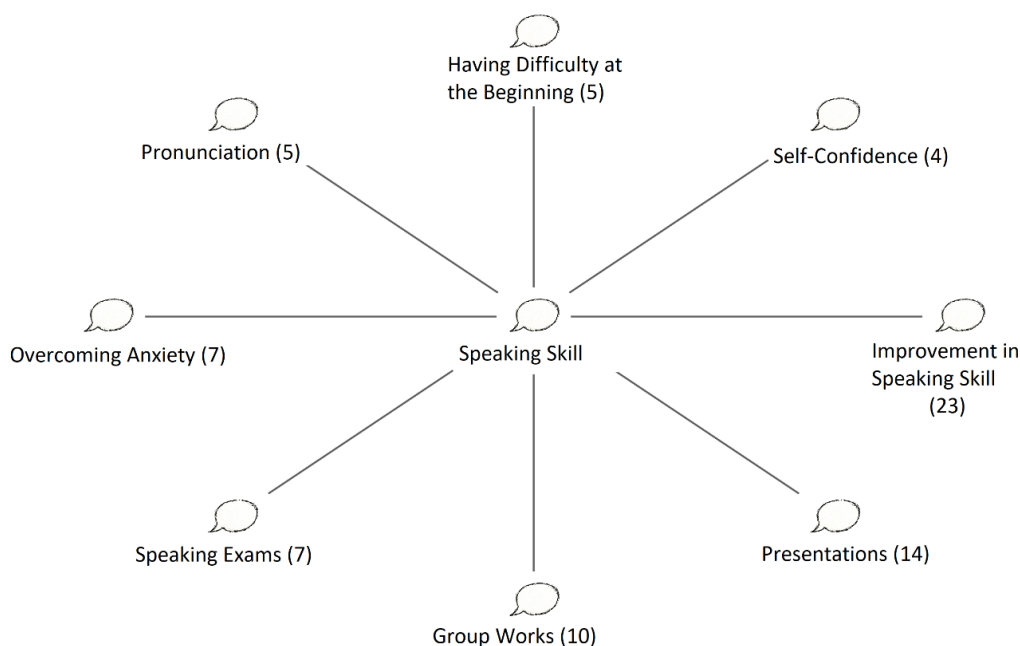


Figure 4. Students' views regarding the effectiveness of the teaching-learning process for speaking skills

As shown in the model extracted at the end of the data analysis, almost all of the students thought that their speaking skills improved. Students reported that they struggled and were anxious at the beginning because they did not focus on speaking skill in their previous learning experiences. However, as the speaking skill activities progressed, they figured out that they could form longer sentences, felt more relaxed in speaking, and they could speak with more confidence in both prepared and unprepared speaking contexts. According to students, as they experience the feelings of expressing themselves in another language and being able to maintain a conversation in that language, they got a sense of satisfaction and their willingness to speak increased. Some of the students' views that support this finding can be found below:

“...Speaking activities really work well. For example, you cannot speak a language that you don't know in front of a few people. But, in speaking, we were making presentations there, also we were stating opinions on the topic. At first, it was difficult for me but later it was easier. I mean, our speaking became better...” (S2)

“...At first, I was stuck like errrr, I mean I couldn't say anything. But recently, in an event, I told whatever came to my mind, I noticed that I was quite able to speak...” (S5)

Other points that students mentioned in terms of speaking skill were being able to control their anxiety at the beginning stages, and feeling more confident. They stated that in the exercises on speaking skills they overcame the anxiety they experienced at the beginning and they felt more relaxed while speaking. They revealed that as a result of the development of speaking skills and the relief, their self-confidence increased, and they were able to speak without being scared of making mistakes. Some of the related student views are as follows:

"...For example, when we made presentations for the first time everybody was so excited that even one of our friends' hands were shaking and such. One of our friends left the presentation unfinished and such. But now we are quite relieved, we go and speak there..." (S17)

"...At first, I was stressed when making a presentation or when I am speaking. Because, we shouldn't read (from the PowerPoint), we are expected to speak ourselves. I was definitely stressed at the beginning, but later I wasn't stressed, I mean I was relieved. So, it turned out to be quite good..." (S20)

"...These activities are good in terms of our self-confidence as well. I had so much fun in all activities..." (S14)

Students' view varied regarding pronunciation, an important subskill of speaking skills. Several students stated that their pronunciation had improved significantly. On the other hand, there exist students who accepted that they still make mistakes in the pronunciation of the majority of the words, and they wished this issue to be further addressed in the following courses.

"...Our pronunciation was also developed quite thanks to the presentations, role-plays, speaking in the lesson..." (S8)

"...Our pronunciation, for example, is better compared to the beginning of the year, but I wish it was a little better (than now). (I wish) we had done more studies on this topic..." (S19)

"...I still think that my pronunciation is very bad..." (S7)

The most favored application by the students among the teaching-learning activities conducted to achieve the speaking skill objectives was making presentations. In the focus group interviews students revealed that those presentations greatly improved them. Accordingly, they mentioned that they improved their public speaking skills and that their English communication skills also improved. Students shared the contributions of the presentations they did as they researched different topics and cultures in the target language, they did writing practices before expressing their thoughts, and also they had lots of fun during these presentations.

"...We were making presentations, for example, sir, it was very good. It improved as a lot, I think it prepared us to the university and such..." (S13)

"...By making presentations, we presented a movie or we introduced the culture of a different city. We did quite a research on that topic. We had lots of fun both during the preparation and the presentation..." (S16)

"...For example, the presentations we made improved us a lot. It was very nice to speak in front of people in a language that we don't know. We were also doing writing while preparing the presentations. Also, for example, at first, I was trying to memorize, in the last one I got ready, went there and spoke. That turned out very good..." (S21)

Another issue on which students reported varied views was group work. They stated that group work was highly beneficial, and they learned how to work as a team. They shared their opinions as they took responsibility in group work and worked well in groups. According to their views, they were able to accomplish many tasks that they wouldn't be able to do individually and collaborated to compensate for each other's deficiencies. Students who preferred individual work to group work, on the other hand, expressed that reaching a consensus in a group was difficult; they had difficulties in scheduling meeting times when they had to study after school hours. These students also reported that they would feel guilty if they made any mistakes in group work, because the consequences affect the whole group. Some of the views can be seen below:

"...I prefer individual study. Because when I make a mistake, it affects the whole group and I feel that I violate the rights of my friends. I mean, if I make a mistake (in individual study), only I am affected. For example, in the first group study I couldn't make the presentation because of my excitement..." (S5)

"...I cannot work when it is individual. I (just) can't, I always postpone. But in group work, I take responsibility. My friends make up for my deficiencies. I make up for their deficiencies..." (S8)

Another point students mentioned regarding speaking skills was the speaking exams that were administered before and after the study in addition to the ones done as follow-up exams. The students asserted that as they did not take any similar exams before, they were quite stressed during these exams, and they felt bad. Among the factors that bothered them, the students included the audio recording during the exams and the fact that the teacher who administered the exam was the same teacher who taught the classes. Below are some of the students' opinions about this

"...I was very excited when you first did the speaking exam. In that huge room only you and me. You are audio recording and such. I was overly anxious. I felt myself bad..." (S10)

"...I was so stressed that, you are, like, in front of me, asking something, I mean, even if it is in my mind, at that time it goes away from my mind because of the excitement..." (S17)

In summary, in terms of speaking skills, the students stated that they were improved, they overcame their excitement, and their self-confidence increased thanks to the activities conducted to achieve the objectives of the speaking skill. They reported varying opinions on pronunciation. Some of the students reported that their pronunciation improved, while some others said that they couldn't improve themselves enough in this field and they needed further activities. Group work was found as another controversial topic among the students. Some of the students declared that group work was better and beneficial, whereas, some other students revealed that they would prefer individual work. In terms of speaking the most disturbing situation for students was speaking tests. They expressed that they were stressed out and felt nervous.

Students' Views Regarding the Effectiveness of the Teaching-Learning Processes for Writing Skills

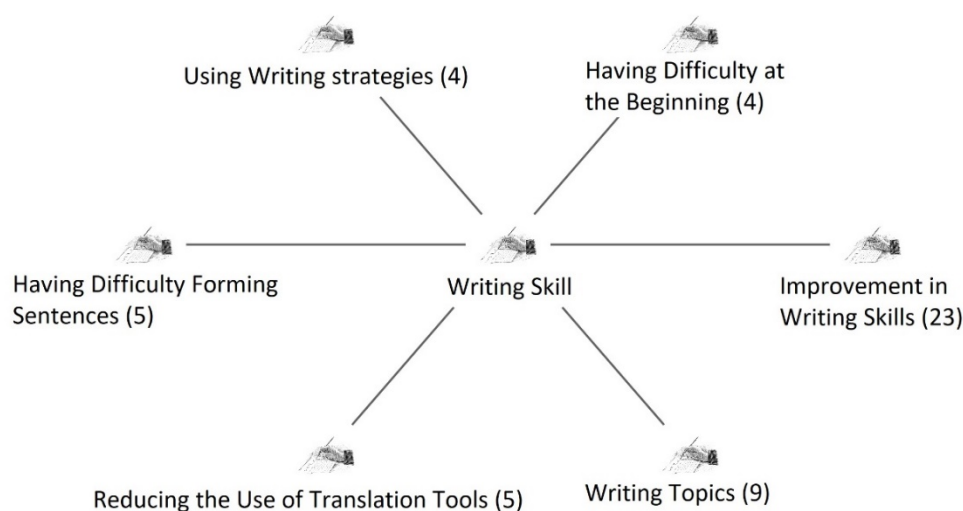


Figure 5. Students' views regarding the effectiveness of the teaching-learning processes for writing skills

As shown in the extracted model for writing skill, at the end of the analysis, almost all students indicated that their writing skill had improved. According to the students, they had difficulties at the beginning; they could not gather their ideas, or express these ideas using the correct structures of sentences. However, as the implementation proceeded, they were pleased with the research processes, presenting a product at the end of the research process, and the fact that this product belongs to them made them happy as well. They added that they progressed a lot compared to the beginning of the implementation processes, and they started to like writing after the implementation processes. Some of the student views can be seen below:

"...I think that my English including all skills improved this year, but the skill that I most improved and progressed is the writing skill. At first, I experienced difficulties, but (later), for example, you made a quiz and I wrote easily, and I got a good grade. This made me very happy. I was excited by this..." (S17)

"...I love writing too much. I enjoy it a lot. Producing something, and doing it myself felt much better. Feeling that you can produce is very good..." (S11)

Students indicated that they did very little or no writing during their secondary school years. They also said that they had difficulty organizing their ideas and forming sentences at first. They recounted their experiences as they used translation tools similar to what they did before because of these difficulties at the beginning. However, as they progressed with the implementation process, they started to dislike the sentences suggested by the translation tool and found that the sentences that they had written were better. The views of the students on the difficulties at the first stages and the use of translation tools are below:

"...As we didn't write at all previously, I didn't know what to do. I wrote a text in Turkish and translated through a translation tool and of course you've noticed this. But, the fact that you didn't get angry with me and provided guidance encouraged me to write..." (S4)

"...At the beginning stages I was always using translation tools, and I noticed the last time I wrote I didn't feel the need to use translation tool at all. I wanted to check one sentence, and I didn't like it (translation) so I decided that the one I wrote was better..." (S7)

Some of the students who explained that they made progress in terms of writing, that they felt more relaxed and wrote better, attributed the reason to the techniques they were taught. Students stated that these techniques helped them organize their ideas as well as in terms of how and where to write.

"...with the techniques you have introduced our writing got easier. Previously, we didn't know where to start or how to write..." (S12)

"...In the last topic, for example, our teacher drew clusters on the board and connected the topics to each other. In fact, this gave us clues in terms of how to write and how to organize the topics..." (S21)

Students asserted different opinions about the writing topics provided to them. A specific topic could be interesting for some students while others found it boring or expressed that they were having difficulties. Additionally, students mentioned that they would rather have written about a topic that requires a research process before writing than the topics that require sharing ideas. They revealed that they felt more comfortable with these topics, and they were also satisfied more. Some of the students' views can be seen below:

"...For example, we wrote about movies or we introduced the cities. These were very good but I had difficulties in the unit which was about nature. I mean, I couldn't write..." (S10)

"I think, I write better in topics where I do research before writing. I think, I write longer and better texts when you (I) do research like this..." (S15)

In summary, the students stated that although, at first, they experienced difficulties regarding writing skills and couldn't even make sentences without using a translation tool, as they did more writing activities their writing skills improved and they started expressing themselves better in writing. Moreover, students said that the techniques they learned for writing helped them a lot and made the process easier

DISCUSSION

When commenting on the implementations, students mentioned their previous learning experiences and indicated that they learn English as an ordinary subject rather than a language. The studies conducted in Türkiye on the problems of English Language Teaching (ELT) also show that one of the most common problems in ELT is the problem of teaching English as an ordinary subject and not as a language, or as a means of communication (Özer & Korkmaz, 2016; Paker, 2012; Tatar, 2010). Moreover, students expressed that English courses in secondary school were not designed to teach four language skills and were only based on reading, grammar, and vocabulary. In secondary school, especially in the 8th grade, because of the high school entrance examination, teachers were expected to focus on this exam. This causes teachers to ignore other skills. However, students' views show that students were not pleased with this teaching approach which is thought to be their own good and they want to learn English as a communication language with all skills. Students also revealed that since the lessons cover all four skills, their motivation to learn English has increased and they have become aware that they are learning a language.

Students expressed positive opinions regarding the teaching-learning processes designed to teach listening comprehension, and almost all students feel that their listening comprehension skills have improved. Some students reported that at first, they had difficulties, prejudices, and anxieties about listening because they were taught listening comprehension skills in secondary school. However, after a while, when students realized that they could understand the audio and video materials used in the listening activities, their anxieties decreased and disappeared. In his input hypothesis, Krashen (1989; 1995) stated that the more students are exposed to comprehensible input, the more their anxiety will decrease, and language acquisition is eventually accompanied by the reduction of the affective filter, which is the main obstacle to language acquisition. Furthermore, the teaching-learning processes prepared by teachers should be appropriate for the level of the students and arouse a sense of satisfaction in them (Ertürk, 2017/1972; Tyler, 1969). Therefore, they could motivate students to learn by giving them a sense of achievement.

The most highlighted issue regarding the teaching-learning processes used to teach listening comprehension skills is the quality of the listening materials. The students asserted that they weren't able to understand the speaker, that the pronunciation of the speakers was not understandable, that the dialogues were very artificial and had nothing to do with real life situations. Therefore, they did not enjoy the listening activities. However, about the listening activities they participated in this semester, they reported that the pronunciation and intonation of the speakers were very good, that they had no difficulty understanding the listening materials and that the materials were authentic. The studies that have been conducted in the field of listening comprehension have revealed that the listening comprehension skills of students improve significantly when students deal with authentic listening materials (Sabet & Mahsefat, 2012; Putri et al., 2018; Woottipong, 2014; Dewi, 2018; Miller, 2003; Morley, 2008). Moreover, neglecting the authenticity leads to neglecting spontaneity (Ur, 1992). Since the listening materials that lack spontaneity do not attract students' attention sufficiently, it may become difficult to improve students' achievement. Furthermore, authentic materials create awareness of the culture in which the language is spoken (Peck, 2008), and allow students to be exposed to the daily use of the target language (Peacock, 1997).

A well-prepared listening material should attract students' attention (Brown, 2006), be entertaining for them to pay attention, include the culture of the language, be appropriate for their level and improve them, have proper accent, pronunciation, and intonation, have high sound quality, and have a right amount of input (Wilson, 2008). Nowadays, there are many high-quality and educational listening materials created by many official and unofficial institutions, and various content providers. Teachers should find, adapt, and use these materials while preparing their own teaching-learning processes. Teachers, therefore, could increase the quality of their teaching by using interesting and authentic materials that are appropriate to the objectives, instead of the materials that do not arouse students' interest and do not motivate them to listen and learn.

The skill that students improved the least was reading comprehension skill. This is primarily due to the fact that students had language instruction focused on reading comprehension in their previous learning experiences. In order to increase students' high school entrance exam scores, teachers are forced to focus on reading comprehension skill and the grammar and vocabulary sub-skills, especially in 8th grade at the expense of neglecting other skills. This increases students' reading skills while decreasing others.

Reading texts are the most frequently mentioned topic when it comes to the teaching-learning processes designed to teach reading comprehension. Students expressed that the reading texts were high quality, original, and challenging, and they enjoyed reading because the texts were interesting. Studies have shown that original texts used for foreign language instruction improve reading skills more effectively than simplified texts (Beresova, 2015; Berardo, 2006; Guo, 2012; Namaziandost et al., 2022). In addition, original texts have a positive effect on students' reading motivation (Taboada & Buehl, 2012; Marzban & Davaji, 2015).

Students stated that reading texts gave them the opportunity to learn about another culture. Language and culture are integrated and form an inseparable whole (Brown, 2007). Therefore, students should know the culture of the language they are learning, and reading texts are a good way to teach culture (Nelson, 1987; Byram & Kramersch, 2008; Genç & Şenel, 2017). Moreover, increasing students' cultural awareness may increase their intercultural competencies (Beresova, 2015) and students better understand the texts written in the culture they are familiar with (Nelson, 1987; Byram & Kramersch, 2008; Floyd & Carrell, 1987).

Almost all the students commenting on the teaching-learning processes designed to achieve the speaking skill objectives asserted that their speaking proficiency has improved and that their motivation to speak English and their self-confidence in speaking English have increased. They reported that the presentations they prepared and presented are of great importance in this increase. The achievement in learning a foreign language is assessed with the ability to communicate verbally in that language (Nunan, 1999). When appropriate activities are used in the classroom environment, speaking activities increase students' motivation towards learning and make the classroom a more fun place (Celce-Murcia, 2001). Among the various communicative methods used to improve speaking skills, presentations are of great importance because they give students the opportunity to deliver a speech about a topic for which they have prepared (Sirisrimangkorn, 2021), and to communicate in the target language in a natural setting (Brooks & Wilson, 2014; Thornbury, 2005). Moreover, presentations bridge the gap between learning a foreign language and using that language, and give the students the opportunity to use all four skills holistically (King, 2002). A well-prepared presentation activity allows students to read and write in order to research the topic they are going to talk about (Brooks & Wilson, 2014). While preparing their presentations students used various presentation software to visually enhance their presentations. This gave students the opportunity to improve and utilize their technological skills, which is one of the most important skills and requirements of our time. Presentations also help to increase class interaction and interest in learning, and they improve the communication skills and the ability to deliver a speech along with their proficiency in English (Girard et al., 2011).

Regarding group work, students expressed different opinions. While some students think that group work is not beneficial because of the reasons such as the difficulties in meeting with the group members to study, and not being able to contribute enough to the group work and letting their friends down, others think that group work is very beneficial. Presentations, especially those done in group work, allow students to use the target language collaboratively while planning, preparing and presenting their presentations to the other members of the classroom (Brooks & Wilson, 2014). Group work creates a harmonious atmosphere in the classroom, encourages collaboration, and provides more opportunities to use the target language. Furthermore, group work helps students to be more autonomous by allowing them to make their own decisions within the group (Harmer, 2013).

According to Ur (1996), group work allows teachers to walk among groups to help them evaluate the individual performances of the students, note student errors to provide feedback, and devote more time to slow learners. In addition, with group work, students learn from each other and teach each other. This creates an opportunity for peer learning and peer teaching. Group work reduces students' speaking anxiety because it encourages interaction among students and allows the less anxious students to help the more anxious ones in pronouncing certain words and finding suitable vocabulary (Aulia, Lengkanawati, & Rodliyah, 2019).

Another point students indicated about the teaching-learning processes used to teach speaking skills was that it reduced their speaking anxiety and increased their self-confidence. Anxiety is a major problem for the students who have little opportunity to use English in everyday life, and it hinders language learning, especially the development of speaking skills (Liu, 2007). Krashen (1995) stated that a stressful classroom atmosphere, which causes anxiety in students, leads students to build a barrier towards language learning and thus hindering language acquisition. Most students are reluctant to participate in speaking activities because they are anxious (Liu, 2007). The speaking anxiety stems from the factors such as worrying too much about grammar (Jackson, 2002), fear of making mistakes (Horwitz et al., 1986), negative self-evaluation (Mak, 2011), low English proficiency, lack of opportunities to practice, fear of speaking in front of the class (Jackson, 2002; Onwuegbuzie et al., 1999), competitive classroom atmosphere (Bailey, 1983), and fear of being laughed at by their classmates (Öztürk & Gürbüz, 2014; Horwitz et al., 1986).

In order to overcome foreign language anxiety, in particular, speaking anxiety, teachers should create an unthreatening, sincere and supportive atmosphere (Lozanov, 1978). Moreover, by stating that anxiety can occur during speaking and is natural, teachers should make their students aware that this anxiety will decrease and self-confidence will increase when their vocabulary improves and they have the opportunity to prepare better and practice more.

Writing skill is one of the skills that students believe they have made the most progress on. This result shows that the teaching-learning processes designed to fulfil the writing objectives stated in the curriculum serve their purpose. Examining their previous learning experiences, it is seen that students have not received enough writing instruction. Writing is a neglected skill in most countries (Gilbert & Graham, 2010; Graham et al., 2013). This neglect stems from the fact that writing is a skill that is difficult to acquire even in the mother tongue (Richards & Renandya, 2002) and the exam-oriented instruction given especially in the 8th grade. However, with the writing instruction, this difficulty could be overcome and students' writing skills could be improved (Tsiriatakis, et al., 2020; Chen, 2002; Graham et al., 2013; Fidalgo & Torrance, 2017; Cer, 2019; Kim et al., 2021; Sasaki, 2002).

Students mentioned the importance of the instruction which taught them about the writing strategies and reported that they could organize their thoughts better by using these strategies. The studies conducted on writing instruction reveal that the teaching of strategies for writing improves the writing skills of students (Chen, 2002; Silva & Graham, 2015; Plonsky, 2011; Chien, 2012). With the writing instruction, students learned and applied the techniques to better organize their thought. Moreover, it could be said that the language skills improved through the practices led to the improvement of writing skills.

CONCLUSION AND RECOMMENDATIONS

The present study, investigating the students' views on the teaching-learning processes designed to achieve the objectives in the 9th grade English curriculum, concluded that students were satisfied with the teaching practices. It was found that students improved their productive skills more, that is, their writing and speaking skills improved greatly. It is believed that this improvement is due to the fact that these skills were neglected in primary and secondary school. As for the receptive skills, namely reading and listening, students improved more in listening skills than in reading. This can be attributed to the reading-oriented instruction they received in their previous learning experiences. Most of the students said that it is the first time they have had an English course that covers all four language skills and even though they had difficulties at first, they said they enjoyed learning English a lot this semester. Because they have been taught English Having been taught English as a language that can be used for communication tool rather than an ordinary course increased students' sense of satisfaction and motivation to learn a language.

Regarding the listening instruction students mainly mention the quality of the listening materials and regarding the reading instruction, they said that the reading texts were interesting. This confirms the long-standing idea which states that more authentic listening materials should be vocalized by native speakers. The fact that students found the reading texts taught this semester more interesting shows that the reading texts in the course books provided by MoNE do not appeal to the interests of students. The study also concludes that in terms of the speaking skills, presentations and group work attracted students' attention that these kinds of practices could be more beneficial to meet curricular objectives to get the most out of speaking classes.

The results of the study reveal that in order to ensure high quality and effective foreign language teaching, teachers should prepare their own teaching-learning process according to the objectives set in the curriculum rather than following the course books and materials provided to them. Therefore, teachers not only free themselves from the limitations and shortcomings of course books and teacher's books but also teach more effectively with the teaching-learning processes designed according to the characteristics and needs of their schools and students.

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Statements of publication ethics

We hereby declare that the study has not unethical issues and that research and publication ethics have been observed carefully.

Researchers' contribution rate

The study was conducted and reported with equal collaboration of the researchers.

Ethics Committee Approval Information

This study was conducted under the permission of Hacettepe University Ethics Committee with the approval no: E-35853172-300-00001708813.

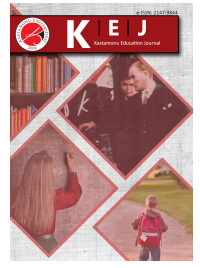
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| Research Article / Araştırma Makalesi |

The teaching of historical events in terms of change and continuity in high school history courses: An Application Example for 9th Grade

Ortaöğretim Tarih Derslerinde Tarihsel Olayların Değişim ve Süreklilik Açısından Öğretimi: 9.Sınıf Uygulama Örneği¹

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Keywords

1. History teaching
2. Historical thinking
3. Chronology
4. Change
5. Continuity

Anahtar Kelimeler

1. Tarih Öğretimi
2. Tarihsel düşünme
3. Kronoloji
4. Değişim
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Abstract

Purpose: The aim of this study is to determine the effect of high school students' (15–16-year-old) activity studies on the concept of historical change and continuity in the classroom environment in terms of historical change and continuity teaching.

Design, Methodology, and Approach: The experimental design model with a pretest and posttest control group is used in this study. The model of the study is a mixed research method. The research group consisted of 9th grade students from a high school affiliated with the Çanakkale Provincial Directorate of National Education, as determined by an easily accessible sampling method. In the high school where the research was carried out, the A and B branches, consisting of 9th grade students, were divided into experimental and control groups, randomly. 20-21 in the experimental group; the control group consisted of 25 students. No application in the study was made to control group. The invention of writing was explained to the students in the experimental group for 6 weeks (24 hours at total), accompanied by historical change and continuity activities. A total of 40 minutes was given for each of the activities given to the students in the study. He used visual material in each given activity. In the study, data were collected and analyzed in accordance with quantitative and qualitative research techniques. The quantitative data of the scores consisted of the scores given by the raters for the historical change and continuity texts prepared by the students in the experimental and control groups about the invention of writing before and after the application.

Findings: The findings of this study clearly showed that the activities given in the application led to significant differences between the pre-test and post-test texts of the students for an effective understanding of historical change and continuity. At the same time there were significant differences between experiment and control groups for this skills. After the application, experiment group adopted a more systematic approach in their texts. The means and standard deviations of the experimental and control group text analyzes before the application were 3.87±2.16 and 2.95±1.19, respectively. There were no statistically significant differences between the experimental and control groups before the application (p: 0.098). After the application, the means and standard deviations of the experimental and control groups were 10.36±3.06 and 2.88±1.46, respectively. The differences between post-test and pre-test results, as well as the t-test results, were found to be highly significant (p<.001). Similarly, the differences between the pretest and posttest are statistically significant (p<.001).

Highlights: In this study it was obviously seen that student's historical change and continuity perception can be developed with effective methods and techniques in high school history courses, especially using historical change and continuity visual activities. At the same time, no matter what historical issue, historical change and continuity in history courses can be taught at earlier age. In this study, the students of experiment group were able to build their own historical knowledge using the invention of writing as an example when compared to control group.

Öz

Amaç: Bu araştırmanın amacı ortaöğretim öğrencilerinin (15-16 yaş) sınıf ortamında tarih dersinde tarihsel değişim ve süreklilik kavramına yönelik yaptıkları etkinlik çalışmalarının tarihsel değişim ve süreklilik öğretimi bakımından etkisini belirlemektir. Araştırma modeli ön test ve son test kontrol gruplu deneysel desen modelidir.

Materyal ve Yöntem: Araştırmanın çalışma grubunu kolay ulaşılabilir örnekleme yöntemi ile belirlenen Çanakkale il Milli Eğitim Müdürlüğüne bağlı bir ortaöğretim okulunun 9. Sınıf öğrencileri oluşturmuştur. Araştırmanın yürütüldüğü ortaöğretim 9.sınıf öğrencilerinden oluşan A ve B şubeleri şansa bağlı olarak deney ve kontrol grubu olarak ayrılmıştır. Araştırma grubunu deney grubunda 20-21; kontrol grubunda ise 25 öğrenci oluşturmuştur. Kontrol grubu öğrencilerine herhangi bir uygulama yapılmamıştır. Araştırmada deney grubu öğrencilerine 6 hafta boyunca tarihsel değişim ve süreklilik etkinlikleri eşliğinde yazının icadı konusu anlatılmıştır. Araştırmada öğrencilere verilen etkinlikler için toplam 40 dakika süre verilmiştir. Verilen her bir etkinlikte görsel materyal kullanılmıştır. Araştırmanın verilerini deney ve kontrol grubu öğrencilerinin yazının icadı ile ilgili hazırladıkları tarihsel değişim ve süreklilik metinlerinin puanlayıcılar tarafından verilen puanları oluşturmuştur. Araştırmada öğrencilerin uygulama öncesi ve sonrası yazının icadı ile ilgili hazırladıkları tarihsel değişim ve süreklilik metinlerin analizinde değerlendiricilerin puanları arasındaki intrakorelasyon katsayısı yüksek güvenilirliğe sahip bulunmuştur.

Bulgular: Bu çalışmanın bulguları tarihsel değişim ve sürekliliğin etkili bir anlamı için deney grubu öğrencilerine verilen etkinliklerin deney öncesi ve sonrası metinleri arasında önemli farklılıklara yol açtığını açık bir şekilde göstermiştir. Aynı zamanda deney grubu ve kontrol grubunun metin analizleri arasında istatistiksel olarak önemli farklılıklar bulunmuştur. Gerçekten, uygulamadan sonra, deney grubu metinlerinde daha sistematik bir yaklaşım benimsemiştir. Uygulama öncesi deney ve kontrol grubu metin analizleriyle ilgili ortalamalar ve standart sapmalar sırasıyla 3.87±2.16 ve 2.95±1.19'dir. Uygulama öncesi deney ve kontrol grupları arasında istatistik olarak anlamlı farklılıklar bulunmamıştır (p: 0.098). Uygulama sonrası deney ve kontrol grubuna ilişkin ortalamalar ve standart sapmalar sırasıyla 10.36±3.06 ve 2.88±1.46'dir. Ön ve son testler arasındaki farklılıklar ve t-testi sonuçları çok önemli bulunmuştur (p<.001). Aynı şekilde ön test ile son test arasındaki farklar istatistik olarak çok önemlidir (p<.001).

Önemli Vurgular: Bu çalışmada öğrencilerin tarihsel değişim ve süreklilik algıları tarihsel derslerinde, özellikle tarihsel değişim ve sürekliliğin görsel aktiviteleri olmak üzere etkili yöntem ve tekniklerle iyileştirilebilir. Aynı zamanda hangi tarihsel olay olursa olsun tarih derslerinde tarihsel değişim ve süreklilik daha erken yaşlarda öğretilmelidir. Böylece bu araştırmada deney grubu öğrencileri kontrol grubu ile karşılaştırıldığında yazının icadını kullanarak kendi tarihsel bilgilerini inşa edebildikleri görülmüştür.

¹ This research has been prepared based on the doctoral thesis titled "Ortaöğretim Tarih Derslerinde Tarihsel Olayların Değişim ve Süreklilik Açısından Öğretimi: 9. Sınıf Uygulama Örneği"

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INTRODUCTION

In the reform efforts in history education and teaching, attention is drawn to the handling and reading of history with a disciplinary approach, and the groundwork needed for this is revealed. The main purpose of these reform efforts is to help students form their own historical meaning, develop methods that will help them question the past and acquire different perspectives, and enable them to make judgments and decisions based on historical evidence and reason. History is a scientific discipline, which makes methodological research inevitable (Lee, 1983; Holt, 1990; Cooper, 1991, 1995; Wineburg, 1991; Lowenthal, 2000; Seixas & Peck, 2004; Seixas & Morton, 2013; Monte-Sano & Reisman, 2016).

Historical thinking is also methodologically a thinking strategy; it requires a set of skills. Historical thinking is a pedagogical strategy; it envisages approaching historical events with the style and behavior of a historian in history teaching. With this thinking strategy, the essentials needed in historical studies are put forward with a systematic approach, and each student is provided with the tools to construct a historical argument following a set of skills. Thus, history is no longer a field where our prejudices, truths, and wrongnesses are confirmed, and it is ensured that history makes important contributions to a healthy and sustainable present and future. Historical thinking as a thinking strategy, rather than being a collection of historical events, improves students' critical thinking skills, teaches them to use historical evidence, enables them to distinguish important from unimportant historical events, develops the ability to relate historical causes and effects, the nature of historical change and continuity, and enables them to understand the degree and speed of historical empathy (Karabağ, 2003; Counsell, 2004, 2011; Havakes et al., 2012; Foster, 2013; Gültekin, 2013; Er Tuna, 2014; Levisohn, 2017; Huijgen et al., 2019).

Historical thinking saves historians and students from making the mistake of *presentism*. Thus, students are provided with the equipment to develop their own historical arguments, and they are provided with the necessary skills to build their future. Although there are significant academic projects for historical thinking as a thinking strategy, it has been observed that history lessons in schools at various educational levels around the world and in our country cannot go beyond classical teaching. There are also very few studies on the observation of these thinking skills in the classroom environment (Wineburg, 1991; Wineburg & Wilson, 2001; Prickette, 2002; von Heyking, 2004; Counsell & Mastin, 2015; Palacios, 2021). One of the most important elements of historical thinking is historical change and continuity (Seixas & Peck, 2004). Runia (2014) stated that historical continuity is one of the most basic epistemological assumptions of the discipline of history and that historians should focus on continuity rather than *discontinuity* in history. According to her, in the real world, history is no longer studied in this way, and history has become a *discontinuity*. This can lead to unforeseen disasters and unpredictable breaks. However, in historical thinking processes, when we look at history as a complex component of historical change and continuity, then different meanings of the past can be reached. Considering that there are a lot of things flowing and continuing from the past to the present, it is important to know those who remain the same in history and those who change rapidly in the context of historical change and continuity when establishing scientific historical knowledge.

Historical change and continuity are concepts that cannot be considered separately. It has to be defined together; if nothing has changed from the past to the present and if there is continuity, then the things that have changed are investigated. Conversely, if change is assumed, then a search is made for things from the past (continuity). In other words, understanding historical change can only be achieved with the assumption of continuity. Social, political, and economic changes that have occurred in a society from the past to the present only manifest in the unchanging. When we discuss religion, for example, we consider the relatively fixed conceptual category of religion; this is where change occurs within. To define the change in this subject, one must understand that the previous category is not sufficient to express the same phenomenon we desire (Seixas & Peck, 2004, p. 112; Levesque, 2008; Sel & Sözer, 2020).

The concepts of change and continuity are two concepts that are important for people to understand historical events and processes. They are quite difficult to grasp. First of all, students should understand the difference between two or more changes and put them in a certain order, and they should have the necessary mental abilities to explain change and continuity. Activities such as using timelines, graphics, and diagrams, asking questions based on various assumptions, and engaging in sequencing activities are important activities in teaching these concepts (Seixas & Peck, 2004). An important point in understanding historical change and continuity is that this concept should be taught together with other concepts of historical thinking. Historical change and continuity should be taught together with historical thinking concepts such as historical significance, historical cause and effect, empathy, and evidence. Regardless of the historical thinking models used in the research, these concepts should be considered together, and their basic relationships should be considered (Seixas, 2017, p. 603).

VanSledright (2002) reports that there is a gap between this new understanding of history teaching and school history. According to the research, historical information content is mostly dealt with in history lesson classes, and these skills are neglected. In the few studies mentioned, observation tools are being developed for observing historical thinking skills in classroom environments, and the competencies of both teachers and students are measured in terms of historical thinking skills.

The aim of this research is to determine the effect of secondary school students' (15-16-year-old) activity studies on the concept of historical change and continuity in the classroom environment in terms of historical change and continuity teaching.

The research question is, "Are there significant differences in teaching change and continuity of historical events in history lessons between the experimental and control groups?"

MATERIAL AND METHOD

The experimental design model with a pretest and posttest control group is used in this study. In this experimental design study conducted with 9th grade students in secondary education institutions, it was aimed to teach the concept of historical change and continuity, which has a central importance in historical thinking, and both qualitative and quantitative data collection tools were used together. For the quantitative dimension of the research, the pretest-posttest control group experimental design (OSKD) model was designed. In this model, subjects are evaluated in terms of the dependent variable before the experimental study. Then, the subjects are divided into two groups, and the experimental method is applied (Karasar, 1999, p. 97; Büyüköztürk, 2001, p. 21; Creswell, 2003).

The research group consisted of 9th grade students at a secondary school affiliated with the Çanakkale Provincial Directorate of National Education, which was determined by the easily accessible sampling method. In the fall period when the research was conducted, the closure periods were just lifted due to Covid-19 measures, and some Covid-19 measures were being continued. Therefore, the choice of school and study group had to be limited. Before the application, the school administration was contacted about the permissions obtained, information was given, interviews were held with the history teacher, information was given about the research, and the activities were introduced.

In the secondary education institution where the research was conducted, A and B branches consisting of 9th grade students were divided into experimental and control groups depending on chance. The experimental group consisted of 20-21 students, and the control group consisted of 25 students. In the research, the experimental group students were taught historical change and continuity over the historical event of the invention of writing, accompanied by historical change and continuity activities for 6 weeks. In the study, a total of 40 minutes were given for the activities given to the students. Visual material was used in each given activity (Table 1). Foster (2013) model was used in the teaching of historical change and continuity to 9th grade students.

A one-week pilot application was carried out on November 9, 2021, following the research permit acceptance letter for the 9th grade students at the secondary school that allowed for the research. Within the scope of the pilot application, it was ensured that the expressions that would make it difficult to understand, especially the spelling mistakes, were reviewed in the activities to be given to the students over a 6-week period. As a matter of fact, some activities foreseen to be given in the pilot application were revised in terms of language, and the expressions that would make it difficult to understand were corrected. After the pilot implementation, the research was launched on November 25, 2021. At the beginning of the course, some metaphors about historical change and continuity were used (Appendix 1). In each lesson and activity, the instructions for the purpose of the activity were also verbally conveyed to the students for 5 minutes.

Data Collection Tools

In this research, in which mixed research methods were used, the questions "What was different before the invention of writing?" "What changed with the invention of writing?" "What remained the same?" and "What changed and what did not stay the same after the invention of writing?" were asked to 9th grade students studying at secondary education institutions. For this, 6 lessons are planned. Foster's (2013) historical events and lesson plans prepared for historical change and continuity were used in the Lesson Plan. The lesson plan was evaluated and revised by four field experts. Thus, it is aimed at enabling the 9th grade students of secondary education institutions affiliated with the Ministry of National Education to build their own knowledge and arguments. In the said lesson plan, it is planned to teach historical change and continuity to 9th grade students at secondary education institutions affiliated with the Ministry of National Education, accompanied by some historical change and continuity activities (Foster, 2013):

Before the application, the main questions, "What made the invention of writing different?" "What changed?" and "What remained the same?" were asked to the students regarding historical change and continuity. For this, they were asked to prepare an article. Then, the students' answers to the main questions were collected and controlled. Before the application, both the experimental and control groups were given 40 minutes to answer the main questions about the invention of writing. In practice, the experimental group was taught historical change and continuity in the context of the invention of writing, accompanied by various activities in the 6-week lesson plan. The activities in each lesson and the purpose of the activities are given below:

Table 1. Lesson plan of teaching historical change and continuity to 9th grade students at secondary education

"What made the invention of writing different" "What changed with the invention of writing", "What remained the same"		
Week 1	Aim	Activity
What is the invention of writing? What was going on before the invention of writing? (chronological, geographical, political, economic and social cultural context)	Change with the invention of writing (type and nature of change)	Use a metaphor at the beginning Activity 1: Show an archaeological find/finds as a primary source (such as a rock painting and a Tablet Recording Grain-Related Calculations)
Week 2		
What events occurred after the invention of writing? What has changed and what has remained the same?	Changes after the invention of writing (chronological activity)	Activity 2: Historical events that occurred after the invention of writing (create a history strip for this, materials used in writing, establishment of libraries, discovery of paper, etc.).
Week 3		
What were the reasons that led to the invention of writing?	Understanding the multiple causes and consequences of change and continuity	Activity 3: Read the A, B, C comments given by the invention of the manuscript and answer the questions provided (Source Analysis)
Week 4		
What made the invention of writing different?	Identify people's reactions to the new situation	Activity 4: Going to the beginning of the invention of writing, characterize people's reactions to the nascent situation (Role play).
Week 5		
What happened after the invention of writing?	Identify the nature and degree of change that has occurred in terms of people	Activity 5: Using the words of continuity of change Write 3-4 sentences using at least one word from the dictionary of change and continuity related to the invention of writing. Activity 6: Identifying the characteristics of change and continuity Rank from slowest change to fastest change using events that occurred with the invention of writing
6.hafta		
What has changed or remained the same with the invention of writing thousands of years later?	describe the short, medium and long term effects of the invention of writing	Activity 7: Identifying the effects of change and continuity Show visual material and ask what has changed, what has remained the same
What difference did the invention of writing really make? What has changed and what has remained the same after the invention of writing?	Identify the change caused by the invention of writing	Activity 8: Preparing an article What difference did the invention of writing really make? What has changed and what has remained the same after the invention of writing?

At the end of the application, going back to the beginning, the questions "What made the difference in the invention of writing?" "What changed?" and "What remained the same?" were asked again and again to the students in the experimental group. They were asked to write a text again (Straaten, 2018).

Data Analysis

Analyses were performed using the SPSS package program, Version 26. In order to determine the effectiveness of the education, the averages of both the experimental and control group students before and after the experiment and the difference between the post-test score and the pre-test score on how much the students' scores changed between the pre-test and the post-test were compared with the t-test.

RESULTS

In the research, the main problem question was formed by asking the question, "Are there any significant differences between the text analyses of the secondary school students regarding the historical change and continuity before and after the experiment on the invention of writing?" For the text analyses prepared by the experimental and control groups before and after the application, an expert lecturer (Prof. Dr.) and a history teacher with 15-20 years of professional experience were determined to be raters. The history teacher is trained in the criteria of historical change and continuity. After the text analysis, the intraclass correlation coefficient between the scorers' scores was calculated (Shrout et al., 1979). The intraclass correlation coefficient values between the two raters in the experimental and control groups are given in Table 1.

In the study, the intra-correlation coefficient and the percentage of agreement between the two raters were found to be high in the experimental and control groups both before and after the experiment (Shrout et al., 1979). The intra-correlation coefficients between the scores of the two raters in the experimental and control groups before the experiment were 0.88 and 0.85, respectively. After the experiment, the intraclass correlation coefficients in the experimental and control groups were 0.89 and 0.85, respectively. In the literature (Shrout et al., 1979), the intraclass correlation coefficients that were found were among the most reliable ones.

Table 2. Intraclass correlation coefficient values between two raters in the experimental and control groups

Gruplar	Intra-korelasyon rate
Before experiment (experiment group)	0.88
After experiment (experiment group)	0.89
Before experiment (Control group)	0.85
After experiment (Control group)	0.90

The means and standard deviations of the experimental and control groups before the experiment are given in Table 13. The mean values of the experimental and control groups before the experiment were 3.87 ± 2.16 and 2.95 ± 1.19 , respectively. There were no statistically significant differences between the groups before the application ($p: 0.098$).

Table 3. Means and standard deviations of the experimental and control groups before the application

Grup	N	\bar{x}	Standard Deviation (Sd)
Experiment	23	3.87	2.16
Control	20	2.95	1.19

The means and standard deviations of the experimental and control groups after the application are given in Table 14. The mean values of the experimental and control groups before the experiment were 10.36 ± 3.06 and 2.88 ± 1.46 , respectively.

Table 4. Post-application means and standard errors of the experimental and control groups

Grup	N	\bar{x}	Standard Deviation (SD)
Experiment	21	10.36	3.06
Control	24	2.88	1.46

The means and standard deviations of the experimental and control groups based on the post-experimental and pre-experimental differences are given in Table 15. The means based on post-experimental and pre-experimental differences were 6.53 ± 3.73 and -0.03 ± 1.33 , respectively.

Table 5. Means and standard deviations of the experimental and control groups based on the post-experimental and pre-experimental difference

Grup	N	\bar{x}	Standard Deviation (SD)
Experiment	21	6.53	3.73
Control	19	-0.03	1.33

The t-test results regarding the comparison of the experimental and control groups are given in Table 16. The differences between post-test and pre-test results, as well as the t-test results, were found to be highly significant ($p < .001$). Similarly, the differences between pretest and posttest are statistically significant ($p < .001$).

Table 6. t-Test results based on comparison of experimental and control groups *

Dependent variable	Average difference	Freedom degree	t	p	%95 confidence interval
Pro-test	0.92	41	1.692	.098	(-0.18, 2.02)
Post-test	7.48	27.83	10.24	<.001	(5.98, 8.98)
Difference between pro-test and post-test	6.55	25.32	7.54	<.001	(4.76, 8.34)

* For all three tests, the assumption of equality of variance was tested with the Levene test. In the analyses based on the difference between the post-test and the pre-test, it was determined that the assumption of equality of variance was not true, and Welch's t-test results were reported.

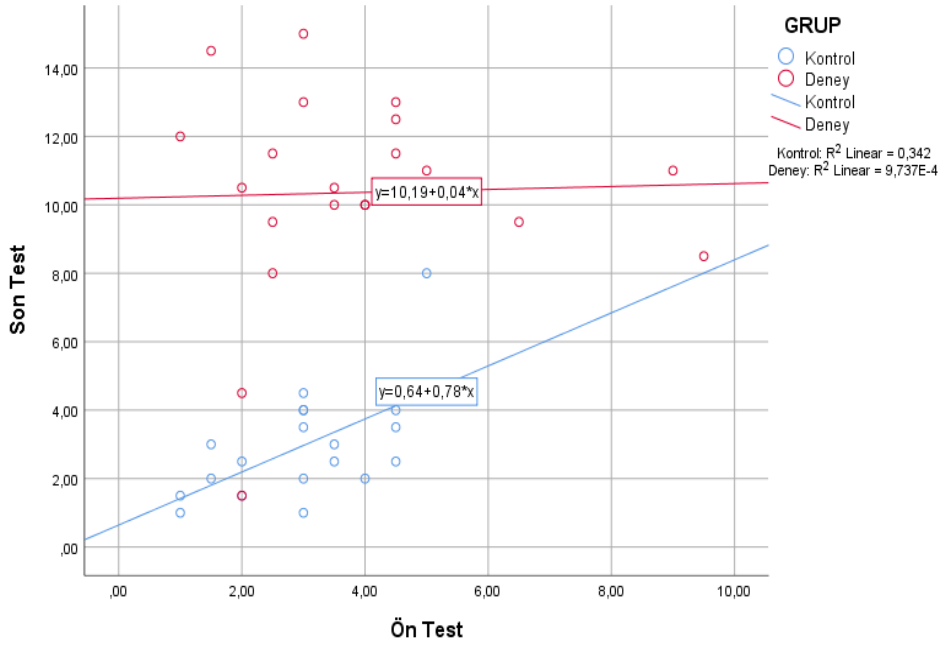


Figure 1. Differences before and after application

Among the students in the research group, the remarkable views of some students regarding the question "What made the invention of writing different?" "What has changed?" and "What has remained the same?" before and after the application were as in the following. After the application, the opinions of the students coded ÖĞ14, and ÖĞ18 in the experimental group are given below:

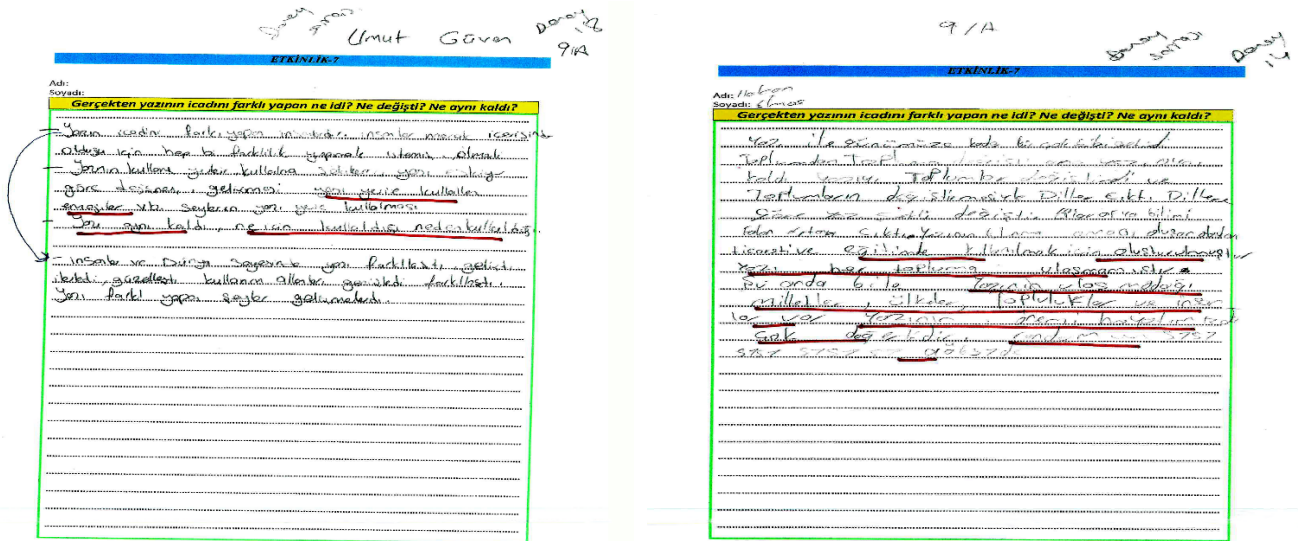


Figure 2. Opinions of the student coded [ÖĞ14, ÖĞ18] in the experimental group after the application

The opinions of students coded ÖĞ20 and ÖĞ21 in the control group are given below:

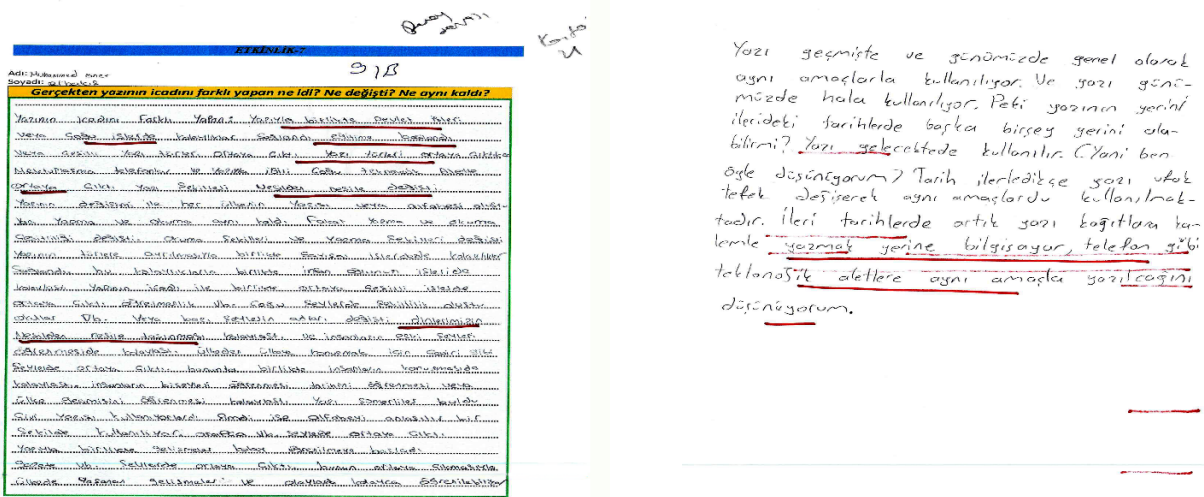


Figure 3. Opinions of students coded [ÖĞ20, ÖĞ21] in the control group

DISCUSSION

The questions were, "What made the invention of writing different from the experimental and control groups in the current research?" "What changed?" and "What remained the same?" and students from both the experimental and control groups were asked to write a text on this subject. After the experimental study, the same questions were asked again to the experimental and control groups, and they were asked to write a text on the subject. The text analyses were evaluated and scored by two raters using historical change and continuity items prepared by two experts. The intra-correlation coefficients between the scores of the two raters in the experimental and control groups before the application were 0.88 and 0.85, respectively. After the experiment, the intra-correlation coefficients in the experimental and control groups were 0.75 and 0.85, respectively. The means and standard deviations of the experimental and control groups before the experiment were 3.87 ± 2.16 and 2.95 ± 1.19 , respectively. The differences between the experimental and control groups in terms of change and continuity texts before the application were not found to be statistically significant ($p: 0.098$). After the application, the averages of the experimental and control groups were 10.36 ± 3.06 and 2.88 ± 1.46 , respectively. The means based on post-experimental and pre-experimental differences were 6.53 ± 3.73 and -0.03 ± 1.33 , respectively. The differences between post-test and pre-test results, as well as the t-test results, were found to be highly significant in favor of the experimental group ($p < .001$). Similarly, the differences between pretest and posttest are statistically significant ($p < .001$). In our study, the difference between the experimental and control groups in terms of the text analysis of the students after the application showed that the application was successful. With the given activities, it was seen that the students in the experimental group used the features of historical change and continuity in their evaluations about the invention of writing, and the activities contributed to the development of the students' historical change and continuity skills.

It has been emphasized that change and continuity skills can be developed in preschool children and students by using different methods and techniques in Türkiye. It is stated that especially using visual materials in lessons contributes to students' perception of change and continuity. For example, Özen and Sağlam (2010) evaluated the change and continuity skills of secondary school 7th grade at Social Studies course. Although it was stated in the study that students had difficulties in defining change, it was shown that half of the students were able to define change based on the visual materials shown. Tangü, Tosun & Topkaya (2015) reported that they were successful in comprehending change and continuity in their study evaluating the change and continuity skills of 7th grade students at Social Studies course. In addition, it was stated that it was an important finding that students gave examples about the Muğla region where the research was conducted. This shows that students can comprehend historical change and continuity based on their families and environments (Levstik & Barton, 1997). In their study, Akçalı and Aslan (2007) also found that teaching the lessons within the scope of local history and activities contributed positively to the attitudes of the students compared to the traditional method and improved their skills of perceiving change and continuity as well as understanding time. Therefore, it is understood that giving priority to the subjects related to the students' own lives and local histories in the teaching of historical change and continuity makes an important contribution. It is stated that using oral history methods and techniques in teaching historical change and continuity improves students' ability to perceive change and continuity. For example, Van Oteghen (1996) found in his research that oral history activities will contribute to the development of students' change and continuity skills. Likewise, Dere (2017) concluded that oral history contributed to the development of students' abilities to perceive change and continuity. In her study, Kara (2019) states that the oral history method makes a significant contribution to the development of students' change and continuity skills in the unit called "Türk Kadını Haklarına Kavuşuyor" within the scope of the 11th grade Turkish Revolution History and Kemalism course. Çelik, Karadeniz & Çabul (2018) investigated the students' ability to perceive change and continuity based on the example of hospitality in social studies courses. In the research, activities such as village room games, giving different treats from the past to the present, and using stories and videos were included, and it was stated that the students found these activities remarkable. The researchers stated that the students had difficulty in writing a

report and stated that they noticed the change and continuity in the oral history process at the most in the interviews they made with people aged 60 and over. In addition, in the research, students made inferences about how hospitality will change in the future.

In our research, students' text analysis included the changes that occurred with the invention of writing in the texts of historical change and continuity, while they also included statements stating that the writing itself still remained the same:... *"Today, writings came, like the alphabet; with the arrival of writing, trades, and similar things remained. What remained the same are things like scripting and commerce."* The student with code (12) [ÖĞ15], who got a high score according to the historical change and continuity inventory, stated that writing with pictures still exists: *"People were expressing what they wanted to say about their feelings and what they did daily by drawing pictures. By finding the alphabet, they were able to explain it easily with the help of cuneiform. They were able to communicate more easily thanks to the technology that would develop. What remained the same? **There were many people who expressed themselves and their feelings by drawing pictures or keeping diaries.**"* It was observed that although the student with the code [ÖĞ20] received fewer points (6 points), the student achieved historical continuity by expressing that the writing was still used: *"The invention of writing had a positive effect on things such as trade and communication. Writing brought people together. Many things have improved, such as correspondence. Thanks to this, people became pen pals with each other. The alphabet appeared. The sultan was sent to the kings prior to the wars. **The script is still used today.**"* The student with the code [ÖĞ5] said, *"The text remained the same."* There used to be cuneiform. The Sumerians found the writing in 3200 BC. The student with the code [ÖĞ6] said, *"The change in the way of writing and the change of the written surface of the writing, which make the invention of writing different, are examples of the difference in writing. Of course, each person's writing style is different, but at the same time, the development of technology has reduced the use of paper. Therefore, the wording of technology can now be replaced by emoji. Thanks to phones, you no longer need a pen or eraser to write. Now writing has become easier."* According to the above, it was an important finding that the student associated people's communication using emoji from the past to the present with the caption before the invention of writing. In addition, it was extremely important that the student coded [ÖĞ14] drew attention to the following detail in terms of historical change and continuity: *"The writing has brought a lot of things to today. It changes from society to society, but the writing remains the same. Societies changed writing, and languages emerged as societies changed. The writing style has changed according to the languages. The purpose of the writing was to be used in events, trade, and education. **The writing did not reach every society.** Even now, there are nations, countries, communities, and peoples that the writing has not reached. The importance of writing is very valuable in our lives."* It was an important finding of our research that students drew attention to historical continuity as well as the changes that occurred with the invention of writing.

Similarly, student coded as Ö21 reached an understanding of historical change and continuity for inventing of writing: *...Writing is still used very intensively today. So what has changed in writing from past to present and what has remained the same? In the past, writing was carved on clay tablets with nails and written with shapes and pictures. Today it has taken a different form. Now the alphabet started to be used instead of shapes and pictures. This situation started to change day by day. Today, emojis have started to be used apart from the alphabet and the word. In the past, they used to be written on clay tablets, but today they started to be written on papers, phones and electronic equipment with pens. Concepts such as emoji abbreviation are used in electronic devices.* Another student (Ö20) mentioned that the inventing of writing provides significant facilities in human being life. He/she stated that historical knowledge and history discipline simultaneously developed with this inventing: *"...Writing forms changed from generation to generation. With the change of writing, the writing and alphabet of each country was formed. Writing and reading remained the same. But the variety of writing and reading changed. Reading styles and writing styles changed. With the division of writing into types, numerical works were also facilitated. With these conveniences, the work of human beings became easier. With the invention of writing, various jobs emerged. Teaching, etc., became formalized in many things, etc. or the names of some things changed. It became easier to pass on our religions from generation to generation. And it became easier for people to learn old things. There were things like translations to talk from country to country"* (Figure 3).

An acquisition that historical change and continuity should be understood simultaneously is extremely important for students to reach a historical meaning. Both Foster (2013) and Seixas (2017) refer to this distinctive feature of historical change and continuity as a new strategy in historical thinking. According to them, it is important to simultaneously consider change and continuity in a historical event (Foster, 2013). It has been seen that in the research on historical change and continuity, the processes of change are mostly discussed, and these changes are defined in terms of progress and regression. In other words, in this type of research, emphasis is placed on change rather than continuity. Blow (2011) proposed a progression model in which the two parts of the concept are handled separately at the lower levels of the model and simultaneously at the higher levels. Rosenlund (2021) examined the students' strategies for dealing with the concept of historical change and continuity together (concomitantly) in 9th grade students and investigated the effect of gender in terms of using this strategy. The researcher states that it is very important for students to consider change and continuity together in order to understand the historical process and establish a relationship between the past and the future (Blow, 2011).

With some activities, we hope to teach historical change and continuity using historical thinking skills in the classroom environment. Historical change and continuity, which are included in MEB's (2018) history teaching curriculum, are explained in important historical thinking skills. However, it is understood that the necessary guidance on how to teach these skills is not included both in Türkiye and in the rest of the world; it is not explained what kind of activities should be supported. In our research,

we have tried to teach historical change and continuity with a series of activities related to the invention of writing. In particular, students' understanding that the type, speed, and degree of change are in balance simultaneously and that change and continuity are found at historical turning points is considered an important achievement of historical change and continuity. Before and after the application, the questions of "what made the invention of writing different," "what changed," and "what remained the same" were asked to the students, and they were asked to write an essay on this subject (Foster, 2013). In the research, the activities given to the students were evaluated separately, and it was aimed to reach the goal stated in the lesson plan in each activity. In the first activity, students answered the question about the chronological and spatial context within the historical context but partially answered the questions about the political, economic, and social cultural context. In the second activity, it was understood that in the history line processing and historical significance activities, the students were partially successful in creating a history line related to the invention of writing and gave equal importance to the historical events related to the invention of writing. In the resource analysis activity, the students in the research group were asked their opinions on the effectiveness of the writing, and they were asked to indicate which opinion they agreed with on the grounds. Although the students stated that they participated in the opinions presented, they could not justify it. In addition, in the same activity, the question of why historians have different views about the past was given to the students. Students did not respond adequately to this open-ended question item.

CONCLUSION AND SUGGESTIONS

The study's goal is to teach historical change and continuity in secondary education institutions using a specific historical event. For this, the Foster (2013) model was used. In his teaching model of historical change and continuity, Foster especially draws attention to students' understanding of the speed, degree, and direction of change and ultimately aims to help students find the balance between change and continuity. Although these skills are included in the history teaching curriculum in Türkiye for historical thinking skills, it is understood that students cannot benefit from effective methods and techniques in constructing their own knowledge. In other words, the student remains disconnected from the given historical event. In our research, the activities and visual materials we applied to the students enabled them to perceive the change that occurred with the invention of writing. On the other hand, by drawing attention to continuity, it was stated that the writing itself remained the same even if its tools changed. Considering the findings of the research, suggestions are made under the following headings:

1) Students should first make historical context evaluations about the historical event presented in history class. It was observed that by answering the question about the chronological and spatial context, the students were able to partially answer the questions about the political, economic, and social-cultural context. Instead of teacher-oriented methods and techniques in history teaching in Türkiye, students' ability to associate the given historical event with their experiences and enable them to benefit from historical places and museums will make it easier for them to reach historical meaning. Therefore, it is recommended not only to define these skills and draw attention to their importance but also to develop practical approaches that will enable students, especially teachers, to acquire these skills. In this regard, teacher training is especially important. There is a need for teachers to have the pedagogical skill of learning to teach and to be trained in this regard. It is necessary to develop pedagogical strategies in teaching, and this should be considered a pedagogical process. The readiness of the students is mostly based on this, and a general strategy is developed. In teaching, direct narration is included. However, the diversity of students should be encouraged, and the student himself becomes an important element of the teaching strategy. All these require continuous improvement in the teacher. In other words, in this teaching strategy, learning to teach is continued as a continuous action, and education projects are included for this.

2) It was observed that the students were unsuccessful in processing the historical times in the chronology activity, especially in the ancient divisions. In research, historical time is both a necessity and an important beginning for the formation of a historical sense in students. Children experience change and continuity around them and even in their bodies through historical time. In the teaching of the concept of historical time, activities that will enable students to gain experience on the subject should be included instead of verbal expressions. In the literature, it is reported that very young children are not only able to relate the past to the future but also to the past. For this reason, it is clear that teaching historical time concepts in a way that students can establish connections with their own experiences contributes to the permanence of knowledge. However, there are a lot of factors that affect how we understand historical time, so it is important to develop strategies that take these factors into account.

3) In the research, it was understood that the students could not adequately evaluate the criteria regarding the importance of change in the historical events given about the invention of writing in historical change and continuity teaching. In addition, it was understood that they could not adequately justify their answers to the open-ended question as to why they determined the given historical events to be important or unimportant. In the source analysis, although the students expressed their participation in the opinions given about the invention of writing, they did not answer the question of why. There is a need to develop approaches that will help students determine the criteria of historical importance and evaluate different sources and opinions on given historical events. History lessons should include teaching, methods, and techniques that will enable students to use sources, compare different sources with each other, and ultimately go to the context. As a result, both determining the criteria of historical importance and providing different perspectives on the given historical event will help students arrive at a historical meaning. In history teaching, it is necessary to overcome the understanding that students should have knowledge of all the historical events given. Students should be able to distinguish historical events according to their importance within a discipline. As a matter of

fact, in our research, some students included the change in the alphabet with the proclamation of the republic as the biggest change. However, one of the main criteria for determining the importance of a historical event is its widespread effect.

4) In the research, it was observed that the students in the experimental group were mostly successful in defining the historical period in their activities. Only a few students evaluated the historical event given in the present context. For example, they used the expressions prayer, prayer rug or dollar. In the teaching of historical change and continuity, it is critical that students make evaluations in the context of the period's conditions in order to characterize the change. Therefore, it will be important for students to understand the change that has taken place by making use of the prominent characters of the period in the given historical event. In Foster's (2011) black plague example, students are asked to experience the death story of John Chapman during the period. Thus, students are given a task to characterize the effects of the Black Plague at an individual, familial, and societal level. It is thought that such activities will make a great contribution in terms of historical change and continuity in history teaching.

5) In the research, students are successful in constructing historical change and continuity sentences, which are among the activities that determine the nature, effect, speed, and duration of the change that occurred with the invention of writing. However, they were found to be partially successful in their responses to the nature, impact, speed, and duration of change. And, in the visual materials given about the invention of writing, "What has changed?" and "What has remained the same?" it has been understood that they have captured historical change and continuity in their answers to the question. For example, they have included the phrase "everything has changed, but the writing has remained the same." Their approach to the fact that today's communication still includes captions has also been evaluated as an important success. Or their association of emojis with captions could be considered a major achievement. On the other hand, as stated in the literature, the use of visual materials in history lessons makes an important contribution to the success of students. In this research, students were successful in the activities given through the presented visual materials.

6) In the research, it has been revealed that the application causes statistically significant differences in the historical change and continuity texts prepared by the students about the invention of writing, which is the main subject of historical change and continuity teaching in history lessons. Compared to before the application, the texts prepared by the students after the application were more satisfying in terms of historical change and continuity. In the text analysis of the students, the factors leading to the invention of writing were taken into account by first going to the period with a systematic approach; in part, the economic, political, and social-cultural characteristics of the period were evaluated. The importance of change was understood in the texts they prepared, and the changes in the writing style and writing surface were included. They perceived the writing itself as having a sense of continuity with all the changes related to the given historical event.

As a result, the activities given in the application group in the present study led to significant differences between the pre-test and post-test texts of the students. After the application, it was observed that the students adopted a more systematic approach in their texts. Thus, it was clearly seen that effective methods and techniques were developed in the school where the research was conducted, and if sufficient visual material was included, it contributed to the development of the student's perception of historical change and continuity.

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APPENDIX-1



APPENDIX-2

ZAMANLA DEĞİŞİM VE SÜREKLİLİĞİ METİN ANALİZ ETME (CCOT)

Ölçütler	Puan	Tanım
Kabul edilebilir bir tezi vardır.	4	Özel olarak anahtar sözcüklere 1- Coğrafik bölge/uygarlık ismi 2- Kronoloji 3- Dönemselleştirme (tanzimat dönemi, yüzyıl, M.Ö., M.S.) 4- Tarihsel bağlama uygunluk (yani çivi yazısı derken yazı öncesi dönemi mi kastediyor yoksa yazının bulunmasıyla ilk çivi yazısının kullanıldığını mı veya doğru tarihsel bilgi veriyor mu?)
Değişim ve Süreklilik	11	1. Belirtilen zaman periyodunda sürekliliklerin fark edilmesi gerekir (aynı kalan şeyler). 2. Belirtilen zaman periyodunda değişen şeylerin gösterilmesi gerekiyor. 3. Değişimin hızı için hızlı ya da yavaş ilerlemeden bahseder. 4. Değişimin tipini (siyasi, ekonomik, sosyal ve kültürel) ele alır. 5. Herkes/bazıları için ilerleme ve gerileme olduğunu değerlendirir. 6. Yazının icadı bir dönem noktasıdır. 7. Değişim uzun dönemli mi kısa dönemli mi 8. Değişim olumlu mu olumsuz mu? 9. Farklı toplumlar için bir anlamı var mı yoksa sadece küçük bir topluluğu mu etkiledi 10. Değişim bilerek/İhtiyaçtan mı yoksa istemeyerek mi oldu? 11. Tarihsel değişim ve sürekliliğin sebep ve sonuç ilişkisi içerisinde açıklama.
Kanaat	1	1. Yeni bir şey sunulur.
Toplam	16	



| Research Article / Araştırma Makalesi |

Pre-service Teachers' Perceptions and Their Professional Preparation Levels for Multicultural Education: Implications for Teacher Education Curricula

Hizmet Öncesi Öğretmen Adaylarının Çok Kültürlü Eğitim Algıları ve Mesleki Hazırlık Düzeyleri: Öğretmen Eğitimi Programları için Çıkarımlar¹

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Keywords

1. Multiculturalism
2. Multicultural education
3. Multicultural teacher education
4. Curriculum and instruction
5. Mixed-methods study

Anahtar Kelimeler

1. Çok kültürlülük
2. Çok kültürlü eğitim
3. Çok kültürlü öğretmen eğitimi
4. Eğitim programları ve öğretim
5. Karma araştırma çalışması

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Abstract

Purpose: This study examines pre-service teachers' perceptions and their professional preparation levels for multicultural education.

Design/Methodology/Approach: In accordance with the research problems, this study was conducted using a mixed method research and a partial mixed sequential and equal status design. In the quantitative part, 381 pre-service teachers were surveyed using the Multicultural Perception Scale (MPC) to assess their perspectives on multicultural education. In the qualitative part, 20 pre-service teachers were interviewed individually to determine their levels of professional preparation for multicultural education.

Findings: The quantitative findings of the study showed that pre-service teachers have a moderate level of perception their professional preparation levels for multicultural education. Pre-service teachers enrolled in the Primary Education program have a higher perception of multicultural education than pre-service teachers enrolled in other teacher education programs. Furthermore, there is no significant difference between grades. On the other hand, it appears that male pre-service teachers have significantly lower perceptions of multicultural education than female pre-service teachers. Pre-service teachers are observed to emphasize the terms "diversity, interaction, and togetherness" when defining multicultural education, according to the qualitative findings of this study. In addition, they emphasized the interactions between pre-service teachers and international students, the program's course content, and extracurricular activities in light of the findings regarding the teacher education program's contribution to and opportunities for enhancing the levels of professional preparation for multicultural education. Examining the recommendations of pre-service teachers for teacher education, it is evident that more opportunities for extracurricular activities, school experience, and observation are recommended. Another recommendation highlighted is the addition of a multicultural education course to the teacher education program.

Highlights: According to the findings, multicultural education must be more thoroughly integrated into teacher education programs. It is anticipated that the study's findings will contribute to future studies of curriculum development and research on multicultural education conducted by those involved in teacher education at the national and international levels.

Öz

Çalışmanın amacı: Bu çalışmanın amacı hizmet öncesi öğretmen adaylarının çok kültürlü eğitim algıları ve mesleki hazırlık düzeylerini incelemektir.

Materyal ve Yöntem: Bu çalışma, araştırma problemleri doğrultusunda karma araştırma yöntemi ve eşit statülü kısmi sıralı karma desen ile yürütülmüştür. Araştırmanın nicel boyutunda, öğretmen adaylarının çok kültürlü eğitim algılarını ölçmek amacıyla, 381 öğretmen adayından "Çok Kültürlülük Algı Ölçeği (ÇAÖ)" ile veri toplanmıştır. Araştırmanın nitel boyutunda ise, öğretmen adaylarının çok kültürlü eğitime yönelik mesleki hazırlık düzeylerini incelemek amacıyla, araştırmacıların hazırladığı bireysel görüşme formu ile 20 öğretmen adayı ile bireysel görüşmeler yürütülmüştür.

Bulgular: Araştırmanın nicel bulguları, öğretmen adaylarının çok kültürlü eğitime yönelik algılarının orta düzeyde olduğunu göstermiştir. Bununla birlikte Sınıf Eğitimi programına kayıtlı öğretmen adaylarının çok kültürlü eğitim algılarının diğer programlara kayıtlı öğretmen adaylarından daha yüksek olduğu ortaya konulmuştur. Farklı sınıf düzeylerindeki öğretmen adaylarının çok kültürlü eğitim algı düzeyleri arasında ise anlamlı bir farka rastlanmamıştır. Öte yandan, kadın öğretmen adaylarının çok kültürlü eğitime yönelik algı düzeylerinin erkeklerden daha yüksek olduğu görülmüştür. Araştırmanın nitel bulguları ise, öğretmen adaylarının çok kültürlü eğitim tanımlarında, çeşitlilik, etkileşim ve birliktelik terimlerine sıklıkla yer verdiğini ortaya koymuştur. Bununla birlikte, öğretmen eğitimi programlarının çok kültürlü eğitime yönelik mesleki hazırlık düzeylerinin iyileştirilmesine sağladığı katkı ve sunulan olanaklar ile ilgili bulgular, uluslararası öğrencilerle olan etkileşim, programdaki ders içerikleri ve ders dışı etkinliklere vurgu yapılmıştır. Son olarak öğretmen adaylarının önerilerine yönelik bulgular incelendiğinde, ders dışı etkinliklerin ve çok kültürlü eğitime yönelik ders sayılarının artırılması ve okul deneyimi ve gözlem için daha fazla fırsat sunulmasının önerildiği görülmektedir.

Önemli Bulgular: Bu çalışmanın sonuçları, çok kültürlü eğitimin öğretmen eğitimi programlarına entegrasyonun konusunda iyileştirmeye ihtiyaç duyulduğunu göstermektedir. Çalışmanın bulgularının, ulusal ve uluslararası düzeyde program geliştirme çalışmalarına ve çok kültürlü öğretmen eğitime yönelik gelecek araştırmalara katkıda bulunması beklenmektedir.

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INTRODUCTION

Schools are at the forefront of bringing people together and making sure that ethnic differences are shown fairly, especially in countries that are known for being very diverse. Banks (2006) says that multicultural nations are always trying to find a balance between unity and diversity. Since education is linked to and affected by politics, the pervasive multicultural discourse cannot be separated from education work in teacher education institutions (Ron-Erich & Gindi, 2018). Rodriguez (1983) says that the way teachers think and act has a big effect on how much multicultural education is taught in schools. So, even a curriculum that stresses diversity may not work (Banks, 2010) if teachers don't have the knowledge, skills, and attitude to teach in a multicultural way. Consequently, it is essential to incorporate "multiculturalism" into teacher education programs and learning environments. Multiculturalism is defined as a philosophical position and social movement that assumes that race, ethnicity, language, sexual orientation, gender, age, disability, class status, education, religious or spiritual orientation, and other cultural aspects of a pluralistic society must be reflected in all institutionalized structures of educational institutions (American Psychological Association [APA], 2002; Banks & Banks, 2009). In this regard, multiculturalism is viewed as a set of principles and practices utilized by a population to organize their individual and communal lives, make sense of themselves and the world, and make decisions (Parekh, 2000).

In the 1960s, the civil rights movement fought for freedom, political equality, and economic integration. This set the stage for multicultural education. At that time, many oppressed groups asked for cultural and ethnic lessons to be taught in public schools (Banks, 1989). Multicultural education discourses have been centered on increasing access and academic success for historically underrepresented groups in academic and socioeconomic leadership roles since their inception (Ndrua & Dogbevia, 2012). Multicultural education is based on an educational philosophy that aims to give all students the same chances to do well in school, no matter their gender, social class, race, ethnicity, or culture (Banks & Banks, 2009). Multicultural education is defined as "an approach to school reform aimed at achieving educational equality for students from diverse racial, ethnic, cultural, social-class, and linguistic groups" (Banks, 2009, p. 13). According to Banks's definition, multicultural education promotes equality, which ensures justice and accepts diversity in the educational setting. In addition to emphasizing the need to preserve each student's cultural heritage, multicultural education promotes tolerance among students from diverse backgrounds (Gay, 2000; Nieto, 1996). One of the primary goals of multicultural education, according to multicultural education specialists, academics, and practitioners, is to reform schools and other educational institutions so that students from various socio-cultural groups, particularly historically marginalized groups, will experience educational equity (Banks, 2004; Sleeter, 1997). This suggests that a multicultural education necessitates a comprehensive restructuring of all instructional processes, including curriculum, teaching methods, instructional materials, classroom management, student performance evaluation, school-community relationships, and educators' attitudes, dispositions, perceptions, and behaviors (Banks, 2004; Bennett, 2001; Sleeter, 1997; Sleeter & Grant, 1999).

As society's demands for incorporating diverse perspectives into virtually all of our interactions increase, the need to adequately prepare pre-service teachers for teaching in this diverse world has grown more urgent (Neuharth-Pritchett et al., 2011). As schools become more diverse, teachers must be prepared to handle sensitive and complex issues relating to equality, social justice, diversity, and discrimination (Banks, 2014). The purpose of multicultural education is to equip pre-service teachers with the knowledge and skills necessary to teach and learn about multiculturalism and multicultural education (Barry & Lechner, 1995; Walker et al., 2004). Pre-service teachers should be made aware of cultural diversity because educational institutions are crucial contexts in which a multicultural perspective must be adopted. In order to establish multicultural learning environments in teacher education, it is crucial to define multicultural education and define its boundaries by outlining its dimensions, objectives, and guiding principles. Teachers' awareness, knowledge, and competence are crucial in multicultural education, and it is essential to emphasize this concept in teacher education because they will implement the curriculum, select the appropriate methods and techniques, select the tools and materials, create the learning environment, and assess and evaluate the learning (Banks, 2007; Benediktsson, 2019; Gay, 1994; Neuharth-Pritchett et al., 2001). In this regard, Reed (1993) also states that pre-service teachers must be taught to comprehend and value the diversity of cultures in our society. They must learn to appreciate cultural diversity. They also must be taught that through their classroom expectations, actions, words, and deeds, they can foster acceptance and respect among all students.

Significance of the Study

Today, students and teachers can participate in educational activities all over the world, not just in their own countries. This requires educators to have positive attitudes toward multicultural education, which is defined as being respectful and tolerant of different cultures in order to ensure equal opportunity in education without regard to religion, language, or race (Karacabey et al., 2019). In addition, understanding and implementing multiculturalism is crucial, not only because of the value placed on culture, but also because of its contribution to diverse societies and societies in flux due to migration and other factors. In this process, multicultural education serves as a central concept for teaching individuals how to overcome social barriers resulting from cultural differences (Akcaoglu & Aرسال, 2017, p.224). In this context, multicultural pedagogical knowledge, skills, and positive attitudes toward students with ethnic and cultural education are becoming increasingly important for prospective teachers. (Arsal, 2019) Teacher training programs and teachers play a significant role in the development of positive attitudes toward cultural differences among teacher candidates. According to Gorski (1997), all students should be taught to bring their own stories and awareness

levels to school (as cited in Arslan, 2013, p.31). It is expected that pre-service teachers will work according to their expertise, narrative, point of view, and beliefs in order to educate effectively about various cultures (Arslan, 2013). Sleeter (2000) emphasizes the significance and necessity of multicultural education in teacher education, arguing that multicultural students cannot achieve important life goals without academic and global multicultural education. Because students have the opportunity to recognize their own diversity and use it to strengthen themselves and others (Sleeter, 2000; as cited in Arslan, 2013, p. 31).

In this regard, this study on pre-service teachers' perceptions and levels of professional preparation for multicultural education is significant in two ways. In order to create learning environments that are sensitive to multicultural education, the perception results will serve as a guide for the inclusion of learning experiences in the teacher education program. The results of the study on professional preparation levels will also serve as a guide for the development of teacher education programs that equip pre-service teachers with multicultural education awareness, knowledge, and competence. The findings of the study will help in the development of teacher education programs, specifically multicultural teacher education programs. In addition, it will be beneficial for researchers and subject-matter experts involved in curriculum development and will fill a gap in the literature in this field.

Purpose of the Study

This study seeks to investigate the perceptions and levels of preparation for multicultural education among pre-service teachers. The following research questions have been formulated for this purpose:

1. What is the pre-service teachers' multicultural education perception level?
 - a. How do pre-service teachers' perceptions of multicultural education differ depending on the type of teacher education program, grade level, and gender?
2. How do pre-service teachers define multicultural education?
3. How do pre-service teachers perceive the contribution and opportunities for enhancing multicultural education professional preparation?
4. What recommendations do pre-service teachers have for improving their professional preparation for multicultural education in their teacher education?

METHOD

Research design

This study employed a mixed method research design to investigate the pre-service teachers' perceptions of multicultural education and their levels of professional preparation. Mixed methods research refers to studies that combine quantitative and qualitative data collection, analysis, and interpretation in one study or in a series of studies that focus on the same underlying phenomenon (Leech & Onwuegbuzie, 2007, p. 267). In the current study, partially mixed methods (QUAN -> QUAL) were employed because the quantitative and qualitative parts were conducted sequentially in their entirety before being combined at the data interpretation stage, and both stages were given approximately equal weight. In accordance with the research problems, a Sequential Explanatory Design, which is a two-phase process including quantitative data collection and analysis; qualitative data collection and analysis and final interpretation afterwards (Creswell, 2014), was used to measure the level of pre-service teachers' perceptions of multicultural education, and to examine their level of professional preparation.

Participants

This study's sampling method is convenience sampling (Fraenkel et al., 2012, p. 99). This sample was selected since it's easier to access, and it's essential to select a sample of people who are willing to volunteer for the study. Following the online distribution of consent forms to participants, declarations of their voluntary participation in the study were gathered. In this context, the number of students enrolled in each teacher education program at the Faculty of Education has been determined, and the program in which double majors and/or minors have established themselves first has been selected. In addition, Turkish pre-service teachers were selected to participate because the study sought to examine their perspectives on multicultural education and their professional preparation levels. Participants were thus pre-service teachers enrolled in a teacher education program at the education faculty of a foundation university in Turkey. Pre-service teachers enrolled in Guidance and Psychological Counseling (GPC), English Language Education (ELE), Elementary Mathematics Education (EME), Early Childhood Education (ECE), and Primary Education (PE) programs during the 2021-2022 academic year participated in this study (Table 1).

According to the information in Table 1, a total of 381 pre-service teachers enrolled in numerous program types and grade levels provided data. Based on program type, 30.7% ($f=117$) of the pre-service teachers are enrolled in the GPC program, 27.3% ($f=104$) are enrolled in the ELE program, 15.2% ($f=58$) are enrolled in the EME program, 13.6% ($f=52$) are enrolled in the ECE program, and 13.1% ($f=50$) are enrolled in the PE program. According to grade level, 30.7% ($f=117$) of pre-service teachers study at the freshman level, 26.2% ($f=100$) study at the sophomore level, 23.6% ($f=90$) study at the junior level, and 19.4% ($f=74$) study at the senior level. Based on gender, 79.8% ($f=304$) of pre-service teachers are female, whereas 20.2% ($f=77$) are male.

Table 1. Distribution of pre-service teachers by program type, grade level, and gender

Variables	Categories	Frequency (f)	Percentage (%)
Program Type	GPC	117	30.7
	ELE	104	27.3
	EME	58	15.2
	ECE	52	13.6
	PE	50	13.1
	Total	381	100
Grade Level	Freshmen	117	30.7
	Sophomore	100	26.2
	Junior	90	23.6
	Senior	74	19.4
	Total	381	100
Gender	Female	304	79.8
	Male	77	20.2
	Total	381	100.0

Additionally, 20 pre-service teachers, one from each grade level of each teacher education program, were interviewed using an interview questionnaire as part of the qualitative part of the study. Through online individual interviews, data on the levels of pre-service teachers' professional preparation for multicultural education were gathered.

Data collection and analysis

381 pre-service teachers participated in the study's quantitative part. Ayaz's (2016) "Multiculturalism Perception Scale" (MPC) was used online to investigate the participants' perspectives on multicultural education. Table 1 presents the descriptive statistics obtained from the participants. The scale was constructed using a 5-point Likert scale format. There are 25 items on the scale, with the following levels of agreement: "1-I do not agree at all," "2-I do not agree," "3-I am undecided," "4-I agree," and "5-I definitely agree"(Table 2). "The Teachers' Multicultural Educational Attitudes Scale" adapted to Turkish by Yazıcı, Başol, and Toprak (2009) was used to evaluate the MPC's validity. The correlation between the results, calculated at $r = .74$, indicates a significant relationship. Consequently, it is possible to assert that this scale guarantees convergent validity. In addition, the Cronbach Alpha, Spearman-Brown, and Guttman Split-Half coefficients were used to determine the reliability of the data. Therefore, the Cronbach Alpha value is 0.94, the Spearman-Brown correlation value is 0.882, and the Guttman Split-half coefficient value is 0.882. Consequently, it is evident that there are values greater than 0.70, and the internal consistency, item correlation, and reliability level of the scale are all above the acceptable threshold, indicating that the scale's reliability is high (Ayaz, 2016).

Table 2. Examples of MPC items

Item No.	Item	I do not agree at all	I do not agree	I am undecided	I agree	I definitely agree
1	I am not bothered by the fact that those around me speak different languages.					
5	I consider the coexistence of different cultures to be a social necessity.					
10	I consider myself a multicultural educator.					
15	I do not believe that an education that emphasizes cultural differences will result in social segregation.					
20	I respect people who have different ideological ideas.					

Item No.	Item	I do not agree at all	I do not agree	I am undecided	I agree	I definitely agree
25	I believe that students should not view themselves as inferior in the classroom because of their culture.					

Convenience sampling, a non-probability sampling technique in which units are chosen for inclusion in the sample because they are easiest for the researcher to access, was used to select the sample for the qualitative part of this study (Creswell, 2014). Accordingly, 20 pre-service teachers from each grade level of each program, including GPC, ELE, EME, ECE, and PE, participated in the qualitative part of the study and were interviewed individually online. Individual interviews were conducted with pre-service teachers to determine their professional levels of multicultural education preparation. The data was collected using a semi-structured individual interview form developed by the researchers. The form include the questions such as “ What is your definition of multicultural education?”, “Which courses in the teacher education program you are currently enrolled in have enhanced your multicultural education professional preparation?”, and “What suggestions do you have for enhancing teacher candidates' professional preparation for multicultural education in pre-service teacher education?”. In the qualitative part of the study, the researchers prepared the interview questions, and experts in the field of curriculum and instruction provided their opinions. The interviews continued after the necessary changes and corrections to the individual interview form were made in response to the opinions of the experts. In addition, the formula Reliability = Consensus / (Consensus + Disagreement) x 100 proposed by Miles and Huberman (1994) was used to calculate the reliability of the study's data. In addition to coder consistency, attention was paid to the detailed description of the research process, and direct quotations were included to support the codes that appeared under the relevant themes when reporting the findings.

To answer the first question and its sub-question, the data organized in accordance with the research's purpose were transferred to SPSS 21 and analyzed. Utilizing descriptive statistics such as mean, standard deviation, and percentage distribution, the study's program type, grade level, and gender data were examined. After conducting normality tests on the data, Kurtosis and Skewness values, Kolmogorov-Smirnov and Shapiro-Wilk tests (Table 3), histograms, and Q-Q plots were used. Since the skewness-kurtosis values fall outside the range of (-3, +3) (Kline, 2016), it can be determined that the data are not normally distributed. In addition, based on the Kolmogorov-Smirnov and Shapiro-Wilk values, it is possible to conclude that there is a statistically significant difference between the variable categories and that the data are not normally distributed (p.05). Since it was determined from the histogram and Q-Q plots that the values are not normally distributed, it can be concluded that the variables in this study are not normally distributed. As a result, non-parametric methods were utilized in the data analysis. At the program type and grade level, the Kruskal-Wallis H test with Bonferroni correction was utilized, while the Mann-Whitney U test was utilized to compare gender-related data differences between the two groups.

Table 3. Kolmogorov-Smirnov and Shapiro-Wilk test results

Multiculturalism Perception Scale	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	p	Statistic	df	p
	.123	381	.000*	.873	381	.000*

*p< .05

To answer the other research questions, qualitative data were analyzed using Creswell's seven-stage descriptive analysis method (2014). Descriptive analysis, according to Yıldırım & Şimşek (2016), is a type of qualitative data analysis that entails analyzing and interpreting data collected using various techniques under predetermined themes. Using specific codes, descriptive analysis was used to examine qualitative data. The pre-service teachers participating in the research were coded according to their programs and grade levels (For example, for the freshmen pre-service teacher who is enrolled in English Language Education program: ELEPT1) The themes were created by extracting them from the interview transcripts as a result of the open-coding analysis of individual interview forms.

FINDINGS

Pre-service teachers' multicultural education perception levels

On the basis of the lower and upper 27% slices, pre-service teachers' perceptions of multicultural education were categorized as low (102), moderate (102–109), and high (>109) and then analyzed. 27% (n=103) of pre-service teachers have low perception levels of multicultural education, 44.1% (n=168) have moderate perception levels, and 28.9% (n=110) have high perception levels, according to the findings of the first problem of the study (Table 4). In the quantitative part of the research, findings regarding pre-service teachers' perceptions of multicultural education revealed that nearly half (44.1%) of the pre-service teachers had moderate perceptions of multicultural education.

Table 4. The Multiculturalism Perception Scale Scores of Pre-Service Teachers

Lower and upper 27% slices	n	%
Low (<102)	103	27
Moderate (102-109)	168	44.1
High (>109)	110	28.9
Total	381	100

Pre-service teachers' multicultural education perception levels based on their teacher education program type, grade level, and gender

The average perception level revealed by the MPC scores of pre-service teachers based on program type is ($M=109.01$; $SD=13.76$). In addition, pre-service teachers enrolled in the PE program have a higher level of multiculturalism perception ($M=113.94$; $SD=11.66$) than pre-service teachers enrolled in the EME program ($M=109.97$; $SD=10.95$), pre-service teachers enrolled in the ECE program ($M=109.90$; $SD=11.00$), pre-service teachers enrolled in the GPC program ($M=108.16$; $SD=14.07$), and pre-service The Kruskal-Wallis H test revealed statistically significant differences among program types ($H=11.98$; $p=.017$). It has been observed that pre-service teachers enrolled in the Primary Education program have higher MPC scores than those enrolled in other programs. According to the Kruskal Wallis H test, there is no statistically significant difference between grade levels ($H=2.074$; $p=.557$). Senior level pre-service teachers' MPC scores ($M=106.66$; $SD=16.02$) were lower than those of freshmen level pre-service teachers ($M=110.18$; $SD=12.59$), sophomore level pre-service teachers ($M=110.55$; $SD=10.37$), and junior level pre-service teachers ($M=107.69$; $SD=16.15$), although the differences were not statistically significant. In addition, the Mann-Whitney U test revealed statistically significant differences in MPC score between gender groups ($U=7132$; $p=.0001$) It appears that male pre-service teachers have significantly lower MPC scores ($M=101.00$; $SD=17$) than female pre-service teachers ($M=111.00$; $SD=12$).

When the findings regarding the pre-service teachers' responses to the MPC items are examined (Table 5), it has been found that pre-service teachers feel uneasy around people who speak different languages, but not around people of different religions. People should explain their religious beliefs and ethnicity without fear and advocate for a tolerant approach in this circumstance. In addition, it has been noted that it is wrong to treat people differently based on their social status, that people from different regions are aware that their behaviors and perspectives may differ, and that they generally have empathy for those from cultures that are different from their own. It was discovered that pre-service teachers generally respect the actions of individuals based on their age and their different ideologies. It is also possible to assert that pre-service teachers are aware of the numerous cultural differences present in society and recognize the necessity to address them.

Moreover, they believed that cultural diversity in the classroom would not result in social discrimination. In contrast, pre-service teachers believe that discrimination based on ethnicity is a serious problem in the United States. The majority of pre-service teachers believe that the educational system should reflect the ethnic diversity of the nation and that the learning environment should be able to accommodate students from diverse cultural backgrounds. In addition, it has been observed that pre-service teachers defend the notion that teachers should accept students from diverse cultures, as each student has a unique culture, and that each student should have the opportunity to encounter their own cultural values. According to studies of teacher education programs, pre-service teachers believe that the implementation of multicultural education programs in schools will provide equal educational opportunities. However, it has been discovered that pre-service teachers do not view themselves as fully qualified multicultural educators. In fact, it has been discovered that pre-service teachers believe multicultural education is essential today and want to study it in teacher preparation programs.

Table 5. Distribution of the Answers Given to MPC items

Item No.	I do not agree at all		I do not agree		I am undecided		I agree		I definitely agree	
	f	%	f	%	f	%	f	%	f	%
1	14	3.7	39	10.2	69	18.1	87	22.8	172	45.1
2	9	2.4	4	1	18	4.7	45	11.8	305	80.1
3	0	0	3	0.8	26	6.8	64	16.8	288	75.6
4	14	3.7	12	3.1	24	6.3	56	14.7	275	72.2
5	11	2.9	16	4.2	55	14.4	83	21.8	216	56.7
6	4	1	9	2.4	25	6.6	60	15.7	283	74.3
7	7	1.8	5	1.3	32	8.4	93	24.4	244	64
8	19	5	24	6.3	59	15.5	93	24.4	186	48.8

9	10	2.6	15	3.9	54	14.2	93	24.4	2090	54.9
10	9	2.4	30	7.9	101	30.7	117	30.7	124	32.5
11	3	0.8	9	2.4	26	6.8	88	23.1	255	66.9
12	6	1.6	16	4.2	53	13.9	100	26.2	206	54.1
13	17	4.5	24	6.3	78	20.5	92	24.1	170	44.6
14	6	1.6	12	3.1	31	8.1	79	20.7	253	66.4
15	16	4.2	32	8.4	61	16	105	27.6	167	43.8
16	8	2.1	12	3.1	26	6.8	59	15.4	276	72.4
17	11	2.9	11	2.9	44	11.5	84	22	231	60.6
18	14	3.7	22	5.8	52	13.6	84	22	209	54.9
19	17	4.5	26	6.8	72	18.9	92	24.1	174	45.7
20	8	2.1	14	3.7	43	11.3	96	25.2	220	57.7
21	1	0.3	4	1	15	3.9	64	16.8	297	78
22	4	1	7	1.8	23	6	69	18.1	278	73
23	6	1.6	16	4.2	48	12.6	85	22.3	226	59.3
24	4	1	2	0.5	16	4.2	51	13.4	308	80.8
25	5	1.3	2	0.5	11	2.9	41	10.8	322	84.5

In conclusion, when the findings from the quantitative part of the study, which examined how pre-service teachers viewed multicultural education, were taken into account as a whole, it was determined that the majority of the pre-service teachers who participated in the study had a tolerant and empathetic attitude toward multicultural education with various languages, races, ethnic origins, religious beliefs, ideological ideas, and age groups. In addition, pre-service teachers are aware that people from different regions have different attitudes and ways of thinking. In addition, despite the belief that locals should be free to express their religious beliefs without fear, it has been discovered that locals have difficulty communicating in other languages. Because they believe that implementing multicultural education programs in schools will lead to equal educational opportunities, the majority of them desire multicultural education-related courses in teacher education programs. In addition, they argue that every student should have the opportunity to experience his or her own cultural values at school and that the environment should be able to accommodate students from diverse cultural backgrounds. Pre-service teachers argue that they should not view themselves as a subclass in the educational setting due to their culture, despite their preference for classes where multiple cultures have equal rights rather than a single culture. It has become apparent, however, that they are largely unsure about identifying as multicultural educators.

Definition of multicultural education

Some pre-service teachers (ELEPT1, ELEPT2, ELEPT3, ELEPT4, EMEPT2, ECEPT1, ECEPT4, GPCPT1, GPCPT4, PEPT1, PEPT2) defined multicultural education as *"blending more than one culture in education"* and *"coexistence of students from different cultures and cultural respect for one another."* Other pre-service teachers also define multicultural education as *"the interaction of students from different cultures and the diversity of the classroom."* Other pre-service teachers defined multicultural education as *"Education in many different stages, and each has acquired a property from the collection of a system's implementation"* (ECEPT2), *"Introduction and explanation of different cultures"* (ECEPT3), *"People of different cultures living together peacefully and without prejudice"* (GPCPT2), and *"The information they bring from their own cultures enriches the learning environment"* (ECEPT4, PEPT3). One of the pre-service teachers, GPCPT4, characterized multicultural education as *"the coexistence of students from various cultures and mutual cultural respect"* has provided the following further explanation: *"...When I think of multicultural education, I usually envision a classroom filled with students from diverse cultural backgrounds. For example, there could be refugees, of which there are currently a great number in Turkey. Whether they are Syrian or Afghan, I observe people of all cultures living in harmony and receiving an education."* ELEPT3 defines multicultural education as *"diversity in the classroom and interaction between students of different cultures"* with the following clarification: *"When I first heard the term, I immediately thought of how a teacher should be prepared for the possibility of having students from diverse cultural backgrounds in the classroom. Having students from different cultural backgrounds, as opposed to just one, signifies that there is diversity in the classroom, and I believe that the interactions between these students and their motivation enhance the learning experiences of the students."*

In conclusion, findings regarding pre-service teachers' level of professional preparation for multicultural education examined in the qualitative part of the study revealed that they defined multicultural education as the interaction of students from different cultures, and people together in a classroom environment where students from different cultures coexist without discrimination in education. In addition to emphasizing "diversity, interaction, and togetherness" pre-service teachers also emphasize respect and tolerance, according to these definitions. Particularly, it is noted that the pre-service teachers' definitions of multicultural

education are influenced by the current immigration and refugee situation at national and international level and they provide personal examples.

Contribution and opportunities provided for improving professional preparation level for multicultural education

The findings highlighted the following themes in relation to the contributions and opportunities of pre-service teachers for enhancing the level of professional preparation for multicultural education: *Interaction with international students* (ELEPT1, ELEPT2, EMEPT2, EMEPT4, ECEPT1, ECEPT4, GPCPT3); *course content* (ELEPT2, ELEPT3, ELEPT4, EMEPT1, EMEPT2, PEPT1, PEPT2, PEPT3); and *extracurricular activities* (GPCPT1, GPCPT2, GPCPT4). First, it has been determined that interaction with international students at this foundational university where English is the language of instruction increases pre-service teachers' levels of professional preparation for multicultural education. Interacting with students from other cultures in the same environment has been emphasized as a form of cultural sharing. EMEPT4, which emphasized "interacting with international students," stated that *"Education is a common factor in the development of multiculturalism because it gives us access to a variety of information about various cultures, such as information about classmates, classroom procedures, and familiar faces."* On the other hand, it was noted that the lack of international students in the EME program has a negative impact on the levels of professional preparation for multicultural education. ELEPT2 has also emphasized the significance of both "interaction with international students" and "course content" respectively: *"Due to the large number of international students, there is already a multicultural educational structure in place here. Whether you like it or not, the lesson includes multicultural interaction as a result. We also study English and American culture in addition to Turkish culture, as I have already completed the English Language Education program. Consequently, my department and university are the natural source of a highly cultural interaction"*. EMEPT2 also emphasized the significance of these two themes by including them in its statements: *"I believe that education has a stake in the development of multiculturalism because it can provide us with diverse information about different cultures, whether it's about our classmates, the implementation of lessons, or the people with whom we communicate"*

In order to highlight how the "content of the courses in the program" helps pre-service teachers' professional preparation level for multicultural education, which he continues, PEPT3 highlights the significance of the courses as follows: *"I took a course last semester called "Inclusive Language Education," which I believe is an awareness-raising course because, as we all know, Turkey is constantly intertwined with various cultures as a result of its geographic location. As a result, the students in our future class will come from a variety of cultural backgrounds, so we ought to be ready for this situation. It is crucial for us to use the lessons we have learned or to acquire the tools we need to advance in this way. These are actually stressed at some points in the training I have received. Can it be developed further in our courses? Yes, but since this content educates and enlightens us in this context, I can't say that it had no effect at all."* In addition, it was revealed that extracurricular activities influence the level of professional preparation of pre-service teachers for multicultural education. The levels of professional preparation of pre-service teachers for multicultural education have been found to be positively impacted by seminars, conferences, and related communities. GPCPT2 and GPCPT4 stated that "extracurricular activities" such as related societies and seminars can enhance their level of professional preparation for multicultural education.

Contribution of the courses in the teacher education program to improve their professional preparation level for multicultural education

It was observed that pre-service teachers utilized examples from professional courses and field knowledge courses when the findings regarding the contribution of courses in the teacher education program to enhancing professional preparation levels for multicultural education were analyzed. First professional courses "Educational Psychology" in terms of teaching students how to communicate with the course contributes to establishing, "Educational Philosophy" in terms of gaining different perspectives, and "Moral and Ethics in Education" specifically mentioned within the content and scope of the concept of multiculturalism is concluded. As field knowledge courses, the "English Language and Literature," "Culture and Language," and "Language and Literature Teaching" courses in the ELE program are said to assist pre-service teachers in recognizing and adapting to other cultures. In addition, it has been determined that the courses "World Languages and Cultures" and "Teaching English Language Skills" contribute to a higher level of professional preparation for multicultural education by allowing students to utilize reading passages and videos from multiple cultures as course materials. Pre-service teachers enrolled in the EME program reported that the "History of Mathematics" and "Mathematics and Culture" courses help them recognize and make peace with other cultures. According to pre-service teachers in the ECE program, the courses "Introduction to Early Childhood Education" and "Educational Approaches in Early Childhood Education" provide students with the opportunity to learn about the preschool education systems, educational programs, and practices of other countries and compare them to our own. According to pre-service teachers enrolled in the GPC program, "Counseling Skills" and "Group Counseling" courses help them to be understanding and respectful of clients from different cultures. In addition, they asserted that the course "Psychological Counseling with Children and Adolescents" teaches children and adolescents from diverse cultural backgrounds how to provide counseling services with cultural sensitivity. Pre-service teachers enrolled in the PE program claimed that "Inclusive Language Teaching" helps them teach students from different cultures about Turkish culture and the steps that students from different cultures should take in order to express themselves during the learning-teaching process.

Recommendations for improving professional preparation level for multicultural education

Some pre-service teachers place a heavy emphasis on 'extracurricular activities,' such as projects and seminars, according to findings regarding the recommendations for pre-service teacher education (ELEPT2, ELEPT3, ELEPT4, EMEPT4, ECEPT2). ELEPT2 drew attention to this issue with the following statement: "Certainly, we should not limit ourselves to attending classes. Aside from that, I believe that we must improve ourselves. Participation in Erasmus projects is possible. Traveling abroad can improve our cultural understanding. In addition, we may be able to participate in short-term projects. Additionally, we can attend seminars on the subject". Similarly, ECEPT2 emphasized the significance of extracurricular activities as follows: "...Especially Syrians, as we reside in a country that accepts immigrants. I believe that trips, forums, conferences, interviews, workshops, and festivals can be organized with qualified teachers or with people who have that culture and have mastered that culture, teachers. In this context, some pre-service teachers (EMEPT1, EMEPT4, ECEPT2, GPCPT2, GPCPT4, PEPT2, PEPT4) also emphasized practice/school experience and/or observation by an experienced teacher. In conclusion, it is evident that emphasis is placed on both lesson adherence and the importance of devoting time to extracurricular activities and self-improvement. In addition, it was suggested that participation in student exchange programs such as Erasmus and, if possible, the acquisition of international experience should be encouraged. In addition, it was suggested that a language and cultural society be formed and that pertinent conferences, seminars, and workshops be held.

In contrast, ECEPT2 emphasized the importance of practice and school experience in the following ways: "*For example, there are institutions that teach foreign languages and serve students from extraordinarily diverse cultural backgrounds. Even now, I realize I haven't given it much thought and I lack information, so I believe it would be possible to meet with them for observation or practice.*" In addition, GPCPT2 places the following emphasis on practice and academic experience: "*We want to implement multicultural education, but how will we go about doing so? We must travel and gain experience; we must see the world. Even if there is no internship, or if there is a school application for one in the future, there will be one and it will be beneficial, so at least we will be aware of our deficiencies. In this situation, I believe that courses with a greater emphasis on practice than theory can be more beneficial.*" This is how PEPT4 clarifies the significance of practice and school experience further: "*For instance, the lessons are not slightly more theoretical; rather, the first four weeks consist of theory lessons, and the last four weeks consist of practical lessons. I believe that many programs are geared toward this, and I would like for students to be able to apply and experience what they are learning.*". In conclusion, it is essential to recognize that an increase in the number of practicum classes is recommended because pre-service teachers must also develop professional competence in the application of gaps and improvement areas in this area.

The inclusion of a multicultural education course in the teacher preparation program is another noteworthy suggestion (ECEPT1, ECEPT3, ECEPT4, PEPT2, PEPT3). It has been determined that courses explaining how to interact with students of different cultures and examining the educational systems of different countries can be added. It has been discovered that providing training and sharing relevant resources within the scope of the course will also increase awareness of this issue. Regarding the inclusion of a multicultural education course in the teacher education program, PECEPT4 also emphasized the following: "*However, the lesson could be included. In addition, book and film recommendations can be made regarding how we should proceed in this regard... If an expert imparts knowledge or offers resources that serve as examples, it may increase our awareness.*" In addition, PEPT3 emphasized the importance of including a course on multicultural education in the teacher education program and stated: "*First and foremost, I believe that universities should have a required course on this topic because there are students from different cultures at every level and grade, from classroom teaching to various programs. According to these students, every child in Turkey has the same right to an education as children everywhere else. In light of these rights, it is essential that pre-service teachers receive an education of generally high quality in this area.*"

DISCUSSION

The purpose of this research was to determine the level of the pre-service teachers' perspectives on multicultural education and their professional preparation. Their perceptions of multicultural education were moderate, according to the research findings presented previously. Several studies indicate that preservice teachers' beliefs about their students' success are frequently influenced by their own ethnic background and a lack of cultural knowledge (Middleton, 2002). In addition, pre-service teachers in teacher preparation programs must be able to draw conclusions from research findings, synthesize information from multiple perspectives, and reflect on and evaluate their own learning (Alger, 2006, Etscheidt et al., 2012, Gibson, 2012).

The study also aimed to determine if there were significant differences in pre-service teachers' perceptions of multicultural education based on the type of program. The results of the study indicated that pre-service teachers enrolled in the Primary Education program have a higher perception level than those enrolled in the other program types. The perceptions of pre-service teachers enrolled in the English Language Education and Social Sciences Education programs are higher than those of pre-service teachers enrolled in the other program types, according to research by Demir & Başarır (2013). Similarly, the perceptions of multicultural education among pre-service teachers in the study by Olur and Oğuz (2019) vary significantly based on the type of program. However, the study's findings indicate that pre-service teachers in the ECE program have the highest perception level, followed by those in the PE program. Even though there was no significant difference in pre-service teachers' perceptions of multicultural education based on grade level, the multiculturalism perception scale scores of senior pre-service teachers were lower, according to the study's findings. In this regard, it has become apparent that the research findings and the findings of similar research in the literature are not identical. It was also found that pre-service teachers' perceptions of multiculturalism were

significantly influenced by their gender. According to the study's findings, the perceptions of female pre-service teachers regarding multicultural education are greater than those of male pre-service teachers. Female pre-service teachers have a higher level of multicultural awareness than male pre-service teachers, according to previous research (Alanay, 2015; Bahadır, 2016; Demir & Başarır, 2013; Güngör et al., 2018; Nayır & Çetin, 2018; Olur & Oğuz, 2019). In this context, it is possible to say that the research results are consistent with the existing literature.

When defining multicultural education, pre-service teachers used phrases such as "being together with the students from different cultures and respecting each other," "blending in more than one culture," and "all cultures meet," as well as "people from different cultures always happily studying together" and "an educational environment enriched by the information that students from different cultures have added from their own cultures in a classroom environment where students from different cultures are together." When examining the pre-service teachers' definitions of multicultural education, it is evident that they focused solely on cultural differences and ignored terms such as religion, language, race, age, and gender. This indicates that the pre-service teachers lack adequate multicultural education knowledge. Other studies (Nayır & Çetin, 2018; Olur & Oğuz, 2019) have also attracted interest by focusing solely on the cultural component of multicultural education in its definition.

Examining the recommendations made by pre-service teachers for enhancing their professional levels of preparation for multicultural education, it can be seen that they advocate for extracurricular activities, practical lessons, the inclusion of a multicultural education course in the teacher education curriculum. The pre-service teachers taking part in the research suggested setting up seminars, conferences, congresses, and workshops related to multicultural education. Olur & Oğuz (2019) also state in their study that one of the reasons why pre-service teachers have low competencies for multicultural education is that it's possible that they didn't attend a seminar on multicultural education, which suggests that the teacher education program needs to be developed. The study's findings also highlighted the importance of practice and education. Involving multicultural education courses and field experiences into teacher education curricula improves pre-service teachers' understanding of students from diverse cultural backgrounds and has a positive effect on their multicultural competence and attitude, according to the research (Cochran-Smith, 2003; Villegas & Lucas, 2002). Pre-service teachers emphasized the importance of multicultural education in teacher education programs, according to the findings of the present study. Similarly, issues with school policy and structure, as well as how teachers interact with students and each other, must be addressed in addition to the curriculum's lack of multicultural components (Banks & Banks, 2000; Lee, 1995; Nieto, 2000). In addition, Premier & Miller (2010) asserted that the inclusion of multicultural issues in teacher education programs and the creation of opportunities for pre-service teachers to encounter multicultural issues are necessary for the achievement of this objective. The need for multicultural education courses in teacher preparation programs is supported by a number of studies in the literature (Başbay & Bektaş, 2009; Kelm et al., 2001; Kurtuluş, 2018; Olur & Oğuz, 2019).

In light of this, it is suggested that redesigned educational systems with multicultural curricula are necessary (Cole, 1998). Accordingly, Gay & Howard (2000) claim that multicultural teacher education curricula need to cover two topics: "acquiring cultural knowledge of self and others", which focuses on enhancing teachers' ethnic and cultural self-awareness, and "developing multicultural pedagogical knowledge and skills", which is concerned with multicultural pedagogical skills, multicultural performance assessment, and multicultural teaching competencies. It also covers the fundamentals of multicultural teaching. According to Arslangilay (2018), these teacher education programs should prepare aspiring teachers for multicultural classroom settings and should implement a culturally sensitive program. If teachers do not have the perception, competences, and disposition to teach in a multicultural way, even a multiculturally oriented curriculum may become ineffective (Banks, 2010). This suggests that for multicultural education to be properly implemented in schools, teachers need to have a thorough understanding of the subject. This is due to the fact that educators use what they are well-versed in and/or believe is deserving of being taught. Teachers today must be prepared to handle sensitive and complex issues relating to equality and social justice, diversity, and discrimination because schools are becoming more and more diverse (Banks, 2014). The curricula and instructional techniques used in schools, the relationships between teachers, students, and parents, and the conceptualization of the nature of education and teaching in schools are all strongly influenced by multicultural education (Nieto, 1999). Teachers play a crucial role in helping students develop their worldviews and their understanding of diversity as well. Because of this, it's crucial for aspiring teachers to be knowledgeable about this subject, and teacher education programs need to be improved.

CONCLUSION AND RECOMMENDATIONS

To conclude, one of the biggest challenges in today's education, particularly in teacher education, are those related to teaching in diverse environments (Delpit, 2006; Nieto & Bode, 2011). Therefore, it is crucial to educate pre-service teachers about the demands of multicultural education. The only option in this process for multicultural education experiences and preparing pre-service teachers to face the challenges of diverse societies is to play a crucial role in teacher education (Gay, 2004). In this context, multicultural education needs to be integrated into teacher education programs to ensure effective classroom environments, starting with higher education, and multicultural education needs to be given a place at all educational levels. The teaching-learning process should also be regulated in accordance with multicultural education. Since they prepare teachers at all levels, teacher education programs are crucial in this regard. Additionally, it is thought that improvements in multicultural education, which will be incorporated into curricula, will undoubtedly benefit the Turkish educational system given the country's current political, social, and cultural status.

In light of the findings of the study, it is evident that although pre-service teachers believe multicultural education is necessary in the learning environment, their level of professional preparation for multicultural education is inadequate. Therefore, teacher education programs should provide opportunities for pre-service teachers to acquire multicultural education-related knowledge, competencies, and skills. In addition, it has been observed that multicultural education courses in teacher education programs fall short in terms of imparting multicultural education-related knowledge, skills, and competencies. Therefore, it is recommended to include this material in all grade levels of teacher education programs. Collaboration between universities, faculties, and departments can be used to organize seminars, workshops, congresses, and projects for the purpose of enhancing the multicultural education knowledge, skills, and competencies of pre-service teachers. In addition, students at the freshman, sophomore, junior, and senior levels participated in this study. To examine the differences between a study group of freshmen and senior pre-service teachers, additional research can be conducted. Pre-service teachers at a foundation university's faculty of education participated in this study. Further study could compare pre-service teachers at the education faculty of a state university with those at a foundation university. In this study, qualitative information was gathered through individual interviews. Identical research can be conducted through focus group interviews.

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Statements of publication ethics

We hereby declare that the study has not unethical issues and that research and publication ethics have been observed carefully.

Ethics Committee Approval Information

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| Research Article/ Araştırma Makalesi |

Analysis of Postgraduate Thesis Studies in English Medium Instruction (EMI) in Turkey¹

Türkiye'de İngiliz Dilinde Eğitimde (İDE) Lisansüstü Tez Çalışmalarının İncelenmesi

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Keywords

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3. EMI theses
4. Instruction
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Abstract

The popularity of EMI-based research has increased along with the interest in EMI programs globally. It is evident there is little thorough analysis study that identifies the orientation of the subjects covered in the dissertations in EMI in Turkey. This perspective is taken in order to analyze the thematic distribution of postgraduate theses on EMI written in Turkey between 1987 and 2022 and stored in the Higher Education Institution Thesis Center Database. The data were gathered using the thesis review form the researcher devised, and they were then subjected to content analysis. It has been acknowledged that the majority of Turkish postgraduate theses generated in EMI are dissertations that evaluate opinions utilizing survey research as recurrence of similar theses studies have surfaced. There are very few experimental investigations in EMI from a methodological standpoint. Despite the national interest and investment in the adoption of EMI in Turkish Higher Education, the present thorough review revealed that there are relatively few postgraduate studies on EMI-oriented professional development, interactive teaching pedagogy in EMI, the development of pedagogical skills in EMI lecturers and the perspectives of postgraduate level students and lecturers. It appears that an EMI professional development program is important to promote the implementation of EMI to support teaching in English medium.

Öz

İngiliz Dilinde Eğitim (İDE) tabanlı araştırmaların popüleritesi, küresel olarak İDE programlarına olan ilgi ile birlikte artmıştır. Türkiye'de İDE'de yüksek lisans ve doktora tezlerinde işlenen konuların yönelimlerini belirleyen kapsamlı bir çalışmanın olmadığı görülmektedir. Buradan hareketle, Türkiye'de 1987-2022 yılları arasında İDE üzerine yazılan ve Yükseköğretim Kurumu Tez Merkezi Veri Tabanında listelenen lisansüstü tezlerin tematik dağılımını analiz etmek amaçlanmıştır. Veriler, araştırmacının hazırladığı tez inceleme formu kullanılarak toplanmış ve içerik analizine tabi tutulmuştur. Türkiye'de İDE alanında üretilen lisansüstü tezlerin büyük çoğunluğunun, anket araştırması kullanılarak görüşlerin değerlendirildiği tezler olduğu, benzer çalışmaların tekrarlanmasıyla ortaya çıkmıştır. İDE'de metodolojik açıdan çok az sayıda deneysel araştırma vardır. İDE'nin Türk Yüksek Öğretiminde benimsenmesine yönelik ulusal ilgi ve yatırıma rağmen, bu kapsamlı inceleme, İDE odaklı mesleki gelişim, İDE'de etkileşimli öğretim pedagojisi, İDE öğretim görevlilerinde pedagojik becerilerin gelişimi ve lisansüstü düzeydeki öğrencilerin ve öğretim elemanlarının bakış açıları ile ilgili pek az çalışmanın varlığını ortaya koymaktadır. İDE'de öğretimi desteklemek amacıyla İDE'nin uygulanmasını teşvik etmek için bir İDE profesyonel gelişim programının önemli olduğu görülmektedir.

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INTRODUCTION

The highest level of education available is postgraduate study, which enables students with a bachelor's or doctoral degree to specialize in their area of interest by earning a master's or doctoral degree. The creation and development of programs tailored to the needs, as well as the preparation of the teaching staff who will implement these programs, are crucial to the implementation of postgraduate studies (Coşkun et al., 2014). Having information about the content of research studies conducted in the branches of science in universities will both shed light on the way scientists progress and give information about how the related branch of science has developed (Üstüner & Cömert, 2008). In this context, on a national and worldwide level, interest in English Medium Instruction (EMI) has increased (Dearden, 2014). For the internationalization of higher education, EMI is anticipated to be beneficial for universities, lecturers, and students (Birgün, 2022, Dearden & Akincioglu, 2016; Kırkgöz & Karakaş, 2022). As a result, many higher education institutions in Turkey are switching from Turkish to English as their primary language of instruction. As a result, more scientific investigations are being undertaken in EMI, grabbing the attention of researchers. This growth puts more emphasis on the examination of the scientific aspects of these research studies as well as their actual contents.

LITERATURE REVIEW

English Medium Education (EMI) is currently experiencing a boom as a paradigm of instruction in institutions throughout the world (Macaro, et al., 2018). In general, English serves as a lingua franca, especially in academia (Galloway et al., 2017). Many educational institutions in Europe and other nations use English as their primary language of instruction (Jensen & Thogersen, 2011). Using the English language to teach academic subjects (other than English itself) in countries where the majority of the population does not speak English as their first language is known as English language instruction (EMI) (Dearden, 2015; Macaro & Akincioglu, 2018). At many universities in nations where English is not the primary language of the majority of the people, interest in using English as the language of instruction (EMI) is growing. In addition to gradually gaining prominence on a global scale, EMI has received local support in the context of Turkey. There are a number of explanations for why EMI is so highly valued by many colleges nowadays. One of them is that EMI enhances students' proficiency in the English language (Birgün, 2022; Byun et al., 2010; Kırkgöz, 2014; Yeh, 2014), despite evidence to the contrary (Bozdoğan & Karlıdağ, 2013). The idea is that by teaching a few subjects in English, students will be exposed to the language more and have more opportunities to utilize it, which will indirectly help them become more fluent in it. One more is that it is believed it will be simpler for academics to teach and for students to study the subjects because English is regarded as a lingua franca in the academic world and it is a doorway to scientific information (Birgün, 2022). Another justification is that graduates who acquire English will be more marketable to companies and have better job prospects (Birgün, 2022; Kırkgöz, 2005). Top-down policies are used to execute EMI, and this emerging tendency is motivating academic studies to critically look into the effects, implications, and other varied aspects of EMI. Researchers are paying more and more attention to EMI, but little attention is given to the educational consequences that learning a second language for millions of impacted students may occasionally have. Therefore, this research aims to direct the multifaceted studies of EMI that are expected to be undertaken in the study of language use, content acquisition, instructional delivery, quality of education, inequalities of access, linguistic flexibility and competences needed to be a successful EMI lecturer/teacher. EMI was examined in literature with regard to its consequences for various circumstances (Kırkgöz & Karakaş, 2022; Williams, 2015; Macaro et al., 2018). In order to gain a comprehensive knowledge of EMI in the Turkish setting, Çankaya (2017) evaluated a variety of research studies to address issues and difficulties that both students and instructors had reported during the implementation process. However, no previous studies have looked into the post-graduate research done at EMI in Turkey. The current systematic review aims to contribute to this developing field of research in Turkey by outlining the existing EMI-based post-graduate research and emphasizing master's or doctoral dissertations. It is predicted that this systematic review will offer fresh perspectives on EMI-based research and advance the subject in Turkey, where EMI programs at various academic levels, including tertiary, master's, and doctorate, are increasing rapidly in terms of both number and type.

The current paper includes a thorough analysis of all dissertations based on EMI that were completed in Turkey between the years of 1987 and 2022 and kept at the National Thesis Center of the Council of Higher Education. It addresses the research gap and aims to plainly present the position of EMI-based post-graduate courses by outlining the current research trend at the post-graduate level in Turkey. This research will lead the research on the scope and effects of EMI across Turkey and will shed light on postgraduate studies in the needed areas.

Significance of the Research

The purpose of this study is to examine postgraduate theses in the subject of EMI using content analysis in order to provide scientific information to researchers on the caliber of studies. The research findings are anticipated to provide answers to the queries "Where are we?" and "What are our limitations in the field of EMI?" as well as assist in identifying the themes that are frequently and infrequently chosen for theses. The research's findings will allow academics to choose future scientific research topics with greater clarity and provide a fresh viewpoint by revealing the country's most popular themes over time in Turkey. It is crucial to conduct such investigations consistently in Turkey. The study is the first stage of ongoing research in this approach. Additionally, it will give a general sense of the research techniques applied in graduate theses as well as recommendations that

are regarded to advance the field. On the other hand, it is envisaged that reviewing the substance of postgraduate thesis studies and determining the areas in which they have contributed to scientific knowledge would not only shed light on the current situation but also direct the research policies to be pursued in the future. It is therefore believed that the findings which might help make future researches more original and innovative will fulfill a crucial role in the field.

METHOD

Document analysis, one of the qualitative research techniques, was used to gather the research data. In order to expose perceptions and events in a natural environment in a realistic and comprehensive manner, a qualitative process is utilized in conjunction with qualitative data gathering methods including observation, interviewing, and document analysis. Studies that define common and troubling events and meanings in people's lives are included in qualitative research, together with a variety of empirical resources such as case studies, personal experience, introspection, life history, interviews, observational, historical, and visual texts (Kuş, 2003). Analyzing written materials that contain details about the case or cases being investigated entails document analysis. An essential method of data gathering for practically all studies is document analysis. It enables the evaluation of written materials produced in relation to a research issue within a given time frame as well as written materials produced from many sources across time on a related topic (Yıldırım & Şimşek, 2011). It is also defined a methodical study or evaluation process for written and digital documents (Bowen, 2009). The process of reviewing documents involves multiple steps. The following procedures were used in this study to review the documents:

Accessing the Documents

First, it was determined which documents were needed and how to access these documents, accordingly, it was decided to reach the postgraduate theses to be used in the research from the national thesis center.

Checking the Originality

Not every document obtained during the document review process can be used as a data source. For this reason, after reaching the documents (theses) planned to be used in the research, the documents were checked in order to ensure the reliability of the study and not to waste time / effort. Theses that were thought to be incompatible with the research purpose and questions were eliminated from the sample.

Understanding the Documents

It is aimed that the theses that are decided to be used in the research are understood and assimilated by the researcher. Accordingly, before starting the analysis of the theses, they were arranged according to the subject headings.

Analyzing the Data

Content analysis was used for the analysis of the data. In the presentation of the findings obtained for the research questions, tables and figures were prepared using frequency and percentage values.

Use of Data

At the last stage of the document review, the findings obtained in the study were summarized and interpreted by the researcher. At this stage, where similar study results were also used, practical suggestions that were expected to contribute to the literature were attempted to be presented.

Data Collection

The theses examined in this research are the theses that come out when the keywords "English Medium, English Mediated" are written on the thesis search page of Higher Education Council (HEC)- Yüksek Öğretim Kurumu (YÖK). From this review, 32 postgraduate studies published between 1987 and 2022 were included and 32 theses accessed from YÖK Thesis Center; years, subject headings, sampling and study groups, research methods and findings were examined one by one. The theses, which are the subject of the research, were accessed through the "National Thesis Center" from the website of the HEC. Through content analysis, the theses reached were examined in light of several criteria, and the results were then interpreted.

Population

This research consists of postgraduate theses in the field of EMI which were completed between 1987-2022 years. Based on the examination conducted, it was discovered that the earliest documented thesis on EMI dates back to 1987. This year was selected as the starting point, and the research focused on analyzing 32 postgraduate theses that have been accessible through the YÖK (National Thesis Center) database since that time.

Data Analysis

The National Thesis Center of the Council of Higher Education's database serves as the official repository for all dissertations produced in Turkey, so the researcher only examined those that were easily accessible. The search was conducted using the keywords "EMI, English Medium, İngiliz dilinde eğitim/öğretim (İDE) (Turkish counterpart of EMI)" to fulfill the evaluation requirements. The theses and dissertations in English and Turkish were examined. It was discovered that the first pertinent dissertation was completed in 1987. As a result, the current study looked at the pertinent dissertations that were published in Turkey between 1987 and 2022. At the end of the review, a total of 32 theses were accessed and thoroughly examined. After researching relevant literature, the researcher designed a systematic review form to accomplish this.

The organized form includes the subsequent categories:

Level

Title

Research Techniques

Research Area

Research Sample

Research Setting (time)

Findings

The theses examined within the scope of the research were obtained from the National Thesis Center of the HEC. Keyword search technique with the determined keywords was carried out in three different ways: according to the concept, thesis title and department / science branch, and it was ensured that the relevant theses were reached completely. The theses used in the study were analyzed by content analysis. The process of analyzing and reporting on written, spoken, and visual data, as well as systematic techniques for reviewing and confirming the data set, is known as content analysis (Cohen et al., 2007). According to Gökçe (2006), content analysis is a type of interpretation that typically offers a generalization from the qualitative to the quantitative for the structuring and classification of key meanings in order to highlight common elements of the contents of several texts. Often employed in qualitative research, content analysis is a systematic, repeatable process where selected words in a text are summarized with smaller content categories using coding based on predetermined rules (Büyüköztürk et al., 2009). This method aids in reviewing the body of research already done in the area (Falkingham & Reeves, 1998). In order to make the data more intelligible, this technique enables the researcher to test theoretical hypotheses (Cavanagh, 1997). The researcher coded the data in two different ways: top-down using pre-established codes and bottom-up with emergent (data-driven) codes. Some codes were already in place because he already established them. To sum up, the researcher organized, summarized, and evaluated the data that had been gathered by scanning the literature on EMI in accordance with the research questions using the aforementioned technique, which is also known as latent analysis—an interpreted examination of the underlying further meaning of the data (Dörnyei, 2007).

The current study raises the following research questions:

What are the characteristics (time, level and departments) of EMI theses?

What research methodologies were utilized in EMI theses?

What is the distribution of EMI theses by data sources?

What is the distribution of EMI theses according to research scopes?

What are the findings of the EMI theses about?

FINDINGS

The current systematic review analysis covered 32 EMI-based post-graduate dissertations that were completed in Turkey between 1987 and 2022.

Table 1 lists the studies that were reviewed along with their departments, levels (M stands for Master's and D for Doctoral study), and publication dates.

Table 1. Postgraduate dissertations on English Medium Instruction

Number	Level	Date	Department
1	M	2022	English Language and Literature
2	M	2022	Linguistics
3	D	2022	ELT
4	D	2021	Educational Sciences
5	M	2021	English Language and Literature
6	M	2021	ELT
7	M	2020	ELT

Number	Level	Date	Department
8	M	2020	ELT
9	M	2020	Educational Sciences
10	M	2020	Educational Sciences
11	M	2019	Educational Sciences
12	M	2019	ELT
13	M	2019	ELT
14	M	2018	ELT
15	M	2018	ELT
16	M	2017	ELT
17	M	2017	English Language and Literature
18	D	2016	ELT
19	M	2016	ELT
20	D	2016	Business Administration
21	M	2013	ELT
22	D	2012	ELT
23	M	2010	ELT
24	M	2008	Ataturk's Principles and History of Turkish Revolution
25	M	2006	ELT
26	M	2004	ELT
27	M	2004	ELT
28	D	2003	Educational Sciences
29	M	2002	Educational Sciences
30	M	2001	Economic Sociology
31	D	2001	ELT
32	M	1987	English Language and Literature

Eighteen of the EMI-based post-graduate studies that were reviewed were undertaken in the English Language Teaching department, five in the Educational Sciences department, and four of the dissertations were conducted in the English Language and Literature department. The remaining dissertations were completed in the linguistics, economic sociology, History of Turkish Revolution and Ataturk's Principles departments.

7 of them (22%) were conducted for doctoral degrees, while 25 of them (78%) were conducted for master's degrees. The relevant results are displayed in Table 2.

Table 2. EMI-based research by master's or doctoral degrees

Level	Frequence	%
Master's	25	78
Doctoral	7	22
Sum	32	100

The setting, including publication year, of the EMI-based post-graduate master's and doctoral research under examination was reviewed. The findings are shown in the image below (Figure 1). Figure 1 shows the frequency distribution of the master's and doctoral theses under review according to the year of publication. The recent review provides insight into the work done in the last 35 years (1987-2022). Regarding the research's publishing year (1987–2000, 2001–2011, and 2012–2022), this time frame is divided into three segments as follows:

Figure 1. Distribution of theses by years

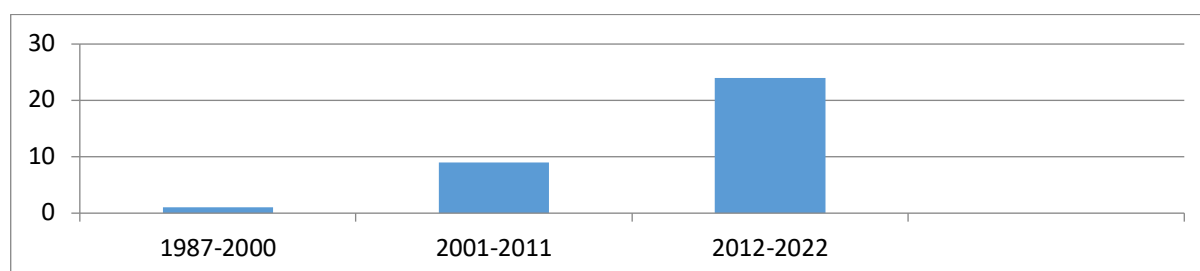
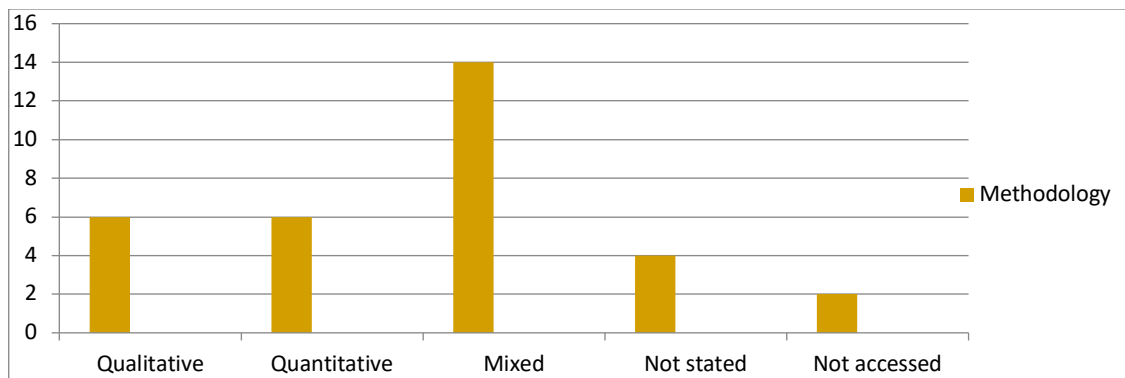


Figure 1 indicates that more EMI-based studies (N=24) were undertaken between the years 2012 and 2022 than they were between the years 2001 to 2011 and 1987 to 2000. There are fewer master's and doctoral works with an emphasis on EMI that were published between 1987 and 2000 (N=1) than those that were published between 2001 and 2011 (N=8).

It was determined that the theses were produced at the master's level in general, and the number of theses produced at the doctoral level was quite low.

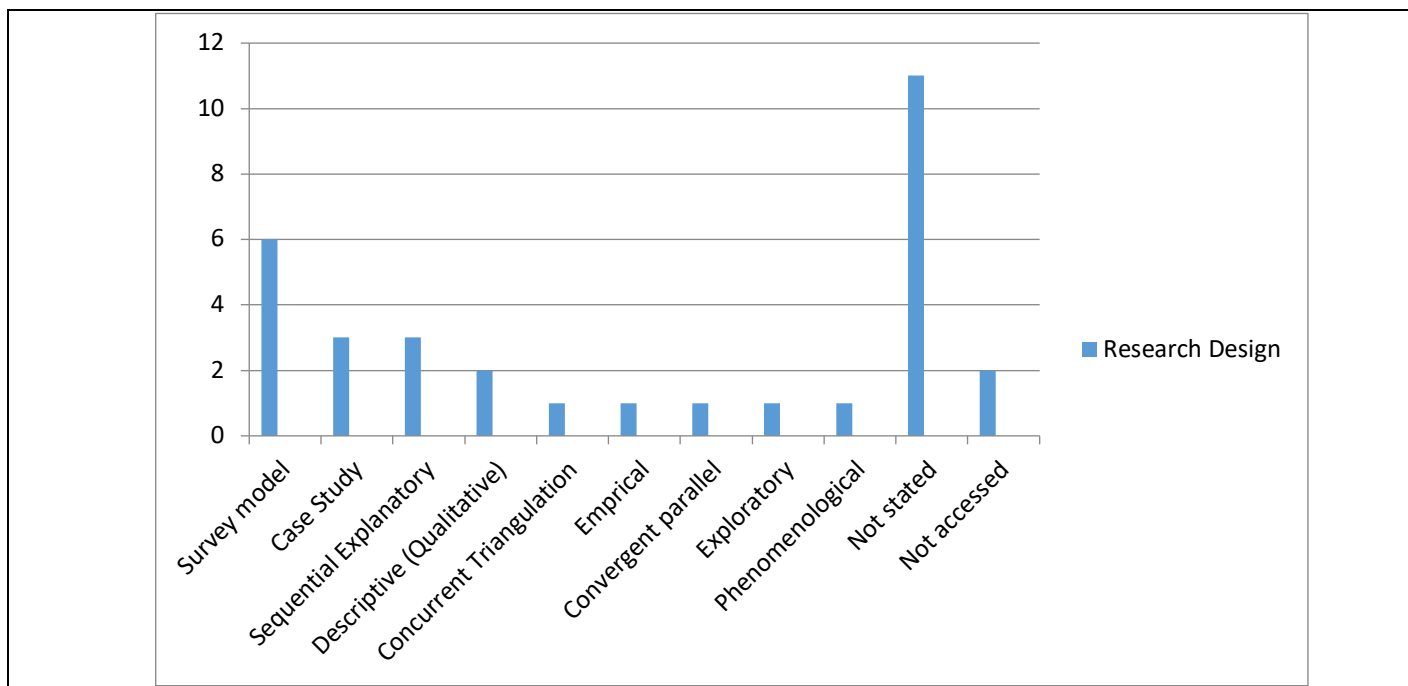
This may be due to the low number of institutions providing education at the doctoral level, the tendency of young researchers to specialize in different fields, or the fact that advisors do not direct researchers to the desired level. The number of theses increases over the years, but this increase is in favor of master's theses. In the light of these findings, it can be said that the field of EMI is neglected at the doctoral level.

Figure 2. Distribution of theses by types of research



In figure 2, it is depicted that most dissertations were conducted as a mixed method research study. It is followed by quantitative and qualitative research studies respectively. In four of the dissertations, the methodology was not identified and two of the dissertations were not accessed.

Figure 3. The research design of the dissertations

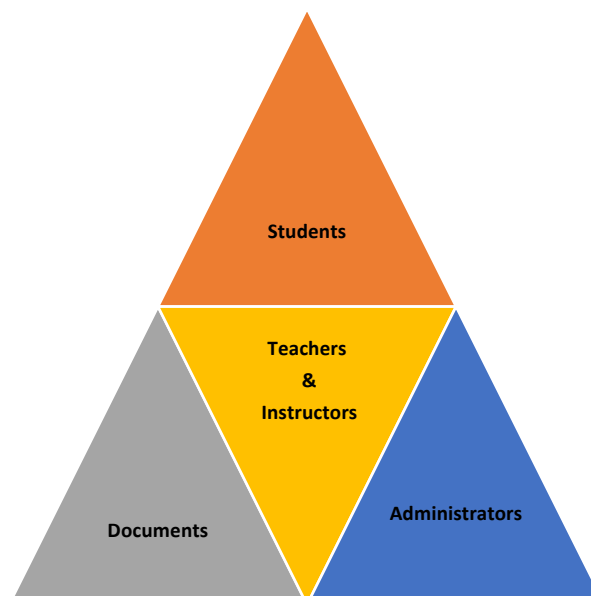


It is discovered that the majority of graduate student dissertations fail to mention the research design. With a concentration on EMI perspectives, six of the dissertations use the survey model, which is then followed by the case study and sequential explanatory designs. Despite the fact that dissertations have been based on a variety of research designs, including empirical, exploratory, phenomenological, and descriptive ones, what is striking in the review is the absence of action research, experimental studies, and comparative studies. In other words, there are relatively few studies that focus on controlling phenomena as opposed to studies that describe or explore phenomena. Finally, two of the theses were unavailable.

The current study highlights four primary types of participants: students, teachers instructors, administrators and documents. In some of the post-graduate studies, participants were divided into more than one group, hence percentage data were not calculated.

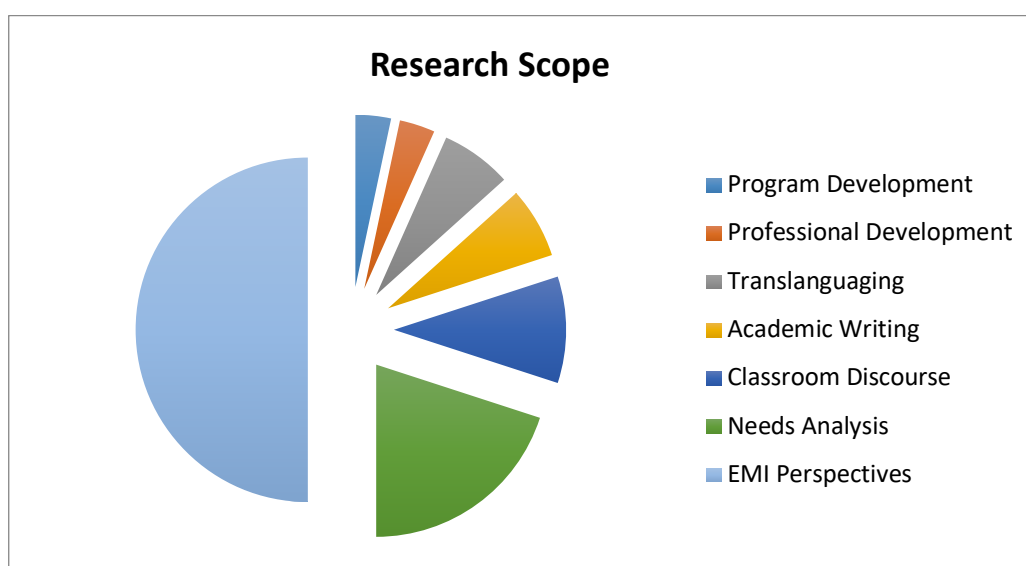
Figure 4 indicates the diverse sample and study groups of the dissertations.

Figure 4. EMI-based research by their study groups and samples



The integration of different types of stakeholders playing a variety of roles is in fact expected for EMI-based studies due to their significant impact on students and learners who function as practitioners first-hand. According to the current study, Turkish post-graduate researchers have primarily conducted research with students, teachers, and/or instructors, and seldom with administrators. On the contrary, it appears that EMI-related documents and parents of students by themselves have not received much attention.

Figure 5. EMI-based research by their research scope



Additionally, the review reveals that the post-graduate degrees have a range of research objectives. Eight categories were used to organize all of the research objectives and motives. First, it is discovered that almost half of the studies examined present the opinions of professors and students (47%), indicating that they are attitudinal. The second goal of the studies under examination is to identify the needs of EMI teachers and students (19%). Thirdly, as the study notes, a minority of research (9%) investigate verbal classroom discourse in EMI by looking at teachers' and students' discourse strategies. Lastly, few studies focus on program development, academic writing, translanguaging, identity development/building and professional development in EMI. Additionally, no research studies were found to be conducted probing EMI program evaluation and EMI instructional pedagogy along with EMI competencies and research engagement of EMI lecturers.

Table 3. Thematic analysis of the findings of EMI dissertations

Perspectives	Needs	Problems	Threats	Differences
Challenging to learn in EMI	More writing instruction for learners	Lack of Trained EMI teaching staff	Negative thoughts of the public	Lexical variation in course delivery in soft and hard sciences
Challenging to teach in EMI	Course delivery on learner needs	Lack of EMI training/ PD activities	Cultural erosion	More complex expressions by foreign EMI lecturers
Challenging to publish in EMI	EMI assessment techniques	Low language proficiency of EMI learners		
More advantageous in course delivery	Collaboration for EMI among stakeholders	Limited autonomy of EMI lecturers		
Contributive to identity building	Translanguaging in EMI course delivery	Low language proficiency of EMI teachers/lecturers		
A way of learning English	Language proficiency in all modalities (R, S, L, W)			
Gateway to scientific knowledge	EMI competencies			
A way of keeping up to date	A PD/ training program			
Beneficial for self efficacy	Listening is the most important skill in EMI			
Advantageous in professional career	Turkish summary of the courses			
Obstacle for academic success	EMI teaching pedagogy			

The table 3 displays the themes and codes of the findings of the EMI dissertations conducted so far. As the scope of most dissertations are related to the perspectives of EMI stakeholders, more codes came out regarding the perspectives and the needs. Additionally, some dissertations strikingly take attention to the problems faced in the implementation of EMI. Moreover, the theme of threats became evident in that the public has negative thoughts over English medium education since it may cause cultural erosion. The findings also take attention to some differences in English medium education in that there is lexical variation in course delivery in soft and hard sciences and more complex expressions are used by foreign EMI lecturers.

DISCUSSION and CONCLUSION

Studies on the evaluation and classification of such theses are crucial for identifying the areas of the literature that currently require more study. The complicated nature of educational research necessitates advanced literature studies, which are a motivation for significant, practical study (Boote & Beile, 2005). The current study evaluating EMI-based postgraduate research historiographically is considered to provide insightful information for upcoming researchers and practitioners despite the comparatively small sample size (a total of 32 Post-graduate studies), as it provides a clear picture of the post-graduate research conducted over a 35-year period in the context of EMI in Turkey.

When the distribution of theses according to the postgraduate level is examined, it is concluded that the highest number of theses are prepared at the master's level, while the number of theses at the doctoral level is the least. From these results, it can be concluded that the master's thesis studies related to EMI are more concentrated, and the doctoral thesis studies are less concentrated. In the distribution of theses according to the department, it was concluded that the highest number of theses were prepared in the English Language Teaching department. Considering the distribution of the theses according to the year they were prepared, it was concluded that most dissertations were prepared between 2012 and 2022. As a result, the number of theses and researchers in the field of EMI is increasing.

Regarding the research approaches used in the post-graduate EMI-based dissertations that have been studied, descriptive survey investigations have a propensity to combine qualitative and quantitative research traditions. Kirkgöz and Karakaş (2022) indicate similar expressions in their EMI study across Turkish Higher education. It was concluded that the mixed method was adopted in the preparation of most theses. Studies that combine quantitative and qualitative methods are called "mixed methods" and they provide a "better" understanding of research problems (Creswell, 2014). For this reason, it can be stated as the right choice to accept the mixed method as the first choice in studies in the field of EMI. The mixed method is followed by studies prepared with quantitative and qualitative research methods. The most widely adopted research design in theses is the survey model. Similar preferences for quantitative research methods, such as surveys or descriptive studies in particular, are also frequently seen in published papers. The prevalence of survey research using questionnaires and interviews as data gathering tools stands out in the review. The use of multiple data collection tools in dissertations increases the validity of the research (Frankel, 1992). For instance, the use of observation as a data collection tools is hardly any in the dissertations. It is seen that experimental design is less preferred and the most important reason for this may be that experimental design applications are more laborious, require more resources and require longer time-labor. Therefore, it would seem that there is a

clear need for additional comparative, correlative, experimental, and action research studies addressing various EMI program components and outcomes. Unfortunately, in the vast majority of the dissertations, research design is not specified. This situation could be expressed as an indication that researchers have deficiencies in research method knowledge. In addition, this situation could be interpreted as a finding that reduces the quality level of thesis studies.

Attitudes and studies of needs analysis provide the basis of the research context for the EMI in post-graduate research in Turkey. It is rare to find relational or intervention techniques. There were not many studies in the EMI sub-fields such as EMI classroom discourse, EMI academic writing, EMI program development, EMI professional development, and identity development in EMI. There is a substantial body of literature on the perspectives on EMI held by lecturers and students in various educational contexts. It has been discovered that very few theses have been written in the area of professional growth in EMI. Professional development of the EMI academics is a quite rare field which seems to be more needed lately for a better implementation of EMI (Macaro, et al., 2018; Birgün, 2022). There is almost no dissertation analyzing professional needs of EMI lecturers in different disciplines, except of one dissertation. Additionally, it is seen that the number of post-graduate studies on EMI-based classroom discourse and EMI academic writing has remained steady throughout the years. EMI classroom pedagogy, EMI lecturer and teacher competences, and testing and assessment in EMI are among the topics that have never been studied in post graduate dissertations in Turkish context. What is missing from this growing body of work is research that addresses assessment issues in EMI contexts which is also highlighted in literature (Şahan & Şahan, 2022). Comprehensive post-graduate studies based on EMI with a multiphase design that includes requirements assessment, program design, delivery, and evaluation are also uncommon. Additionally, no dissertations were found to be conducted probing EMI program evaluation, EMI training program evaluation, assessment in EMI classrooms and EMI instructional pedagogy along with EMI lecturer/ teacher competencies and research engagement of EMI lecturers. Birgün and Kırkgöz (2022) indicate that lack of trained lecturers is a substantial systemic problem in Turkish Higher Education although the EMI programs have been increasing rapidly in Turkish context. Chuang (2015) and Corrigan (2018) highlight EMI pedagogy and take attention to effective pedagogical methods to facilitate students' general learning in EMI courses.

Future researchers may be interested in these sub-disciplines as well. To put it another way, the post-graduate EMI-based study mostly falls under the heading of attitudes focusing on educational experiences of the target unit. It would be very beneficial to conduct further research in order to advance EMI research and teaching techniques. Additionally, the systematic review has demonstrated that, despite teachers' crucial role in the implementation of EMI, post-graduate research in Turkey between 1987 and 2022 paid relatively little attention to them, their traits, or EMI teacher training. Future study could also focus on creating EMI teacher training programs (Costa 2015; Gay et al., 2020), defining an EMI trainer, and examining how they affect the standard of education in EMI (Volchenkova & Kratsova, 2021). Another outstanding result is that it is not clear to what extent EMI improves EMI students' language skills, as well as which modalities are most developed. Therefore, more comparative dissertations or research studies are required both in English medium and Turkish medium since Bozdoğan and Karlıdağ (2013) indicate that learners declined in their productive skills in EMI.

In the same vein, most of the samples and study groups of the EMI research in Turkey consisted of instructors and undergraduate students whereas no postgraduate learners and the instructors lecturing to postgraduate learners. Since it is an easily accessible sample for researchers, it can be said that collecting data from undergraduate students and the academicians lecturing at undergraduate level is the primary reason for preference. Levels of confidence and satisfaction to learn through EMI could be probed on the part of post-graduate students in Turkish context. For instance, Bolton and Kuteeva (2012) reported higher levels of confidence and satisfaction in learning through EMI than undergraduate students.

Reviewing the post-graduate EMI-based research carried out in Turkey was the goal of the current study. It gave insight into the direction of EMI-based research in Turkey between the years of 1987 and 2022 that was archived in the National Thesis Center of the Council of Higher Education's databases. The master's and doctoral dissertations from a total of 32 post-graduate degrees were briefly evaluated. The study that was examined was done during this 35-year span and demonstrated the EMI's enduring appeal in Turkey. The assessment does highlight the fact that there is room for advancement in the field, though. Conclusions, recommendations for additional study, and implications for practice in the future are all clearly stated in this section.

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

- Additional comparative, correlative, and experimental studies focusing on various EMI program outcomes and components appear to be definitely needed.
- Studies can be conducted on the use of the same or different teaching methods and techniques in different EMI contexts.
- The correlation between EMI and raising qualified students can be probed.
- EMI program applications on the basis of countries can be discussed comparatively.
- Creating a standard on the subject of EMI lecturer training can be done on a branch basis. It will be easier to create a standard as the number and quality of studies on the same branch increases.
- Repertory grid or other qualitative studies can be done on the characteristics of good EMI lecturers/teachers.
- Future researchers may be interested in those sub-disciplines.

Limitations

It is crucial to keep in mind that the National Thesis Center of the Higher Education Council is legally responsible for archiving all master's theses and doctoral dissertations. Additionally, certain studies with a related topic might be disregarded if specific keywords are utilized throughout the database search. In order to provide a consistency and legitimacy, the researcher preferred the most commonly used keywords describing the topic of interest, i.e., the umbrella phrases.

1. The study is limited to the postgraduate theses made in Turkey between 1987 and 2022 in the field of EMI, which are included in the national thesis center section of the Higher Education Institution's website.

2. The study is limited to the research topic, content, research method and recommendations of the postgraduate theses.

Declaration of Conflicting Interests

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Statements of publication ethics

I/We hereby declare that the study has not unethical issues and that research and publication ethics have been observed carefully.

Researchers' contribution rate

The study was conducted and reported by the researcher.

Ethics Committee Approval Information

Since data was collected from theses publicly indexed on the YÖK thesis data center, no ethics committee permission was required.

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| Research Article / Araştırma Makalesi |

Foreign Language Teaching Anxiety of Turkish EFL Teachers

Türk İngilizce Öğretmenlerinin Yabancı Dil Öğretimi Kaygısı

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Keywords

- Teaching anxiety
- EFL teacher
- EFL teacher anxiety

Anahtar Kelimeler

- Öğretim kaygısı;
- Yabancı Dil Olarak İngilizce Öğretmeni
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Abstract

The purpose of this mixed-method cross-sectional study was twofold: (1) to investigate whether Turkish EFL teachers experience foreign language teaching anxiety, and if so, (2) to identify whether the level of anxiety varies in relation to their individual characteristics, namely gender, their years of experience, school type and grade level they teach at. Participants were a total sample of 94 Turkish in-service EFL teachers working at primary, secondary, and high school levels in public and private schools. Data came from Foreign Language Teaching Anxiety Scale (FLTAS) and semi-structured interviews. Quantitative data were analysed by running descriptive statistics, frequency analysis, Mann-Whitney U, Wilcoxon-signed rank, Friedman, and Kruskal Wallis H tests, whereas qualitative data were content analysed. Findings indicated that teachers have a low level of teaching anxiety regarding teaching a particular language skill, worrying about target language performance, making mistakes, and being compared to fellow teachers. On the other hand, learners' short attention span, as well as lack of interest and engagement, are among the anxiety-arousing factors. Moreover, weekly teaching loads and the incompatibility of books and the curriculum engender anxiety among teachers. Findings also showed foreign language teaching anxiety varies according to gender, type of school, and school level, whereas it does not vary according to years of teaching experience. The study discusses the implications for in-service teacher training.

Öz

Bu karma yöntemli kesitsel çalışmanın amacı iki yönlüdür: (1) Türk İngilizce öğretmenlerinin yabancı dil öğretiminde kaygı yaşayıp yaşamadıklarını araştırmak ve eğer varsa, (2) kaygı düzeylerinin cinsiyet, deneyim yılları, okul türü ve öğretmenlik yaptıkları sınıf düzeyi gibi bireysel özelliklerine göre değişip değişmediğini belirlemektir. Katılımcılar, devlet ve özel okullarda ilkokul, ortaokul ve lise düzeyinde görev yapan toplam 94 Türk hizmet içi İngilizce öğretmeninden oluşmaktadır. Veriler, Yabancı Dil Öğretim Kaygısı Ölçeği (FLTAS) ve yarı yapılandırılmış görüşmelerden elde edilmiştir. Nicel veriler betimsel istatistikler, frekans analizi, Mann-Whitney U, Wilcoxon işaretli sıralar, Friedman ve Kruskal Wallis H testleri kullanılarak analiz edilirken, nitel veriler içerik analizine tabi tutulmuştur. Bulgular, öğretmenlerin belirli bir dil becerisini öğretme, hedef dil performansı hakkında endişelenme, hata yapma ve diğer öğretmenlerle karşılaştırılma konularında düşük düzeyde öğretim kaygısı yaşadıklarını göstermektedir. Öte yandan, öğrencilerin dikkat sürelerinin kısa olması, ilgi ve katılım eksikliği kaygı uyandıran faktörler arasındadır. Ayrıca, haftalık ders yükü ve kitaplarla müfredatın uyumsuzluğu da öğretmenler arasında kaygı yaratmaktadır. Bulgular ayrıca yabancı dil öğretimi kaygısının cinsiyete, okul türüne ve okul seviyesine göre değiştiğini, ancak öğretmenlik deneyimine göre değişmediğini göstermektedir. Çalışma, hizmet içi öğretmen eğitimi için çıkarımları tartışmaktadır.

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INTRODUCTION

THEORETICAL BACKGROUND

Affective factors are considered to play an important role in second/foreign language (L2) teaching processes as much as they do in learning processes, and among the most common affective factors affecting these processes is anxiety. In Freud's words, anxiety is felt as "an unpleasant affective (emotional) state or condition characterized by subjective feelings of chronic apprehension," and all that is covered by the word "nervousness" (1924, p. 79). Citing Spielberger (1983), Horwitz et al. (1986) define anxiety as "the subjective feeling of tension, apprehension, nervousness, and worry associated with an arousal of autonomic nervous system" (p. 125) from a general perspective. However, within the specific context of language learning and teaching, there are several certain types of anxiety that have been reported to affect learning and teaching processes considerably. One such type is foreign language anxiety (FLA) (Horwitz et al., 1986). Horwitz et al. (1986) described foreign language anxiety as "a distinct complex construct of self-perceptions, beliefs, feelings, and behaviours related to classroom language learning arising from the uniqueness of the language learning process" (p. 128). When the literature is reviewed, it becomes evident that studies on foreign language anxiety have tended to focus on the anxiety of language learners (e.g., Horwitz, 1986; Horwitz et al., 1986) within this context, whereas anxiety experienced by teachers has received far less attention. In fact, it was indicated more than two decades ago that not only foreign language learners but also teachers, in particular non-native foreign language teachers, experience anxiety (Horwitz, 1996). Horwitz (1996) described this particular situation as foreign language teaching anxiety (FLTA) and it has also been established that such anxiety experienced by teachers can adversely affect not only their personal and professional lives, but also students' lives and learning experiences. Specifically speaking, such anxiety could affect their instructional choices and performance (Aydın & Ustuk, 2020; Horwitz, 1996); effectiveness (Horwitz, 1996; İpek, 2016; Williams, 1991); self-confidence (Horwitz, 1996); job satisfaction (Horwitz, 1996); well-being (Horwitz, 1996; İpek, 2006); and classroom practice, student learning, students' emotions (Fraschini & Park, 2021). Teachers might experience fear or frustration (Kim & Kim, 2004), too. Suffice it to say, FLTA can be characterized as an "occupational hazard" (Kim & Kim, 2004, p. 165). Indeed, as Al-Mashikhi (2009) puts it, "Anxiety is like radiation; beneficial if controlled and directed, but extremely harmful if left unchecked" (p. 35). Accordingly, considering "how central teachers' wellbeing is to their ability to teach to their full potential" (MacIntyre et al., 2019, p. 27), investigating factors evoking anxiety among foreign language teachers deserves more attention.

In other words, given the considerable effect of teachers on learners and learning processes, there should be much more room to focus on teaching anxiety because learner anxiety is strongly affected by teacher anxiety as well. As also reported in a long list of studies, such anxiety could affect the "quality of teaching, learning, and assessment" (MacIntyre, 2016, p. 8). In other words, teachers' well-being and healthy state of mind could affect teaching quality and learner success. As Stevick (1980) maintains, "Success depends less on materials, techniques and linguistic analyses and more on what goes on inside and between the people in the classroom" (p. 4). Nevertheless, despite its significance, FLTA was investigated mostly among pre-service teachers, especially in the Turkish context (e.g., Güngör & Yaylı, 2012; Han & Takkaç-Tulgar, 2019; Merç, 2011; Tüfekçi-Can, 2018, Tüm, 2019), whereas that experienced by in-service (or practicing) foreign language teachers has received scant attention and been handled only in a few studies from different foreign language teaching contexts and educational levels (e.g., Aslrasouli & Vahid, 2014; Dişli, 2020; Eren, 2020; İpek, 2006; Kesen & Aydın, 2014; Kim & Kim, 2004; Öztürk, 2016). Moreover, as put forward by Aydın (2016), even in those limited number of studies, FLTA has been handled from a narrow perspective as most studies associated anxiety either with teachers being non-native speakers of the foreign language they teach or the fact that they experience it due to generic situations regarding the profession. Therefore, he called for a more holistic approach to understanding FLTA. As also indicated in a fairly recent study, Goetze (2023) argued for the significance of further research on FLTA. Accordingly, to expand research on the current literature, this study aims to investigate the foreign language teaching anxiety experienced by teachers of English as a foreign language (EFL) specifically from a wider perspective. Although the recent realm for research in the literature has recently tended to focus on positive psychology and the emotions of teachers, negative emotions such as FLTA still have the potential to negatively affect foreign language education processes. After all, the aim of positive psychology is "not to avoid negative emotions" (Norris & Vella-Brodrick, 2009, p. 276). Indeed, positive and negative emotions have different functions (MacIntyre, 2016).

Foreign Language Teaching Anxiety (FLTA)

Teaching anxiety or teacher anxiety, as stated earlier, is distinct from anxiety in the general sense. It can be defined as "teachers' sense of panic and tension which resulted from their lack of control over both the internal and external teaching environment and teaching events" (Liu et al., 2022, p. 2). As a matter of fact, in the field of language education, foreign language teachers "may not only experience teaching anxiety but also foreign language anxiety" (İpek, 2016, p. 96). Horwitz (1996) was the first to coin the term, who also pointed out that FLTA of non-native ESL/EFL teachers must be recognized, considered, and investigated as she thought such anxiety might negatively affect their instructional choices, too. According to Aydın (2016), FLTA is "an emotional and affective state experienced by a language teacher because of personal, perceptual, motivational, and technical concerns of language teaching before, during, and after the teaching practice" (p. 639). In a similar vein, Tüfekçi-Can

(2018) delineates FLTA as the feeling, belief, and thinking of being incompetent in teaching and practicing a foreign language, as well as in performing the language adequately with real students in a real teaching context. FLTA was defined by MacIntyre and Gardner (1989) as a state of uneasiness and tension.

Review of the Literature

Earlier studies on foreign language anxiety conducted so far have mostly focused on foreign language *learning* anxiety (e.g., Horwitz, 1986; Liu & Huang, 2011; Onwuegbuzie et al., 1999; Saito & Samimy, 1996; Von Worde, 2003) rather than foreign language *teaching* anxiety. Moreover, those focused on foreign language teaching anxiety were mostly concerned with pre-service teachers' anxiety (e.g., Aydın, 2016; Paker, 2011). On the other hand, research on FLTA levels among in-service teachers has been limited in scope, with only a handful of studies conducted on the subject (e.g., Aslrasouli & Vahid, 2014; Aydın, 2016; Dişli, 2020; İpek, 2016; Kesen & Aydın, 2014; Kralova & Tirpakova, 2019; Mahmoodi-Shahrehabaki, 2017; Öztürk, 2016; Song & Park, 2019; Williams, 1991). What has also been reported in the literature is that FLTA levels vary, and sources of foreign language anxiety could vary. Literature also suggests that FLTA might also vary by gender, years of teaching experience, as well as type and level of school teachers teach at.

Levels and Sources of Foreign Language Teaching Anxiety

Concerning the level and sources of FLTA, it is now well established from a variety of studies that there are varying levels of it, and different variables tend to provoke FLTA experienced by teachers. Among the most commonly cited sources are limited target language proficiency (Horwitz, 1996) and limited linguistic knowledge (Numrich, 1996). Other common sources are demanding workload (e.g., Fraschini & Park, 2021), fear of making mistakes (e.g., İpek, 2016), fear of failure (e.g., İpek, 2006), classroom management (e.g., Kim & Kim, 2004; Paker, 2011), time management (e.g., Aydın & Ustuk, 2020), lack of target language proficiency (e.g., Aydın, 2016; Horwitz, 1996; İpek, 2006, 2016; Kim & Kim, 2004; Öztürk, 2016), inadequacy in content knowledge (e.g., İpek, 2006), the use of native language (e.g., İpek, 2006; Kim & Kim, 2004), student, peer, and supervisor evaluations (e.g., Fraschini & Park, 2021).

Several studies have investigated the sources of FLTA. In the international context, one of the earlier studies was conducted by Kim and Kim (2004), who investigated Korean in-service EFL teachers' (N= 147) anxiety, who were teaching at different grade levels and with different years of teaching experience. Findings showed most had anxiety when required to teach English through English, and having to teach speaking skills was anxiety-provoking for them. Unexpected questions directed by students towards them or not being able to manage the classroom also adversely affected their anxiety. Another study by Aslrasouli and Vahid (2014) focused on Iranian EFL teachers' (N= 114) anxiety. The findings of the study, which employed both novice and experienced teachers, showed that more than half of the teachers experienced anxiety, which derived mostly from interpersonal relations and lack of language proficiency. A comparatively more recent study was conducted in the Korean EFL context by Fraschini and Park (2021). According to their study where they used Q methodology, Korean ESL teachers (N= 45) reported work-life imbalance, student, peer, and supervisor evaluations, being compared to colleagues, and employment uncertainties among the anxiety-provoking factors.

Studies in the Turkish context yielded similar results, too. For example, İpek (2006) stated that making mistakes (e.g., mispronouncing or misspelling a word, making a grammar mistake), insecurity in teaching certain skills (e.g., teaching writing), fear of failure (e.g., in giving clear instructions) were anxiety-provoking for non-native EFL teachers' (N= 32) who were English instructors teaching at the university level. Similarly, Kesen and Aydın (2014) investigated Turkish EFL instructors' (N= 35) anxiety and reported that they had moderate levels of anxiety. However, since the study adopted a quantitative design and data came from only a scale, details regarding the reasons were not discussed in depth. Öztürk (2016) likewise showed in his mixed-method study that Turkish EFL instructors (N= 103) had a moderate level of foreign language teaching anxiety but experienced more anxiety when they were required to teach a skill at which they were not much competent. Also, perceived limited knowledge of target language items (e.g., pronunciation, vocabulary), students' manners, and limited knowledge of target culture were among other primary anxiety-provoking factors. A recent study by Eren (2020) investigated native (N= 53) and non-native (N= 180) EFL instructors' FLTA, who were working at Turkish universities. Findings showed that participants overall had low levels of FLTA, whereas non-native instructors had higher levels of FLTA. Target language performance, making mistakes, and using students' L1 were among the top anxiety-provoking factors for them. Similarly, Dişli (2020) also administered the FLTAS to 151 EFL teachers at high schools and found that they had moderate levels of anxiety. Her mixed-method study illustrated that using the native language, teaching a particular language skill, making mistakes, teaching students at a particular level, learners' attitudes, and misuse of the technology were anxiety provoking.

As reported, the literature includes a limited number of studies. Also, studies in the Turkish context were mostly conducted with EFL instructors teaching at public or private universities, except for one study (i.e., Dişli, 2020). The literature review suggests that foreign language teachers experience different levels of teaching anxiety, and a number of different factors tend to result in such experience. As such, these factors are not only concerned with themselves but also with language learners, teaching environment, and profession. Indeed, their anxiety could vary according to other different variables, too.

Demographic Factors Related to Foreign Language Teaching Anxiety

Concerning the level and sources of FLTA, it is now well established from a variety of studies that there are varying levels of it, and different variables tend to provoke FLTA experienced by teachers. FLTA is a complex phenomenon that can be influenced by various demographic factors. Some of the most commonly studied demographic factors related to FLTA include gender, years of teaching experience, and school type and grade level taught.

For example, with respect to the potential differences between male and female teachers in terms of their FLTA levels, literature shows that very few studies were conducted (i.e., Aslrasoulia & Vahid, 2014; Aydın & Uştuk, 2020; Eren, 2020; Kesen & Aydın, 2014; Öztürk, 2016). Also, the generalisability of these earlier studies appears to be problematic as they produced inconclusive findings. Some of these studies reported no significant variance across genders (e.g., Aslrasoulia & Vahid, 2014; Kesen & Aydın, 2014; Öztürk, 2016). Furthermore, while it was asserted in a study conducted by Aydın and Uştuk (2020) that male teachers experience more anxiety than female teachers, in Eren's (2020) study, findings indicated that female instructors had higher levels of teaching anxiety than their male counterparts, yielding statistically significant differences.

In another line of research, researchers investigated whether FLTA varies according to years of teaching experience. Whereas there was only one study (i.e., Tseng, 2005) that discovered no connection between anxiety level and experience year, the majority of earlier studies suggested that they are somehow linked. Most suggested that FLTA decreases as teachers gain more experience (Aslrasoulia & Vahid, 2014; Aydın & Uştuk, 2020; Canessa, 2004; Eren, 2020; Kesen & Aydın, 2014; Öztürk, 2016). However, Aslrasouli and Vahid (2014) reported that both novice and experienced teachers suffer from high levels of anxiety, but experienced teachers have less tension than novice ones. However, other studies reported significant differences. Öztürk (2016), for example, reported a significant difference among Turkish EFL instructors (N= 103) having different years of experience. Those having more teaching experience (i.e., +16 years) tended to experience lower levels of teaching anxiety than did those having less experience (i.e., -10 years). Eren (2020) likewise reported significant differences. Specifically, teachers having 6-10 years of experience had higher levels of anxiety than did those having over 21 years of experience. In other words, more experienced teachers had lower levels of anxiety. From another perspective, contradictory findings were also reported in the literature. For example, in Kim and Kim's (2004) mixed-method study with Korean EFL teachers, those who had more than 10 years of teaching experience reported higher levels of anxiety as compared to those having less than 10 years of experience. They interpreted this finding by discussing the potential fear of teachers to change their teaching style and adapt to curricular and student-related changes.

When it comes to the studies investigating the variance of foreign language anxiety according to school type and grade level taught, there are few studies and those yielded contradictory findings. For instance, high school teachers, according to Aydın and Uştuk (2020), were more worried about the fear of making mistakes, whereas public school teachers are more concerned with the use of target language in lectures, time management, and being unprepared for courses. On the other hand, Kim and Kim (2004) found that secondary school teachers had greater levels of foreign language teaching anxiety than elementary school teachers. However, in Kim and Kim's study with Korean EFL teachers, (N= 147) middle school teachers reported having higher levels of anxiety compared to elementary school teachers, yet this difference was not statistically significant. Overall, it can be suggested that FLTA varies according to school type and grade level taught as well as it does in different teaching contexts.

Overall, this literature review shows that these demographic factors could play a significant role in the development and experience of FLTA among foreign language teachers. Also, the relationship between demographic factors and FLTA is a complex issue and further research is needed to establish a clear understanding of the relationship.

Significance of the Study and Research Questions

FLTA is a complex phenomenon that can have a significant impact on teaching and learning processes. However, as the body of research indicated, research on anxiety has mainly focused on language learners' or pre-service language teachers' teaching anxiety (e.g., Tüfekçi-Can, 2018), whereas there is scant knowledge regarding teaching anxiety that in-service teachers experience. As such, earlier findings disclosed that there are very few studies that addressed the issue of FLTA among in-service EFL teachers (e.g., Aydın, 2021). Moreover, to the best of the researchers' knowledge, FLTA has not been investigated in-depth according to different variables, either. For example, despite the fact that there has been some research investigating FLTA levels across school types and grade levels teachers teach at, they are very few and inconclusive (e.g., Aydın & Uştuk, 2020). Moreover, regarding gender, no research until now has considered a balanced gender-based involvement of males and females in the same study. In other words, women clearly outnumbered males in all such studies, producing inconclusive findings and making their interpretations imprecise. Similarly, earlier studies reported inconclusive findings with respect to the variances of FLTA levels according to teachers' years of experience.

To sum up, these highlight the importance of further research on the relationship between demographic factors and FLTA. The inconclusive and conflicting results of previous research highlight the need for additional study in order to establish a clear understanding of this relationship. Given the limitations of earlier studies and the so-called gap in the literature, this study aims to investigate whether Turkish EFL teachers experience foreign language teaching anxiety and, if so, identify the level of anxiety as well as whether its level varies according to individual characteristics, namely gender, years of teaching experience, grade level and school type teachers work at. Accordingly, the study sought to answer the following questions:

1. Do Turkish in-service EFL teachers experience foreign language teaching anxiety? If so, what is their self-perceived anxiety level?
2. Does the foreign language teaching anxiety level of Turkish in-service EFL teachers vary according to
 - a. gender?
 - b. years of teaching experience?
 - c. school type they teach at (i.e., public or private)?
 - d. grade level they teach at (i.e., primary, secondary, and high school)?

METHODOLOGY

Design

The present study adopted a mixed-method research design that incorporated both quantitative and qualitative data collection instruments. Of the mixed-method research typologies, the sequential order of the "QUAN→qual" sequence was followed. The quantitative methods were used first to concentrate more on the study's purpose, and the qualitative methods were used later to help explain the quantitative findings. Researchers used both quantitative and qualitative methods in this design (Creswell & Clark, 2011). As a result, as additional results throughout the study, a thorough grasp of the participants' degree of anxiety related to teaching foreign languages, as well as the underlying causes, was offered. A cross-sectional research design was also adopted for this study.

Participants

Participants were a total of 94 Turkish non-native EFL in-service teachers (46 males and 48 females) performing the teaching profession in one of the largest cities located in the Marmara Region of Turkey. Their participation was voluntary, and their consent was taken. Also, they were informed they could withdraw from the study if they wanted to. While choosing the participants, balanced gender-based participation of males and females was purposefully ensured to reduce the potential problem that might arise from women outnumbering men (Farhadi, 2021). In order to achieve the desired sample size, a combination of purposive and convenience sampling was used, as random sampling would not have provided enough male participants. Purposive sampling involves hand-picking participants based on their typicality or possession of specific characteristics that match the researchers' requirements, while convenience sampling entails selecting the nearest available and accessible individuals as participants and repeating the process until the desired sample size is reached. Participants varied in terms of their gender, years of teaching experience, and school type and grade level they teach at. Details regarding the demographics of the participants are provided in Table 1.

Table 1. Demographics of participants (N= 94)

Demographics	Value	Number (n)	Percentage (%)
Gender	Male	46	48%
	Female	48	52%
Years of teaching experience	1-5	25	27%
	6-10	21	22%
	11-15	22	23%
	16-20	13	14%
	21 and above	13	14%
School type they teach at	Public	48	52%
	Private	46	48%
Grade level they teach at	Primary	32	34%
	Secondary	31	33%
	High school	31	33%

Data Collection Tools

Data for this mixed-method study came from quantitative and qualitative data collection tools: a scale and interviews. Quantitative data came from the Foreign Language Teaching Anxiety Scale (FLTAS) (İpek, 2006), which was used as the main data collection tool for this study in order to measure foreign language teaching anxiety of Turkish EFL teachers. It consisted of 26 items on a 5-point Likert scale (1 = never, 2 = rarely, 3 = sometimes, 4 = usually, 5 = always). Participants were presented with statements and invited to choose the most appropriate option for them, which referred to the level of anxiety they experience for each statement. The scale consists of five factors: 1) anxiety in teaching a particular language skill, 2) worry about target language performance, 3) making mistakes, 4) being compared to fellow teachers, and 5) using the native language. To avoid bias or misunderstandings, the original Turkish form of the scale was used. This scale was chosen given that it is a reliable and valid scale developed for Turkish EFL teachers. In addition to its high reliability and validity statistics demonstrated by İpek (2006), the Cronbach's Alpha coefficient was .91 in this study, indicating an acceptable level of internal consistency. Table 2 presents the reliability coefficients of the scale in detail. .

Table 2. Reliability coefficients of FLTAS

Factors	Cronbach's Alpha	n of Items
Anxiety in teaching a particular language skill	.87	7
Worry about target language performance	.81	8
Making mistakes	.72	6
Being compared to fellow teachers	.84	2
Using the native language	.34	3
Overall	.91	26

To elicit in-depth data on FLTA and triangulate the data, qualitative data were also collected via individual semi-structured interviews. Researchers developed an interview protocol consisting of eight questions to obtain in-depth data on foreign language teaching anxiety. The validity of the protocol was ensured through expert opinions. Opinions of two experts in the field were elicited in terms of its meaningfulness and clarity, and several revisions were made to the protocol afterwards. The final form of the interview protocol (see Appendix A) was used to conduct semi-structured interviews.

Data Collection

Data collection procedure consisted of two phases mainly: (1) quantitative and (2) qualitative data collection. Data were collected face-to-face by visiting schools, and meeting and inviting teachers to participate in the study. Before collecting data, the procedure was initiated by providing the participants with a thorough explanation of the purpose and methodology of the study, along with the rationale behind the choice of subject. It was emphasized to the participants that their participation was entirely voluntary and that they had the option to withdraw from the study at any time they felt the need to. The researchers also ensured that the participants' answers and personal information would be kept confidential and anonymous.

To collect quantitative data, an online form version of the Foreign Language Teaching Anxiety Scale (FLTAS) was created. The form was then published online, and the participants were invited to complete it. This was done to make the process of data collection more convenient and accessible for the participants, allowing them to complete the form at their own pace and in a location of their choice. The use of an online form also ensured that the data collected was accurate, consistent, and free from human error. The online form version of the questionnaire and FLTAS was designed to capture the data in a systematic and standardized manner, which was critical for the validity of the study results.

After the elicitation of data through the scale, the researchers also carried out individual semi-structured interviews with ten of these participants to collect in-depth data. As Bogdan and Biklen (2007) purported, interviews are used in order to "gather descriptive data in the subjects' own words so that the researcher can develop insights on how subjects interpret some piece of the world" (p. 103). Among those who agreed to participate in interviews, a total of 10 teachers were purposefully selected. The interviewees were carefully selected based on their gender, years of experience, school type, and grade level they taught at, since these demographic variables are deemed to be factors in determining their level of FLTA. Interview sessions were conducted face-to-face in either Turkish or English, depending on the preferences of the interviewees. This approach was taken to ensure that they felt comfortable and relaxed during the interview and that their responses were genuine and accurate. The researchers did not have any conflict of interest, either. Approximately 20 minutes were spent on each interview. Before conducting the interview, all ethical principles were observed, and participants' informed consent was obtained.

Data Analysis

Quantitative data coming from FLTAS were analysed by using SPSS software. Both descriptive and inferential statistics were run. First, before inferential statistics, data were screened for normality. Since data were not distributed normally, nonparametric tests were used. In order to answer RQ1, descriptive statistics and frequency analysis were performed. Moreover, Friedman and post-hoc Wilcoxon signed rank tests were run to compare factors of FLTAS. For RQ2, Mann-Whitney U and Kruskal Wallis H tests were performed. These statistical analyses are non-parametric methods used to compare two or more independent groups. The Mann-Whitney U test compares the medians of two groups to determine whether or not the differences are statistically significant. The Kruskal Wallis H test compares the medians of multiple independent groups and determines whether there are statistically significant differences between the groups. The purpose of these tests was to ascertain whether there were significant differences in anxiety levels between the various participant groups.

As for qualitative collected through semi-structured interviews, Stempel's (1989) framework for content analysis was utilized. This structure included six steps: (1) developing research questions or objectives, (2) selecting communication content and sample, (3) developing content categories, (4) finalizing units of analysis, (5) developing a coding schedule, (6) conducting experimental testing, and (7) confirming inter-coder reliability and data analysis. After verbatim transcription of the interviews, the researchers checked the data for any gaps. The emergent themes were then allocated frequencies based on the initial codes. This method was utilized to identify and classify themes in qualitative data and to summarize the findings.

FINDINGS

Scale

Levels of foreign language teaching anxiety

Findings regarding the levels of FLTA demonstrated that Turkish EFL teachers experience a moderate level of anxiety ($M=50.41$, $SD=15.28$). Table 3 presents FLTA levels across factors.

Table 3. FLTA levels across factors

Factor	N	Highest score	Mean	Mdn	SD	Min	Max	Skewness	Kurtosis
Anxiety in teaching a particular language skill	94	35	14.12	13	5.83	7	28	.673	-.519
Worry about target language performance	94	40	11.93	11	4.10	8	27	1.497	2.546
Making mistakes	94	30	11.28	11	4.10	6	22	.584	-.324
Being compared to fellow teachers	94	10	5.75	6	2.69	2	10	.135	-1.114
Using the native language	94	15	7.30	7	2.21	3	13	.237	.117
FLTAS Overall	94	130	50.41	47	15.28	26	92	.716	.145

As reported, being compared to fellow teachers and using the native language as compared to other factors were more anxiety-arousing factors for teachers. The Friedman test was also conducted to investigate whether there are differences across the factors of FLTAS. Findings illustrated a statistically significant difference depending on the factors, $\chi^2(2) = 240.572$, $p = 0.000$. To examine which factors actually differed, post-hoc analysis with Wilcoxon signed-rank tests were run with a Bonferroni adjustment and the significance level was set to $p < 0.000$. Significant differences were found between all factors except for the one between making mistakes and worrying about target language performance ($Z = -1.507$, $p = 0.132$).

FLTA levels were investigated separately for five sub-factors, too. Findings regarding anxiety about the instruction of a specific language skill showed the majority of Turkish EFL teachers experience a low level of anxiety. As shown in Table 4, they reported low levels of anxiety about their ability to teach reading (\bar{X} = 1.83) or writing (\bar{X} = 1.97) effectively, whereas teaching oral skills, namely listening (\bar{X} = 2.23) and speaking (\bar{X} = 2.24), were more anxiety-provoking for them. Indeed, anxiety about their ability to teach grammar (\bar{X} = 2.30) had the highest mean score.

Table 4. Levels of anxiety about teaching a particular language skill (N= 94)

Items	Frequencies					Mean	Median	Std. Error	Std. Deviation
	Never (%)	Rarely (%)	Sometimes (%)	Usually (%)	Always (%)				
10. I worry about not being able to teach grammar effectively.	35.1 (33)	23.4 (22)	25.5 (24)	8.5 (8)	7.4 (7)	2.30	2.00	.128	1.243
11. I feel uncomfortable when teaching a skill in which I feel I am not proficient enough.	34 (32)	33 (31)	26.6 (25)	5.3 (5)	1.1 (1)	2.06	2.00	.099	.959
12. I worry about not being able to teach listening effectively.	34 (32)	28.7 (27)	21.3 (20)	11.7 (11)	4.3 (4)	2.23	2.00	.120	1.168
16. I worry about not being able to teach speaking effectively.	34 (32)	31.9 (30)	17 (16)	9.6 (9)	7.4 (7)	2.24	2.00	.127	1.233
22. I worry about not being able to teach reading effectively.	51.1 (48)	26.6 (25)	14.9 (14)	3.2 (3)	4.3 (4)	1.83	1.00	.111	1.074
23. I feel uneasy when I am teaching listening topics.	69.1 (65)	18.1 (17)	9.6 (9)	1.1 (1)	2.1 (2)	1.49	1.00	.090	.877
24. I worry about not being able to teach writing effectively.	43.6 (41)	28.7 (27)	19.1 (18)	4.3 (4)	4.3 (4)	1.97	2.00	.113	1.092

Concerning teachers' worries about target language performance, teachers experience a low level of anxiety. Giving instructions in English or speaking English in class were not anxiety-arousing, yet a striking finding was that they felt comparatively more anxious while teaching high-proficiency learners. Indeed, although the majority of teachers (63.8%) never or rarely felt nervous while teaching English to learners with a high proficiency level (\bar{X} = 2.19), this was comparatively higher as compared to other statements. Table 5 presents the results.

Table 5. Levels of anxiety about worrying about target language performance (N= 94)

Items	Frequencies					Mean	Median	Std. Error	Std. Deviation
	Never (%)	Rarely (%)	Sometimes (%)	Usually (%)	Always (%)				
6. I feel nervous when teaching English to students with an average proficiency level.	68.1 (64)	23.4 (22)	6.4 (6)	1.1 (1)	1.1 (1)	1.44	1.00	.078	.756
7. I feel tense when I am giving instructions in English.	79.8 (75)	13.8 (13)	6.4 (6)	0 (0)	0 (0)	1.27	1.00	.059	.571
9. I think my knowledge of English is not good enough to teach in English.	91.5 (86)	6.4 (6)	1.1 (1)	1.1 (1)	0 (0)	1.12	1.00	.045	.436

13. I worry about not being able to give clear instructions in English.	75.5 (71)	17 (16)	5.3 (5)	1.1 (1)	1.1 (1)	1.35	1.00	.075	.729
14. I feel nervous when speaking English in class.	78.7 (74)	18.1 (17)	2.1 (2)	1.1 (1)	0 (0)	1.26	1.00	.056	.547
15. I feel nervous when teaching English to students with a high proficiency level.	34 (32)	29.8 (28)	24.5 (23)	6.4 (6)	5.3 (5)	2.19	2.00	.117	1.139
18. Teaching English to students with a high level of language proficiency makes me feel uneasy.	50 (47)	23.4 (22)	20.2 (19)	3.2 (3)	3.2 (3)	1.86	1.50	.109	1.053
20. I feel uneasy when I am teaching speaking topics.	67 (63)	21.3 (20)	10.6 (10)	1.1 (1)	0 (0)	1.46	1.00	.075	.728

As to teachers' FLTA levels about making mistakes, as reported in Table 6, grammar-related issues were anxiety-provoking as almost half of the participants agreed with grammar-related statements. Namely, teachers rated higher levels of FLTA for worrying about making grammar mistakes (\bar{X} = 2.31) and not being able to answer a grammar question (\bar{X} = 2.30).

Table 6. Levels of anxiety about making mistake (N= 94)

Items	Frequencies					Mean	Median	Std. Error	Std. Deviation
	Never (%)	Rarely (%)	Sometimes (%)	Usually (%)	Always (%)				
2. The thought of making a grammar mistake worries me.	31.9 (30)	23.4 (22)	31.9 (30)	7.4 (7)	5.3 (5)	2.31	2.00	.119	1.155
3. I feel anxious about my students testing my knowledge of English.	53.2 (50)	24.5 (23)	13.8 (13)	7.4 (7)	1.1 (1)	1.79	1.00	.105	1.015
4. The thought of making a spelling mistake on the board disturbs me.	42.6 (40)	27.7 (26)	18.1 (17)	9.6 (9)	2.1 (2)	2.01	2.00	.113	1.092
5. I get so nervous when I am teaching English that I forget the things that I know.	88.3 (83)	9.6 (9)	2.1 (2)	0 (0)	0 (0)	1.14	1.00	.042	.404
21. I am afraid of my students criticizing my knowledge of English.	57.4 (54)	22.3 (21)	12.8 (12)	3.2 (3)	4.3 (4)	1.74	1.00	.111	1.077
25. I would feel uneasy about not being able to answer a grammar question.	34 (32)	33 (31)	12.8 (12)	9.6 (9)	10.6 (10)	2.30	2.00	.136	1.318

Concerning FLTA levels about being compared to fellow teachers, findings revealed that teachers felt anxious about these statements. Although almost forty percent of teachers never or rarely felt so, the majority of them, namely almost 60 percent, appeared to experience anxiety and felt uncomfortable when their English teaching methods or knowledge were compared to that of other teachers. Table 7 presents the results in depth.

Table 7. Levels of anxiety about being compared to fellow teachers (N= 94)

Items	Frequencies					Mean	Median	Std. Error	Std. Deviation
	Never (%)	Rarely (%)	Sometimes (%)	Usually (%)	Always (%)				
8. I feel uncomfortable when my English knowledge is compared to that of other teachers.	27.7 (26)	10.6 (10)	28.7 (27)	11.7 (11)	21.3 (20)	2.88	3.00	.153	1.480
19. I feel uneasy when my English teaching methods are compared to that of other teachers.	22.3 (21)	18.1 (17)	30.9 (29)	7.4 (7)	21.3 (20)	2.87	3.00	.146	1.416

Regarding the use of native language (i.e., Turkish) use during the class, EFL teachers' FLTA levels are on average level. While most teachers reported feeling uneasy while using Turkish in the class (\bar{X} = 3.55), they rarely felt uneasy when they thought about having used Turkish during the lesson (\bar{X} = 2.03) or making a mistake while teaching English (\bar{X} = 1.72).

Table 8. Levels of anxiety about using the native language (N= 94)

Items	Frequencies					Mean	Median	Std. Error	Std. Deviation
	Never (%)	Rarely (%)	Sometimes (%)	Usually (%)	Always (%)				
1. I feel uncomfortable when I use Turkish in the class.	12.8 (12)	8.5 (8)	26.6 (25)	14.9 (14)	37.2 (35)	3.55	4.00	.144	1.396
17. I feel uncomfortable when I think about having used Turkish during the lesson.	42.6 (40)	21.3 (20)	27.7 (26)	7.4 (7)	1.1 (1)	2.03	2.00	.108	1.052
26. I feel anxious about making a mistake while teaching English.	50 (47)	30.9 (29)	16 (15)	3.2 (3)	0 (0)	1.72	1.50	.087	.848

Gender

Findings of the Mann-Whitney U test indicated that female teachers (\bar{X} = 45.85) had comparatively lower levels of anxiety compared to male teachers (\bar{X} = 49.22). In other words, male teachers had higher FLTA levels, including all the factors. This difference was not statistically significant ($U= 1025$, $p= .550$), though. Table 9 presents the findings in detail.

Table 9. FLTA across gender

Factor	Gender	N	Mean Rank	Mann Whitney U	Sig. (p)
Anxiety in teaching a particular language skill	Male	46	49.77	999.5	.391
	Female	48	45.32		
Worry about target language performance	Male	46	48.07	1078	.655
	Female	48	46.96		
Making mistakes	Male	46	48.28	1068	.784
	Female	48	46.75		
Being compared to fellow teachers	Male	46	48.77	1045.5	.842

	Female	48	46.28		
	Male	46	49.92		
Using the native language				992.5	.428
	Female	48	45.18		
	Male	46	49.22		
FLTAS Overall				1025	.550
	Female	48	45.85		

Years of Teaching Experience

A Kruskal-Wallis H test was used to investigate whether FLTA levels vary across teachers having different years of teaching experience. Findings did not yield a statistically significant difference in FLTA levels according to years of teaching experience, $\chi^2(2) = 2.364$, $p = .669$, with a mean rank FLTA level of 50.80 for novice teachers (i.e., those having 1-5 years of teaching experience) and 37.35 for experienced teachers (i.e., those having 21 or more years of experience). Differences in the factors were not significant, either.

Table 10. Factors across experience

Factor	Years of Teaching Experience	n	Mean Rank	Chi-Square	Sig. (p)
	1-5	25	49.36		
	6-10	21	50.07		
Anxiety in teaching a particular language skill	11-15	22	49.11	1.353	.852
	16-20	13	42.73		
	21 and above	13	41.81		
	1-5	25	52.68		
	6-10	21	49.71		
Worry about target language performance	11-15	22	44.64	2.698	.610
	16-20	13	47.62		
	21 and above	13	38.69		
	1-5	25	48.86		
	6-10	21	49.45		
Making mistakes	11-15	22	46.45	4.385	.356
	16-20	13	56.19		
	21 and above	13	34.81		

	1-5	25	49.62		
	6-10	21	47.81		
Being compared to fellow teachers	11-15	22	45.30	1.597	.809
	16-20	13	53.08		
	21 and above	13	41.08		
	1-5	25	53.68		
	6-10	21	49.26		
Using the native language	11-15	22	45.23	5.870	.209
	16-20	13	51.50		
	21 and above	13	32.62		
	1-5	25	50.80		
	6-10	21	49.17		
FLTAS Overall	11-15	22	46.75	2.364	.669
	16-20	13	49.88		
	21 and above	13	37.35		

School Type

The findings of the Mann-Whitney U test, which was performed to find out whether there is a difference in teachers' FLTA levels according to the type of school they teach at, indicated a mean difference between those who teach at private school ($\bar{X}=48.36$) and public school ($\bar{X}=46.68$). Nevertheless, this difference was not statistically significant ($U=1064$, $p=.765$). As posited in Table 11, compared to public school counterparts, private school teachers had higher anxiety in teaching a particular language skill, being compared to fellow teachers, and using the native language, albeit not significantly.

Table 11. FLTA across school types

Factor	School type	n	Mean Rank	Mann Whitney U	Sig. (p)
Anxiety in teaching a particular language skill	Public	48	46.73	1067	.779
	Private	46	48.30		
Worry about target language performance	Public	48	47.58	1100	.976
	Private	46	47.41		
Making mistakes	Public	48	47.82	1088.5	.906
	Private	46	47.16		
Being compared to fellow teachers	Public	48	45.72	1018.5	.513
	Private	46	49.36		

Using the native language	Public	48	42.83	880	.085
	Private	46	52.37		
FLTAS Overall	Public	48	46.68	1064.5	.765
	Private	46	48.36		

Grade Level

Findings with respect to grade level, as illustrated in Table 12, showed that teachers teaching at the high school level had the highest level of anxiety (\bar{X} = 52.68), whereas it was comparatively lower among those teaching at the middle school (\bar{X} = 46.69) and elementary school (\bar{X} = 43.27). In all factors, high school teachers had the highest FLTA level. Kruskal-Wallis H test revealed, however, the difference across grade levels was not statistically significant ($\chi^2(2)$ = 1.917, p = .383), nor were they in the factors. Specifically, high school EFL teachers felt more anxious about their students testing their English knowledge (p = .001) and making mistakes while teaching English (p = .012). Furthermore, they felt more uneasy while teaching speaking topics (p = .01) than elementary and secondary school teachers.

Table 12. FLTA across grade levels

Factor	Grade Level	N	Mean Rank	Chi-Square	Sig. (p)
Anxiety in teaching a particular language skill	Elementary	32	46.50	.293	.864
	Middle	31	46.37		
	High	31	49.66		
Worry about target language performance	Elementary	32	41.73	3.436	.179
	Middle	31	46.69		
	High	31	54.26		
Making mistakes	Elementary	32	41.47	4.799	0.91
	Middle	31	45.27		
	High	31	55.95		
Being compared to fellow teachers	Elementary	32	48.41	.915	.633
	Middle	31	50.21		
	High	31	43.85		
Using the native language	Elementary	32	40.75	5.900	.052
	Middle	31	45.26		
	High	31	56.71		
FLTAS Overall	Elementary	32	43.27	1.917	.383
	Middle	31	46.69		
	High	31	52.68		

Interview

A semi-structured interview was conducted in order to gain an in-depth understanding of the major sources of foreign language teaching anxiety with purposively selected 10 EFL teachers based on their years of experience and convenience. Table 13 presents the findings derived from the content analysis.

Table 13. Sources of foreign language teaching anxiety

Themes	Codes	Frequencies
Time Management	Lack of weekly lesson hours	3
	Syllabus and book mismatch	2
	Limited time for speaking, and pronunciation	3
	Short attention span	2
Classroom management	Lack of learner's interest and engagement	1
	Exam-oriented study	2
Knowledge of Target Language	Unexpected questions	1
	Teaching grammar	2

Interview findings illustrated that time management was the main cause of anxiety for the teachers working at primary and secondary schools. According to teachers, two or three hours a week is insufficient to meet the intended learning objectives, and in terms of the course of the subjects, there is a discrepancy between the textbook and the curriculum. On this issue, interviewees 1, 3, and 4 elucidated the following:

"Since the time allocated for English lessons in primary school is two hours a week, I always endeavour to cover the topics given in the curriculum and cannot make time for speaking and pronunciation. On the one hand, there is an examination system that is enforced, but on the other hand, pupils are expected to speak English. How can both be possible at the same time?" (Interviewee 1)

"The way in which the curriculum guides us may generate some issues. The first unit of the fifth-grade book, for example, begins with a strong emphasis on the present tense, but the simple tense is not mentioned in the curriculum. The teacher either has to take it on his own initiative and start the subject somehow or has to wait for two units because children do not understand anything, and you are continuously attempting to teach them anything on a subject they do not understand. This leads to a great deal of anxiety." (Interviewee 3)

"I only have three hours of lessons per week with a class. In my experience, if I only speak English in class, the student avoids and even despises the class." (Interviewee 4)

In addition to these, classroom management was also one of the causes of anxiety among teachers. While primary school teachers tended to feel anxious resulting from the short attention span of learners, teachers working at high school tended to experience anxiety regarding students' interest in English decreased as they boned for the university exam. Excerpts from interviewees demonstrated how these factors can cause instructors to experience anxiety:

"The thing that makes me anxious is students' generally indifferent and careless attitude in learning English as they do not responsible for English in the university entrance exam. In particular, the priority of senior students is numerical courses, and they try to solve math questions while I am teaching English." (Interviewee 5)

"...sometimes I feel like I am losing control." (Interviewee 7)

".. the kids (young learners) have a short attention span. It can be sometimes tiresome and hard to get the control back, their focus back." (Interviewee 8)

As shown in Table 10, issues with knowledge of the target language were also reported among the anxiety-provoking factors. Some teachers indicated that teaching grammar and answering unexpected questions also engendered anxiety. On this issue, interviewees 1, 7, and 4 uttered the following:

"If the students compare me to another instructor, it makes me anxious." (Interviewee 1)

"I feel very confident when I am teaching reading, writing, speaking and listening, but I experience anxiety while I am teaching grammar...sometimes not always." (Interviewee 7)

"I feel anxious while I am teaching grammar. My knowledge of grammar is good, but the way I teach grammar may not be suitable for every student all the time." (Interviewee 4)

DISCUSSION

RQ1 inquired as to whether Turkish EFL teachers experience FLTA, and if so, identify their anxiety levels. Findings revealed that Turkish EFL teachers experience FLTA, but at a low level. FLTA is not based on their self-perceptions of target language performance. Besides, teaching a particular skill does not engender any kind of anxiety among teachers, even if they are not proficient enough in that skill. Although prior studies (e.g., Horwitz, 1996; Tum, 2012; Öztürk, 2016) indicated that thoughts of being inadequate in the target language have an effect on FLTA, the current study manifests that they have no significant impact on EFL teachers' anxiety levels. In addition, they experience anxiety at a moderate level when they make a mistake or are compared to fellow teachers. They never feel anxious when speaking English in class, whereas they usually feel uneasy while using Turkish in class. On the other hand, when the teachers were given the choice of answering in Turkish or English during the interview while collecting data for the qualitative part of the study, most teachers answered the questions in Turkish. This could demonstrate that the survey responses and the teachers' true feelings are not the same and the concept of anxiety is not understood well enough among teachers; it is misinterpreted as something bad and discreditable, and therefore it is possible that it is rejected. This is actually related to what Horwitz (1996) said, "teachers of any subject matter are expected to be experts in that area". Although extensive research has been carried out on FLTA, no single study exists which adequately examines the differences between the responses given in scale and interview.

RQ2 sought whether FLTA varies by gender, years of teaching experience, and type of school and grade level teachers taught at. Regarding gender, findings showed a difference between male and female teachers' levels of FLTA, with male teachers experiencing higher anxiety levels. These findings concur only with those of Aydın and Uştuk's study (2020), where male teachers were more anxious than female counterparts. There could be potential interpretations of this finding. For example, cultural norms and gender roles could be influential. As the Turkish context is a context where traditional gender roles matter, this could have put more pressure on the male teachers, thereby increasing their FLTA. Or, findings could be specific to this sample size and characteristics, too. Although there have also been studies that did not report any difference between male and female teachers, their findings were not probably significant because the number of female instructors in the sample was larger than the number of male teachers (e.g., Aslrasouli & Vahid, 2014; Kesen & Aydın, 2014; Öztürk, 2016; Paker, 2011).

Findings also illustrated differences in FLTA levels between teachers with varied years of experience, albeit not significantly. Novice teachers having 1-5 years of experience had the highest FLTA level, whereas experienced teachers having 21 or more years of experience had the lowest FLTA level. This finding concurs with earlier studies suggesting that FLTA decreases as teachers gain more experience (e.g., Aslrasouli & Vahid, 2014; Aydın & Uştuk, 2020; Canessa, 2004; Eren, 2020; Kesen & Aydın, 2014; Öztürk, 2016). Indeed, teaching experience has been stated to have a positive influence on reducing teacher anxiety and boosting teaching confidence (Ganschow et al., 1994). Still, the relationship between experience and FLTA is complicated, and it is worth noting that it may be affected by a number of potential variables, including the teaching context, instructor self-efficacy, and personal beliefs and attitudes.

Additionally, findings yielded that teachers working at private schools felt comparatively more anxious than those working at public schools, although it was not a statistically significant difference. To the best of researchers' knowledge, there is one study which investigated this variable (i.e., Aydın & Uştuk, 2020), and this finding contradicts theirs. In their study, they reported that public school teachers were more anxious about the use of target language in lectures. However, given that participants were from diverse nationalities, educational systems and the differences between private-public schools could highly vary. Regarding the interpretation of the finding of this study, it is potential that working conditions and expectations from teachers are different in public schools compared to those in private schools. Parents, students, and school management are more likely to have higher expectations from teachers at private schools. Indeed, this could be supported by the finding that using the native language was the most anxiety-provoking factor for private school teachers in this study. It is also possible that students at private schools have higher proficiency levels or expectations, which would result in teachers experiencing FLTA levels. Overall, it is important to consider the cultural, social, and economic differences between public and private schools, which may also contribute to these differences in FLTA.

With respect to grade level, teachers teaching at the high school level had the highest level of anxiety, whereas it was comparatively lower among those teaching at the middle and elementary school, respectively. However, this difference was not statistically significant. Still, this finding is consistent with previous research that has found that teaching at higher levels can increase stress levels among teachers (MacIntyre & Gardner, 1991). Higher education teachers may feel more pressured to perform and be evaluated by their students, leading to higher levels of anxiety. On the other hand, teachers working at high schools felt more anxious, in line with Kesen and Aydın's (2014) and Aydın and Uştuk's (2020) research, regarding making a mistake while teaching English and their students testing their knowledge of English. Higher levels of anxiety among high school teachers can be attributed to the possibility that high school students may be more demanding and less tolerant than their younger counterparts. In addition, findings of this study indicated that high school instructors felt more anxious about testing their students' English proficiency and making mistakes while teaching English. This finding is consistent with earlier research indicating that teacher anxiety is frequently associated with evaluation and assessment anxiety (MacIntyre & Gardner, 1991). Findings also concur with Kim and Kim's (2004) study, where they reported that middle school teachers reported having higher levels of anxiety compared to elementary school teachers.

Based on interview findings, a noteworthy discovery was the existence of anxiety-inducing factors associated with the incompatibility between textbook and curriculum materials. This has resulted in teachers experiencing unease and uncertainty regarding the prioritization of either the textbook, or the curriculum or focusing solely on enhancing speaking skills. In addition, learners' short attention spans as well as lack of interest and engagement were among the factors that lead to anxiety in Turkish EFL teachers. As reported in Aydın and Uştuk (2020)'s study that investigated English language teachers' perceptions of student motivation and engagement in the classroom, lack of student interest and attention was also a source of teacher anxiety.

In a nutshell, this study illustrated that Turkish EFL teachers experienced moderate levels of anxiety, which could primarily be attributed to specific situations and events within the classroom. These findings lend credence to the fact that this type of anxiety, often referred to as situation-specific anxiety, is oftentimes characterized by feelings of unease, nervousness, and uncertainty that are triggered by particular events or situations, such as textbook and curriculum incompatibility. This aligns with prior research conducted by Horwitz (2010) and Aydın and Uştuk (2020), who emphasized the connection between particular circumstances and occurrences in the EFL setting and teacher anxiety levels. It is crucial to acknowledge that this kind of anxiety has the potential to significantly affect teacher well-being, job satisfaction, and performance. Consequently, it is vital to address this issue to support the professional growth and development of EFL instructors.

CONCLUSION

This mixed-method cross-sectional study sought to identify the level of foreign language teaching anxiety that Turkish EFL teachers experience and whether the level of anxiety varies according to gender, experience in years, type of school, and school level. Findings illustrated that Turkish EFL teachers experience anxiety at a moderate level. However, albeit not significant, there were differences in FLTA levels across gender, type of school, and school level, whereas they did not vary according to years of teaching experience.

This study contributes to the existing literature on FLTA in the EFL context by identifying the specific factors that contribute to situation-specific anxiety among Turkish EFL teachers. The findings of this study could assist in designing teacher training programs and support efforts that target the reduction of FLTA and enhancement of teacher confidence and efficiency. Based on these findings, several pedagogical implications can be suggested: First, undergraduate teacher education programs should include courses that address well-being and mindfulness. In addition, emotional experiences that teachers may encounter in their professional careers should be handled. In-service teacher training programs could also be designed and implemented to help teachers comprehend the nature of anxiety and acquire effective techniques to manage it. Particularly, novice teachers could be supported more as they appeared to feel more anxious compared to experienced ones. Also, such programs could provide opportunities for teachers to collaborate and share their experiences and strategies for dealing with anxiety, as well as encourage them to seek professional help if needed. For example, teacher support systems, such as mentoring programs, peer observation, and feedback sessions, could be implemented to help teachers feel more confident and secure in their teaching and alleviate their anxiety. Teachers should be encouraged to share their experiences and feelings with each other and with mentors or professional development leaders to receive support and advice. However, it must be highlighted that these training programs should be designed in a way that takes into consideration cultural and societal factors. Furthermore, to minimize teacher anxiety, instructional materials (e.g., books, curriculum) should be aligned and learning objectives should be presented in a consistent manner. Finally, it is crucial to highlight the responsibility of school administrators in establishing a favourable atmosphere for learning, and they should take steps to identify and resolve any issues that lead to teacher anxiety. Also, all the stakeholders should work together. To exemplify, schools and policymakers could work together to create a positive and supportive work environment for English teachers, including providing adequate resources, professional development opportunities, support, and recognition for their work.

Still, findings should be carefully interpreted in light of certain limitations. First, although the study employed a cross-sectional and mixed-method design, conducting further research with longitudinal and more comprehensive designs could enhance the understanding of FLTA. For instance, action research could be conducted or pure qualitative studies investigating FLTA via a longitudinal design can be conducted. Additionally, the generalizability of findings may be limited as the participants were EFL teachers from the Turkish educational setting; hence, further research with larger and more diverse samples could provide deeper insights. Also, this study investigated certain demographic variables, yet future studies could consider other variables that might affect FLTA. For example, cultural and societal factors may also affect EFL teachers' FLTA. Or, given that EFL teachers' L2 proficiency affects their classroom practices (Dewaele & Leung, 2022) and that FLTA is somehow linked to teachers' proficiency, future studies can focus on investigating the potential effect of this variable, too. Further research is necessary to explore the factors contributing to differences and to gain a more comprehensive understanding of FLTA among EFL teachers as well as to alleviate it. In addition, some mismatches were noted between the responses to the survey and the interview; thus, in future research, other data collection methods such as observation, in-depth or retrospective interviews -rather than self-reported surveys- might be utilized and triangulated to provide a more accurate representation of the phenomenon. Finally, future studies could investigate how FLTA influences teacher performance, student outcomes, and the overall experience of language learning and/or teaching.

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Statements of publication ethics

We hereby declare that the study has no unethical issues and that research and publication ethics have been observed carefully.

The first author conducted data collection, analysis, and results discussion under the supervision of the second author. Both authors engaged in the discussion of the findings and made contributions to the writing of the final manuscript.

Researchers' contribution rate

The study was conducted and reported with the equal collaboration of the researchers.

Ethics Committee Approval Information

Ethics Committee Approval for this research was obtained from the Education Research and Publication Ethics Committee of Sakarya University (Reference number: E-61923333-050.99-105428; Date: 10/02/2022).

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Appendix A

Interview Protocol Regarding Foreign Language Teaching Anxiety

1. Do you experience any kind of anxiety or nervousness while teaching English in a classroom atmosphere? (Öztürk, 2016)
 - 1.1. If yes, why?
 - 1.2. If not, how?
2. Could you tell me about the situations that make you anxious or nervous while teaching English in a classroom atmosphere? (Öztürk, 2016)
3. What do you think about your knowledge of English? How would you define it? Low, average, high?
4. Do you think your knowledge of English is good enough to teach in English? Why/why not?
5. Do you feel anxious when you use Turkish in the class?
6. Do you experience any anxiety while teaching
 - a. grammar?
 - b. reading?
 - c. writing?
 - d. speaking skills in English?
7. Do you feel anxious about making a mistake while teaching English?
8. Do you feel anxious when your English knowledge is compared to that of other teachers?



| Research Article / Araştırma Makalesi |

Impact of COVID-19 in Turkey: Views of Parents on the Development, Behavior of Their Children with Autism and Self-Efficacy Perceptions¹

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Keywords

1. Autism
2. Behavior
3. Parents
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5. Developmental

Anahtar Kelimeler

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Abstract

Purpose: The aim of this study was to develop scales to determine the self-efficacy perceptions of parents of children with autism spectrum disorder (ASD) and their views on the developmental and behavioral problems of their children with ASD during the coronavirus disease (COVID-19) pandemic.

Design/Methodology/Approach: This study used a relational screening model; data were collected online from 390 parents. The research conducted in the relational screening model has two stages; The first stage is the development of three separate scales that will enable the determination of the self-efficacy perceptions of parents who have children with ASD during the COVID-19 pandemic, and the development and behavioral problems of their children with ASD through parental views. The second stage is the relationship of the scores obtained from these scales with each other and the comparison with various variables.

Findings: Based on parental views, the findings of this study showed that stereotypic and self-injurious behaviors of children with ASD increased, while their communication, social interaction, daily living, and self-care skills were negatively affected.

Highlights: Despite these results, most parents reported considering themselves moderately, very, or completely competent in behavior management, application of different teaching methods and techniques, as well as skill/concept teaching during the COVID-19 pandemic.

Öz

Çalışmanın amacı: Bu çalışma, COVID-19 salgını sırasında otizmlı çocuğu olan ebeveynlerin öz-yeterlik algılarını ve otizmlı çocuklarının gelişim ve davranış sorunlarına ilişkin görüşlerini belirlemeye yönelik ölçekler geliştirmeyi amaçlamaktadır.

Materyal ve Yöntem: Bu çalışmada ilişkisel tarama modeli kullanılmıştır; veriler 390 ebeveyninden çevrimiçi olarak toplanmıştır. İlişkisel tarama modeli kullanılarak yürütülen bu araştırma iki aşamalıdır. Birinci aşama, COVID-19 pandemisi sürecinde otizmlı çocuğu olan ebeveynlerin öz-yeterlik algılarının ve otizmlı çocuklarının gelişim ve davranış sorunlarının ebeveyn görüşlerine dayalı olarak belirlenmesini sağlayacak üç ayrı ölçeğin geliştirilmesidir. İkinci aşama ise bu ölçeklerden alınan puanların birbirleriyle ilişkisi ve çeşitli değişkenler ile karşılaştırılmasıdır.

Bulgular: Ebeveyn görüşlerine dayalı olan bu çalışmanın bulguları, otizmlı çocukların stereotip ve kendine zarar verme davranışlarının arttığını, iletişim, sosyal etkileşim, günlük yaşam ve öz bakım becerilerinin olumsuz yönde etkilendiğini göstermiştir.

Önemli Vurgular: Bu sonuçlara rağmen ebeveynlerin bir çoğu COVID-19 pandemisi sürecinde davranış yönetimi, farklı öğretim yöntem ve tekniklerini uygulama ve beceri/kavram öğretimi konularında kendilerini orta düzeyde, çok ya da tamamen yeterli gördüklerini belirtmişlerdir.

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INTRODUCTION

Autism spectrum disorder (ASD) refers any one of a group of disorders with an onset typically occurring during the preschool years and characterized by difficulties with social communication and social interaction and restricted and repetitive patterns in behaviors, interests, and activities (American Psychiatric Association, 2013). Supporting the social interaction and communication skills of individuals with ASD and reducing their inappropriate behaviors require implementing specially developed teaching programs. Continuous and intensive face-to-face implementation of these programs by teachers, parents, or other support personnel (e.g., psychological counsellor, para-professional) is critical for developing individuals with ASD. However, national or international extraordinary situations (e.g., wars, pandemics) prevent individuals with ASD from receiving continuous and face-to-face education (Stenhoff et al., 2020). The Coronavirus disease 2019 (COVID-19) pandemic, which was first detected in December 2019, is one of these extraordinary situations. The COVID-19 pandemic has adversely affected the whole world, including children with ASD and their parents, in many aspects, especially health and education (Alhuzimi, 2021; Bellomo et al., 2020).

To reduce the negative effects of the pandemic and prevent the spread of COVID-19, measures for social isolation have been taken worldwide (Uresin et al., 2021). These measures include "stay at home" themed curfews, travel restrictions, and the closure of sports halls, restaurants, and educational institutions where social events are held (Fong et al., 2021). The closure of educational institutions adversely affected the lives of many students and parents, including students with special needs, and caused a significant education crisis worldwide. It is estimated that there are approximately 1.6 billion students in more than 190 countries worldwide. In other words, 94% of the world's student population does not attend school, so their education is interrupted (United Nations Educational, Scientific and Cultural Organization, 2022). Educational services were provided to all students and their parents through distance education during the closure period due to the COVID-19 pandemic (Hosokawa et al., 2021). In distance education, many countries generally prefer technology-supported applications. In countries such as China, Greece, Algeria, and Saudi Arabia, distance education has been provided from educational content websites, education portals, social media accounts, or video-sharing sites opened for students' use (Bozkurt et al., 2020). TV broadcasts were also made in many countries to support students without internet access.

Shortly after the closure of schools due to the COVID-19 pandemic in Turkey, education services were provided to all students through distance education. Undoubtedly, the distance education process has been difficult for all students and their parents, but considering the effects of ASD on human life, this process has been more difficult for children with ASD and their parents (Stenhoff et al., 2020; Wang et al., 2021). Students with ASD are among the most vulnerable groups during long-term social isolation and quarantine (Fontanesi et al., 2020; Spinelli et al., 2020). Limited social interactions during the pandemic and behavioral problems due to changes in routines make it difficult for individuals with ASD to adapt to their environment (Jussila et al., 2020). The services provided by the Ministry of National Education of Turkey to individuals with ASD and special needs, including their parents, during the distance education process are listed as follows: (a) parents can stay with their children at home, both as a TV channel broadcast and through web portals on the education information network, (b) a digital library was established for teachers and parents, (c) the "ozelimegitimdeyim" mobile application has been developed to provide educational videos for teaching academic, daily life, communication skills, and social skills, and (d) a "Special Education and Guidance Services Information Line" call center was established (Ministry of National Education, 2020; Tekin-Iftar et al., 2021). It is thought that it is of critical importance to determine the extent to which children with ASD and their parents benefit from education services in the distance education process and what effects the education they receive on their lives in terms of influencing the measures that can be taken regarding the education of children with ASD in similar pandemics that may occur in the future.

Although different countries have used similar technological applications in the distance education process, the dynamics, technology access, socio-economic conditions, and cultural characteristics of the countries differ. In this context, it is thought that it is important to evaluate the opinions and thoughts of children with ASD and parents living in each country about the process separately. A limited number of studies have been conducted to examine the views and opinions of parents regarding the distance education services provided to children with ASD and their parents during the COVID-19 pandemic in Turkey. It has been observed that the findings differ in these studies (Bozkus-Genc & Sani-Bozkurt, 2022; Cetin & Ercan, 2021; Senol & Can Yasar, 2020). In these studies, parents stated that distance education has both positive and negative effects on their children and themselves. Parents reported spending more quality time with their children during the distance education process, engaging in activities such as cooking together and studying (Bozkus-Genc & Sani-Bozkurt, 2022; Senol & Can Yasar, 2020). They also highlighted improved communication with school personnel, increased access to information from the school, and the ability to support their children's development. These findings demonstrated that the increase in motivation positively affected parents (Cetin & Ercan, 2021). Parents have indicated that their children's participation in the lesson, learning to meet their own needs, and acquiring some daily life skills through the course content are among the positive effects of distance education on their children (Bozkus-Genc & Sani-Bozkurt, 2022; Cetin & Ercan, 2021; Senol & Can Yasar, 2020).

Parents stated that their workload increased and they experienced feelings of anxiety, burnout, and strain as negative effects of distance education on them (Bozkus-Genc & Sani-Bozkurt, 2022; Cetin & Ercan, 2021; Senol & Can Yasar, 2020). They view the computer as a means of entertainment, which can lead to their children getting distracted, not fully understanding the lessons, forgetting what they have learned, showing disinterest in studying or listening, struggling with homework, spending excessive

time on the Internet, disobeying, throwing tantrums, and displaying aggressive behaviors (Bozkus-Genc & Sani-Bozkurt, 2022; Cetin & Ercan, 2021; Senol & Can Yasar, 2020).

Various studies have been conducted in the literature to determine how children with ASD and their parents are affected by the COVID-19 pandemic during the social isolation process (Althiabi, 2021; Alhuzimi, 2021; Fontanesi et al., 2020). These studies focused on the emotional states of parents with children with ASD and their perspectives and observations regarding their children's behaviors. According to the findings, parents reported a general increase in stress, anxiety, fear, and depression, which had a negative impact on their psychological well-being (Althiabi, 2021; Alhuzimi, 2021; Fontanesi et al., 2020). Gender differences in social isolation during the pandemic were also examined in some studies. In one study, fathers reported that they had more opportunities to spend time with their children, compared to the pre-pandemic period, as a result of the imposed curfews. They also mentioned increased communication with their children (Meral, 2022). However, other studies found that mothers experienced higher levels of depression and anxiety during the COVID-19 lockdown compared to fathers (Miniarikova et al., 2022; Wang et al., 2021). Additionally, Althiabi (2021) found that mothers sought more psychological support than fathers during the social isolation period. The higher levels of depression and anxiety experienced by mothers, as well as their increased need for psychological support, can be attributed to the fact that mothers often bear the primary responsibility for the personal care of their children with ASD. In the literature, there is a limited number of studies examining the relationship between the educational status of parents and their child's development, behavior, and perception of parental self-efficacy in the COVID-19 pandemic (Miniarikova et al., 2022; Nithya et al., 2021). Nithya et al. (2021) did not find a significant relationship between the education level of parents and the behavior of their children with ASD. Similarly, Miniarikova et al. (2022) did not find a significant relationship between the education level of mothers and their anxiety and depression levels.

In studies examining the views and opinions of parents on behavioral problems and characteristics observed in their children with ASD, such as sleep problems and limited repetitive behaviors, parents generally mentioned the negative effects of their children staying at home all the time (Colizzi et al., 2020; Corbett et al., 2021; Fong et al., 2021; Hosokawa, 2021; Manning et al., 2021; Mutluer et al., 2020; Scarselli et al., 2022; Turkoglu et al., 2020). These studies have shown that children's behavioral problems, including aggression, hyperactivity, and hypersensitivity, tend to increase (Colizzi et al., 2020). Additionally, children are negatively affected by changes in routines, exhibit limited repetitive behavior features more frequently and more intensely than before the pandemic (Hosokawa et al., 2021), and experience sleep disorders (Fong et al., 2021; Manning et al., 2021). However, different findings were obtained in some studies. For instance, in a study by Meral (2022), parents reported that their children with ASD increased their verbal behaviors and improved their self-care skills as a result of parental interaction. Similarly, in a study investigating sleep disorders in children with ASD, parents stated that there were improvements in the sleep quality of their children during the pandemic (Scarselli et al., 2022). On the other hand, in another study, parents mentioned that they do not know why and how their children with ASD experience stress (Hosokawa et al., 2021).

In the literature, it has been stated that further research involving a larger number of participants is needed to determine the changing behavioral characteristics of children with ASD during the COVID-19 pandemic, based on parental views and thoughts (Hosokawa et al., 2021; Scarselli et al., 2022). Considering the limited number of studies and participants involved, it can be concluded that more research is necessary to examine the positive and negative aspects of how the distance education process affects children with ASD and their parents. Previous literature includes studies that separately examined parents' views and opinions on the development/behaviors of their children with ASD or their perceptions of parental efficacy during the COVID-19 pandemic (Colizzi et al., 2020; Di Renzo et al., 2020; Hosokawa et al., 2021). However, this study differs from others in the literature as it investigates both parents' views on the development/behaviors of their children with ASD and their perceptions of parental efficacy together.

In addition to determining parents' perceptions of competence in the social isolation process implemented during the pandemic, it is important to conduct a study that reveals parents' views and opinions regarding the developmental and behavioral challenges experienced by individuals with ASD. This research will contribute to understanding how special education support should be provided to children with ASD and their parents during similar pandemic situations that may arise in the future.

Purpose of the Present Study

The aim of this study was to develop scales to determine the self-efficacy perceptions of parents with children with ASD and their views on the development and behavioral problems of their children with ASD during the COVID-19 pandemic. Additionally, the study aimed to compare and correlate the factors in the developed scales with each other. To achieve this, the study sought answers to the following research questions:

1. Are the scales of self-efficacy perception of parents with children with ASD in Social Isolation (EPCA), Developmental Problems of Children with ASD in Social Isolation (DPCA) and Behavioral Problems of Children with ASD in Social Isolation (BPCA) valid measurement tools?
 - a. What is their content validity?
 - b. What is their construct validity?
2. EPCA, DPCA, and BPCA are the scales reliable measurement tools?
 - a. What are internal consistency coefficients?

b. What are item-total score correlations?

3. Does the perception of parental self-efficacy differ according to gender, age, and education level during the COVID-19 social isolation process?
4. Do the development and behavioral problems of children with autism differ according to the children's ages during the COVID-19 social isolation process?
5. Do the development and behavioral problems of children with autism differ according to the perception of parental self-efficacy during the COVID-19 social isolation process?
6. What are the views of parents on the development, behavioral problems, and self-efficacy perceptions of their children with ASD during the social isolation process implemented in the COVID-19 pandemic?

METHOD

Relational screening model was used in this study. The research conducted in the relational screening model has two stages; The first stage is the development of three separate scales that will enable the determination of the self-efficacy perceptions of parents who have children with ASD during the COVID-19 pandemic, and the development and behavioral problems of their children with ASD through parental views. The second stage is the relationship of the scores obtained from these scales with each other and the comparison with various variables. In the relational screening model, the change of two or more variables together or the degree of this change is tried to be determined (Karasar, 2014).

Working Group

A total of 190 parents, 10 for the pre-trial application, 100 for the trial application, and 80 for the confirmatory factor analysis (CFA) to apply the resulting factor structures, participated in the research in the first stage of the scales development. In the second stage, data were collected from 200 parents after the scales were developed. In order to determine the participants, data were collected online from mothers or fathers who were eligible for the condition of having a child with ASD, using criterion sampling, one of the purposive sampling techniques. In criterion sampling, individuals, events, or situations with specified conditions are selected, and those who meet the criteria are included (Buyukozturk et al., 2014). The demographic information of all participants is presented in Table 1.

Table 1. Demographic information of participants

	Gender	Age						Education						Child's Age						Total
		Fe.	Ma.	19-29	30-39	40-49	50+	P.S.	M.S.	H.S.	J.C.	U.G.	G.	0-3	4-6	7-10	11-14	15-20	21+	
Pre-trial	F	10	-	3	4	2	1	3	-	2	2	3	-	1	1	6	1	-	1	10
	%	100	-	30	40	20	10	30	-	20	20	30	-	10	10	60	10	-	10	100
Trial	F	53	47	2	49	30	19	10	8	27	8	42	5	8	33	27	18	7	7	100
	%	53	47	2	49	30	19	10	8	27	8	42	5	8	33	27	18	7	7	100
CFA Imp.	F	40	40	5	28	31	16	7	6	22	8	27	10	6	22	23	11	11	7	80
	%	50	50	6	35	39	20	9	8	28	10	34	13	8	28	29	14	14	9	100
Study 2	F	113	87	10	87	67	36	19	15	52	19	78	17	16	67	54	30	19	14	200
	%	57	44	5	44	34	18	10	8	26	10	39	9	8	34	27	15	10	7	100

P.S.:Primary School, M.S.:Middle School, H.S.:High School, J.C.:Junior College, U.G.:Under Graduate, G.:Graduate

Steps Followed in the Development of Scales

The methods used to develop a new measurement tool are listed below:

1. By paying attention to which questions will be evaluated by the subject to be measured, the literature on the subject is scanned.
2. The format required for the measurement (such as ordering, classification, and equally spaced) is determined, and a question/item pool is created.
3. After the question/item pool is created, opinions from field experts are taken for content validity.

4. The sampling application determined for the preliminary test of the draft form obtained from the expert opinion is made.
5. After this stage, the validity and reliability analyzes of the scale are made, and the measurement tool is finalized (Karakoc & Donmez, 2014).

Data Collection Tools

Demographic Information Form

The researchers developed this form to determine the demographic characteristics of the participants, data on age, gender, marital status, educational status, age of the child, support mechanisms used in the development of the child, and how the child spends his time at home were collected.

The Scale of Developmental Problems of Children with Autism in Social Isolation (DPCA)

The scale developed by the researchers consists of one dimension and five items. The scale's items, which has a five-point likert structure, are answered as "I strongly disagree - I slightly agree - I agree moderately - I agree very much - I completely agree." The scale was developed for parents with children with ASD. The items of the scale, which can be scored in total, are calculated by reverse coding, and a minimum of 5 and a maximum of 25 points are obtained. The high score obtained from the scale means that the child with ASD has no problems related to developmental areas.

The Scale of Behavioral Problems of Children with Autism in Social Isolation (BPCA)

The scale developed by the researchers consists of 4 single-dimensional items. The items of the scale, which has a five-point Likert structure, are "I strongly disagree - I slightly agree - I agree moderately - I agree very much - I completely agree." It was developed for parents with children with ASD. The total scale items that can be scored are calculated by reverse coding, and a minimum of 4 and 20 points are taken. A high score indicates that the child with ASD does not experience behavioral problems.

Self-Efficacy Perception Scale of Parents of Children with Autism in Social Isolation (EPCA)

The scale developed by the researchers to determine the self-efficacy perceptions of parents with a child with ASD consists of 5 items in one dimension. Scale items with a five-point Likert structure are "I strongly disagree - I slightly agree - I agree moderately - I agree very much - I completely agree." A minimum of 5 and a maximum of 25 points are taken from the scale items that can be directly scored without reverse coding. A high score means that the parents of children with ASD have high competencies. The validity and reliability calculations of these three scales developed by the researchers are explained in detail in the findings section.

Analysis of Data

First, the content, construct validity, Cronbach's Alpha (α) internal consistency reliability coefficients, and item-total score correlations were calculated for the validity and reliability studies of the developed scales. Opinions were received from field experts to determine content validity; For construct validity, after exploratory factor analysis (EFA), confirmatory factor analysis (CFA) was performed to confirm the resulting factor structure. After these analyses, the t-test, one-way analysis of variance (One-Way ANOVA), and multiple linear regression analyses were applied to the data collected for the second phase of the research. All collected data were analyzed with IBM SPSS 21 and LISREL 8.71 programs.

FINDINGS

The findings of the study are presented under two different headings. The first is the title of "Study 1" which includes the validity and reliability analyzes of the scales developed within the scope of the research. The other is the "Study 2" subheading, which includes analyzing the data collected from different participants with these scales.

Study 1

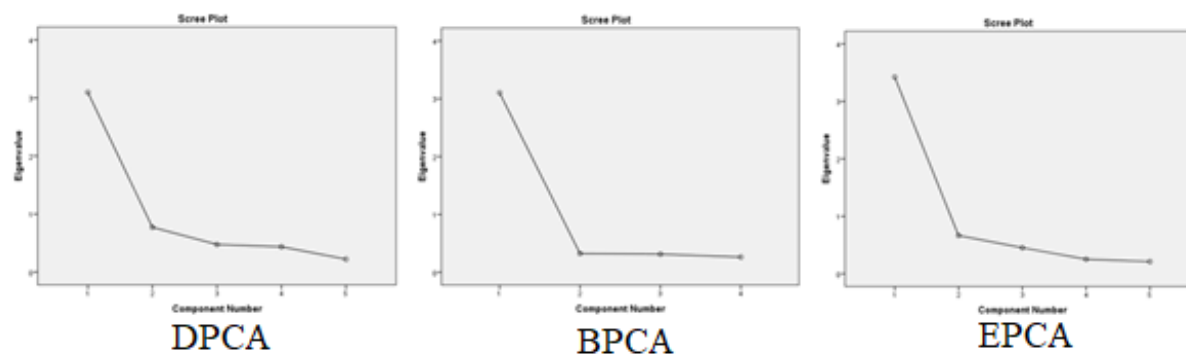
Preliminary Analysis

First, it was checked whether all the scales met the prerequisites for EFA compliance, such as missing data, extreme values, normality, and sample size (Cokluk et al., 2014). This prerequisite was met as there was no missing data in the data set. The multivariate normality of the data was examined with the Barlett test, according to which the chi-square (χ^2) value was found to be significant at the .01 level. When the kurtosis and skewness coefficients were examined, the average of the items of the DPCA, BPCA, and EPCA scales was ± 1.5 (Tabachnick & Fidell, 2014) was found to provide univariate normality. For the sample size, Tavşancıl (2019) stated that the number of items in the scale should be at least five times; Bryman & Cramer (2001) state that 5 or 10 times would be sufficient. Considering that it consists of 5 items on DPCA, four on BPCA, and five items on EPCA, it is thought that the sample size (N=100) for EFA is sufficient. To test this, Kaiser-Meyer-Olkin (KMO) values should be above .05. If this value is higher, the data set is suitable for EFA; 0.9-Excellent; 0.8-Very good; 0.7-Good; 0.6-Medium; 0.5-Weak (Sharma, 1996). When these values were analyzed for DPCA, BPCA, and EPCA, it was determined that they were .81, .85, and .85, respectively.

Validity Analysis

After it was determined that the three scales developed by the researchers met the assumptions required for factor analysis, in each EFA, only one item with Developmental Problems (5 items), Behavior Problems (4 items), and Parental Efficiency (5 items) was determined for the DPCA, BPCA, and EPCA scales, respectively. Factored structures. It is seen that the breaking point in the screen plots for the factor numbers obtained indicates a single-factor structure (Figure 1).

Figure 1. Line charts



A high score indicates that the child with ASD does not experience behavioral problems. Self-efficacy Perception Scale of Parents of Children with Autism in Social Isolation (EPCA). The scale developed by the researchers to determine the self-efficacy perceptions of parents with a child with ASD consists of 5 items one dimension. Scale items with a five-point Likert structure are “I strongly disagree - I slightly agree - I agree moderately - I agree very much - I completely agree.” A minimum of 5 and a maximum of 25 points are taken from the scale items that can be directly scored without reverse coding. A high score means that the parents of children with ASD have high competencies. The validity and reliability calculations of these three scales developed by the researchers are explained in detail in the findings section.

Principal components analysis, one of the most preferred factorization techniques, was applied. This analysis aims to extract the maximum variance from the data set with each component. At the same time, researchers who want to reduce a large number of variables to fewer components use this method (Cokluk et al., 2014). As a result of the analysis, single-factor structures with an eigenvalue above one were obtained. The total variance explained by the scales was 62% for the DPCA, 78% for the BPCA, and 68% for the EPCA. Since rotation is not possible for single-factor structures, rotation is not performed in these analyses. The factor loading values of the scales and the standard variance rates they explained are given in Table 2.

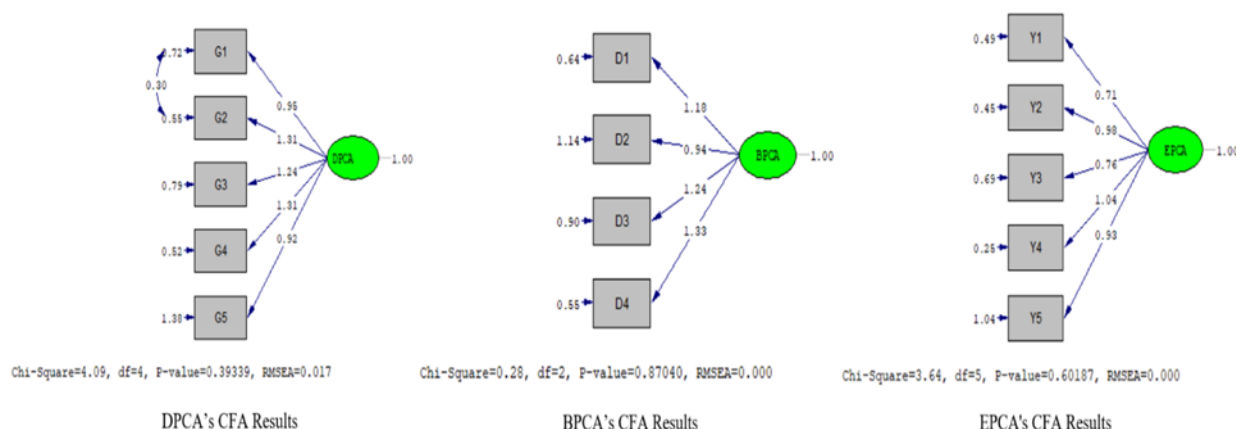
Table 2. Factor load values and common variance values of the scales

Scale	Item	Common variance	Factor
DPCA	G1	.67	.89
	G2	.79	.82
	G3	.66	.82
	G4	.67	.81
	G5	.32	.57
BPCA	D1	.80	.89
	D2	.78	.89
	D3	.77	.87
	D4	.76	.87
EPCA	Y1	.75	.90
	Y2	.77	.88
	Y3	.81	.86
	Y4	.66	.81
	Y5	.44	.67

When the acceptance point of the factor loading values is accepted as .30 (Pituch & Stevens, 2016), it is seen that no item is below this value. In Table 1, the DPCA scale consists of five one-dimensional items, and factor load values range from .57 to .89. The single dimension of the BPCA scale consists of 4 items. Its factor load values range from .87 to .89. Finally, the EPCA scale consists of 5 single-dimension items. Factor load values vary between .67 and .90. Cokluk et al. (2014) stated that if the explained standard variable rate is less than 10%, there would be a problem in terms of related items. However, when the explained common variances were examined, it was determined that there was no problem with any of the items on the scale. It is seen that item G5, with the lowest score of .32 in the DPCA, explained 32%, item D4, with the lowest score of .76 in the BPCA, 76%, and item Y5, which had the lowest score of .44 in EPCA, explained 44% common variance. CFA was applied with data collected from 80

participants to verify the structures in the scales reached at the end of EFA. As seen in Figure 2, all three models tested are first-order structural models. They consist of one latent variable, each representing DPCA (Developmental Problems) with five observed variables, BPCA (Behavioral Problems) with four variables, and EPCA (Parental Self-Efficacy) with five variables.

Figure 2. CFA results for three scales



As a result of this analysis, t-values indicating the agreement between the observed variables were found to be significant at the .01 level and above 2.56 for all scales. In addition, it was determined that the error variances were between .23 and .62 in the DPCA, between .24 and .56 in the BPCA, and between .19 and .55 in the EPCA; that is, they were not high. For this reason, no variables were excluded from the analysis. With CFA, statistical results indicating the degree of fit of the data structure to the model are obtained; these are called fit indices. By testing all variables simultaneously with fit indices (Stevens, 2009), the researcher uses the model to evaluate whether it explains the relationships between the observed variables and the latent variable (Stapleton, 1997). If the model does not match, it is rejected; if it does, the model is not rejected, and it is decided that the relationships that explain the causal structures are represented (Bentler, 1980). The values of the fit indices of the scales are shown in Table 3.

Table 3. Fit indexes and breakpoints for scales

Scale	Fit Indices							
	χ^2/sd	RMSEA	SRMR	GFI	AGFI	CFI	NFI	NNFI
DPCA	1.02	.02	.02	.98	.92	1	.99	1
BPCA	0.14	0	.01	1	.99	1	1	1
EPCA	0.73	0	.03	.98	.95	1	.99	1
Breakpoint	≤ 2 =perfect fit ¹	$\leq .05$ =perfect fit ²		≥ 0.95 =perfect fit ³	≥ 0.90 =good fit ⁴			

¹(Tabachnick & Fidell, 2014); ²(Brown, 2015); ³(Sumer, 2000); ⁴(Hooper et al., 2008)

When the fit indices of the three different models created according to this are examined, it can be stated that a perfect fit is achieved. It is seen that only the AGFI (Adjusted Goodness of Fit Index) value of the DPCA scale fits well, while all other indexes provide a perfect fit. As a result of EFA and CFA applied to the scales within the scope of construct validity, it was found that each scale consisted of a single factor structure.

Reliability Analysis

Reliability is concerned with accurately measuring the feature a measurement tool will measure. There are two issues in reliability; The first is the consistency of the scores taken from the same measurement tool at different times, and the other is the consistency between the answers taken at the same time. At the same time, the internal consistency between the item scores of the measuring instrument is determined by Cronbach's Alpha (α). This calculated reliability coefficient is expected to be .70 and above. Another reliability analysis in Likert-type rating scales is the item-total score correlation calculated with the Pearson correlation coefficient. Generally, a correlation value of .30 and above means that the items distinguish people well (Buyukozturk, 2015). The Cronbach's Alpha (α) reliability coefficients for the scales were calculated as .84 for DPCA, .90 for BPCA, and .88 for EPCA. The item-total score correlations were found to be between .43 and .78 for the JWGSA, between .77 and .80 for the BPCA, and between .53 and .81 for the EPCA.

Study 2

Investigated whether the average parental self-efficacy perception scores obtained by applying the scales with proven validity and reliability to different participants differ according to gender. The independent samples t-test report regarding the EPCA scores of the parents of children with ASD is presented in Table 4.

Table 4. T-Test results of perception of parental self-efficacy scores by gender

Gender	N	\bar{X}	S	sd	t	p
Female	113	16.66	4.67	198	2.93	.004
Male	87	14.68	4.84			

Accordingly, the self-efficacy perception scores of the parents show a significant difference according to gender $t(198)=2.93$, $p<.01$. The self-efficacy perceptions of mothers ($\bar{X}=16.66$) were higher than those of fathers ($\bar{X}=14.68$). To determine the effect size, the Cohen d value was calculated and found to be .42. This value indicates that the difference between the mean scores of the mothers and fathers in EPCA is about .42 standard deviation.

The results of the single-factor analysis of variance ANOVA, which was performed to determine whether the parent's perception of self-efficacy scores during the COVID-19 social isolation process differ according to age, are given in Table 5.

Table 5. ANOVA results of perception of parental self-efficacy scores by age

Age	N	\bar{X}	S	F	p
19-29	10	17.08	4.40	.362	.780
30-39	87	15.83	4.65		
40-49	67	15.46	5.32		
50-59	36	16.00	4.52		

According to these results, the self-efficacy perceptions of parents do not show a statistically significant difference according to age, $F(3, 196)=.362$, $p>.05$. Table 6 shows the results of the ANOVA test to determine whether there is a significant difference between parents' perception of self-efficacy scores during the COVID-19 social isolation process according to their education level.

Table 6. ANOVA results of perception of parental self-efficacy scores by education level

Education	N	\bar{X}	S	F	p
Primary School	19	16.89	4.32	.644	.667
Middle School	15	16.73	6.14		
High School	52	15.85	5.13		
Junior College	19	16.32	6.20		
Undergraduate	78	16.03	4.33		
Graduate	17	15.80	3.79		

When the results are examined, there is no significant difference between parents' perceptions of their self-efficacy in the COVID-19 social isolation process and their education level, $F(5, 194)=.644$, $p>.05$. The results of the ANOVA test to determine whether the development and behavioral problems of children with ASD show a significant difference according to age during the COVID-19 social isolation process are given in Table 7.

Table 7. ANOVA results of developmental and behavioral problems scores by age

Scale	Child's age	N	\bar{X}	S	F	p
DPCA			15.56	6.97	.485	.787
			16.90	6.25		
			15.56	5.91		
			16.13	4.70		
	0-3	16	17.32	5.70		
	4-6	67	15.64	7.38		
	7-10	54	13.00	5.32		
	11-14	30	13.45	5.00		
BPCA	15-20	19	11.09	4.90	1.54	.179
	21+	14	13.17	4.98		
			13.84	6.48		
			12.50	6.06		

When Table 7 is examined, according to the views of the parents participating in the research, there is no significant relationship between the development of children with ASD at the age of $F(5,194)=.485$, $p>.05$, and between behavioral problems and the ages of $F(5,194)=1.54$, $p>.05$.

In Table 8, multiple regression analysis results are presented to determine whether there is a significant difference between the development and behavioral problems of children with ASD and parents' perception of parental self-efficacy during the COVID-19 social isolation process.

Table 8. Multiple regression analysis results on the prediction of parents' perception of self-efficacy with developmental and behavioral problems of children with autism

Model	B	Standard Error	β	t	p	R ²	F _(2, 197)
Stable	9.86	.95		10.39	.000		
Developmental Problems	.30	.06	.38	4.76	.000	.18	22.834
Behavior Problems	.08	.07	.09	1.08	.28		

As seen in Table 8, a significant regression model included $F(2, 197)=22.834$, $p<.001$, and 18% ($R^2_{adjusted}=.18$) ASD' of parental self-efficacy perception (dependent variable) in the COVID-19 social isolation process. It was found that the independent variables explained the developmental and behavioral problems of children with schizophrenia. Accordingly, there is a statistically significant relationship between the developmental problems of children with ASD and the perception of parental self-efficacy, $\beta=.38$, $t(197)=4.76$, $p<.001$, $pr^2=.10$. On the other hand, there is no statistically significant relationship between the behavioral problems of children with ASD and the perception of parental self-efficacy, $\beta=.09$, $t(197)=1.08$, $p>.05$. Finally, the frequency and percentage values of the participants' responses to the items of each scale are given in Table 9.

Table 9. Frequency and percentage values of scale items

Scale	EPCA										DPCA										BPCA							
	Y1		Y2		Y3		Y4		Y5		G1		G2		G3		G4		G5		D1		D2		D3		D4	
	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%
1 (strongly disagree)	14	7	16	8	11	6	23	12	38	19	40	20	49	25	46	23	45	23	29	15	50	25	29	15	48	24	52	26
2 (slightly agree)	36	18	38	19	34	17	44	22	29	15	31	16	23	12	22	11	16	8	13	7	25	13	20	10	29	15	36	18
3 (moderate level)	78	39	64	32	66	33	75	38	58	29	54	27	38	19	40	20	49	25	41	21	40	20	25	13	34	17	41	21
4 (agree very)	41	21	53	27	48	24	35	18	32	16	31	16	34	17	26	13	29	15	32	16	39	20	37	19	36	18	21	11
5 (completely level)	31	16	29	15	41	21	23	12	43	22	44	22	56	28	66	33	61	31	85	43	46	23	89	45	53	27	50	25
Total	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100	200	100

DISCUSSION

This is the first study in the literature in which three separate measurement tools, namely DPCA, BPCA, and EPCA, have been developed and used together based on the opinions of parents with a child with ASD during the COVID-19 pandemic. However, there are also different studies in the literature in which the views and opinions of parents about the development/behavior of their children with ASD or their perceptions of self-efficacy in the COVID-19 pandemic are examined separately (Colizzi et al., 2020; Di Renzo et al., 2020; Hosokawa et al., 2021). The findings obtained in the studies conducted in the literature support some of the findings of this study (Colizzi et al., 2020; Di Renzo et al., 2020; Hosokawa et al., 2021; Nithya et al., 2021). In our study, when parents' views on the behavior of their children with ASD were examined, they stated that children's stereotyped, obsessive, and problem behaviors increased. In the study of Colizzi et al. (2020), parents stated that their children with ASD exhibited more intense and more frequent problem behaviors during the social isolation process due to the pandemic. In another study, parents stated that the stereotyped behaviors of their children with ASD increased more during the social isolation during the COVID-19 pandemic than before COVID-19 (Hosokawa et al., 2021). This increase in stereotyped behaviors of individuals with ASD due to the COVID-19 pandemic may be because the COVID-19 pandemic is not adequately understood by individuals with ASD and may be associated with individuals with ASD spending more time at home compared to the pre-pandemic period (Hosokawa et al., 2021). The measures taken for social isolation during the COVID-19 pandemic revealed the need for parents to organize intervention programs, expert support in behavior management, health services, and daily activities for their children with ASD. For this reason, it is thought that it may be essential to make some advance plans for possible COVID-19 and similar pandemic periods in the future. For example, Parent education programs can be developed for possible closure periods due to pandemic.

It is also seen that some of the findings from this study differ from those of some studies in the literature. Most parents who participated in the study stated that social isolation during the COVID-19 pandemic negatively affected the receptive and expressive language skills, daily life, and self-care skills of their children with ASD. In another study, which was different from these findings, most of the parents stated that the social isolation process during the COVID-19 pandemic positively affected the language and communication skills and daily living skills of their children with ASD, and they had fewer problems in coping with the difficulties their children experienced (Kaku et al. et al., 2021). Among the reasons why parents reported positive opinions about their children with ASD and had fewer problems during the COVID-19 pandemic; It has been shown that parent members have the opportunity to spend more time with their children (Kaku et al., 2021; Meral, 2022), parents face fewer problems because they travel less with their children, and children do not have to adapt to different environments (Kaku et al., 2021).

Considering the divergence of the findings in the studies, it can be thought that it may be essential to conduct more studies that reveal the views of parents with children with ASD about the development and behavior of their children during the social isolation process in COVID-19 or similar pandemics. In this study, when the findings regarding the parents' perception of competence in the social isolation process applied in the COVID-19 pandemic were examined, 38% of the parents stated that they considered themselves moderately competent in applying different teaching methods and techniques, and 30% stated that they considered themselves very or completely competent. The findings of this study were conducted by Mumbardo-Adam et al. (2021), in which parents with children with ASD developed new methods by applying visual aids and new technologies to organize daily routines or leisure activities during the COVID-19 pandemic and to teach new skills during the quarantine process. is supportive. Another result we obtained in this study regarding parents' perception of efficacy was that 39% of the parents considered themselves moderately efficacious and 37% considered themselves very or completely efficacious in teaching skills and concepts. Contrary to this view expressed by parents, in the study of Nithya et al. (2021), only 4% of parents stated that they

were able to teach new skills to their children with ASD, that they had difficulty in controlling their children's behavior and that they needed one-on-one expert support during the pandemic. It is thought that the differentiation of parents' opinions and thoughts and the obtaining of different findings in different studies may be related to the level of being affected by the autism of their children with ASD. Parents of individuals with autism-specific behavioral characteristics may need more support in managing their children's behavior or supporting their development. Therefore, this situation may affect parents' perception of self-efficacy. It is thought that it would be essential to conduct more research on COVID-19 or similar pandemics and to examine the issue from different dimensions by using measurement tools that determine the extent to which children with ASD are affected by autism in future studies.

This study may have limitations in some respects. First, in this study, the impact of the COVID-19 process on the development and behavior of children with ASD was determined solely based on the views of parents. In further research, the effect of the COVID-19 pandemic process on the development and behavior of children with ASD can be obtained from other Parent members (siblings, etc.), teachers of the child with ASD, or people in their immediate surroundings (friends, close relatives, language and speech therapist, etc.) can be examined with the opinions received.

Secondly, in this study, the views of parents on the development of language, daily life, social interaction, and motor skills of their children with ASD, their behaviors (stereotype, harmfulness, adherence to routines, obsessions), and perception of self-efficacy were examined. Further studies can be planned to determine what parents do to support the development of their children with ASD or how they spend time with their children. Third, in this study, the development, behaviors, and self-efficacy perceptions of parents who have children with ASD during the social isolation process in the COVID-19 pandemic were examined based on parental opinion. However, no training was given to the parents, and the effectiveness of any education program was examined. In future studies, the results of this measurement tool, which was developed within the scope of an experimental research model, can be examined by examining the effectiveness of a parent education program that will be developed to increase the development of their children with ASD (language and communication skills, daily life skills), behavior management and self-efficacy perceptions during similar pandemic periods.

CONCLUSION

The study found that three scales were developed to determine the development of children with ASD, behavioral problems, and the self-efficacy perceptions of parents with children with ASD. Parents to whom these scales were applied stated that the social isolation process during the COVID-19 pandemic increased the stereotype and inappropriate behaviors (e.g., obsessions) of their children with ASD, and negatively affected their communication, daily life and self-care skills. Despite these results, parents generally stated that they considered themselves competent in behavior management, applying different teaching methods and techniques, and teaching skills/concepts. Based on these results, it is thought that it may be important to determine the factors that are thought to cause negative developments in their children with ASD based on the opinions of the parents during the social isolation process in the COVID-19 pandemic and to provide the parents and their children with ASD with the support that may be related to these factors.

Declaration of Conflicting Interests

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Statements of publication ethics

I/We hereby declare that the study has not unethical issues and that research and publication ethics have been observed carefully.

A.K. conceived of the presented idea. H.F.T developed the theory and performed the computations. M.K and E.A. verified the analytical methods. A.K. encouraged H.F.T and M.K. to investigate and supervised the findings of this work. All authors discussed the results and contributed to the final manuscript.

Researchers' contribution rate

The study was conducted and reported with equal collaboration of the researchers.

Ethics Committee Approval Information

After the meeting numbered 2022/62 held on 28.06.2022, it was decided by unanimous vote that this research would be ethically appropriate with the decision of the Hakkari University Scientific Research and Publication Ethics Committee with the document date and number number 01.07.2022-31714.

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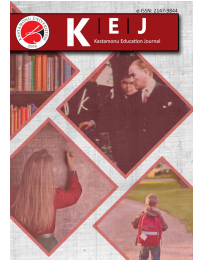
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| Research Article / Araştırma Makalesi |

Investigating the Relationship Between Mathematics Anxiety and Mathematics Achievement of Primary School 4th Grade Students

İlkokul 4. Sınıf Öğrencilerinin Matematik Kaygıları ile Matematik Başarıları Arasındaki İlişkinin İncelenmesi¹

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Keywords

1. Mathematics Anxiety
2. Anxiety
3. Primary School
4. Mathematics
5. Academic Achievement

Anahtar Kelimeler

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Abstract

Purpose: The aim of this study is to examine the relationship between the mathematics anxiety of primary school fourth-grade students and their mathematics achievement and to determine the factors that create mathematics anxiety.

Design/Methodology/Approach: Explanatory sequential design, one of the mixed-method designs, was employed in the study. The sample of the study consisted of 636 fourth-grade students studying at 14 schools in the central district of Erzincan in the 2018-2019 academic year and 27 students selected for semi-structured interviews. The data of the study were collected through the "Mathematics Anxiety Scale" and "Mathematics Anxiety Semi-Structured Interview Form" developed by the researcher. In the analysis of the data obtained within the scope of the research, descriptive statistics, multivariate analysis of variance (MANOVA), LSD test statistics, a pairwise comparison technique, Pearson moment multiplication correlation, multiple linear regression analysis and content analysis were used.

Findings: When the results of the study were examined, it was found that primary school fourth-grade students' scores on the math anxiety exam dimension are high, there is no significant difference between the mean scores of mathematics anxiety in terms of gender variable, there is a negative relationship between the mathematics anxiety levels of students and their mathematics lesson achievement, and the mathematics anxiety level of the students predicts the mathematics lesson achievement.

Highlights: It was determined that the factors that create the mathematics anxiety of primary school fourth-grade students are teacher-related, student-related, family and friend-related, lesson-related, and exam-related.

Öz

Çalışmanın amacı: Bu çalışmanın amacı ilkokul 4. sınıf öğrencilerinin matematik kaygıları ile Matematik başarıları arasındaki ilişkinin incelenmesi ve matematik kaygısını oluşturan etmenlerin belirlenmesidir.

Materyal ve Yöntem: Çalışmada karma yöntem desenlerinden biri olan açıklayıcı ardışık desen kullanılmıştır. Araştırmanın örneklemini 2018-2019 Eğitim-Öğretim yılında Erzincan ili Merkez ilçesindeki 14 okulda öğrenim görmekte olan 636 dördüncü sınıf öğrencisi ile yarı yapılandırılmış görüşmeler için belirlenen 27 öğrenciden oluşmuştur. Araştırmanın verileri araştırmacı tarafından geliştirilen "Matematik Kaygısı Ölçeği" ve "Matematik Kaygısı Yarı Yapılandırılmış Görüşme Formu" aracılığıyla toplanmıştır. Araştırma kapsamında elde edilen verilerin analizinde; betimsel istatistikler, çok değişkenli varyans analizi (MANOVA), ikili karşılaştırma tekniklerinden LSD testi istatistikleri, pearson moment çarpım korelasyonu, çoklu doğrusal regresyon analizi ve içerik analizi kullanılmıştır.

Bulgular: Araştırma sonuçları incelendiğinde; ilkokul dördüncü sınıf öğrencilerinin matematik kaygısı sınav boyutuna ait puanlarının yüksek olduğu, cinsiyet değişkeni açısından matematik kaygısına ait puan ortalamaları arasında anlamlı bir farklılığın olmadığı, öğrencilerinin matematik kaygı düzeyleri ile Matematik ders başarıları arasında negatif yönde bir ilişkinin olduğu, öğrencilerin matematik kaygı düzeyinin matematik ders başarısını yordamakta olduğu tespit edilmiştir.

Önemli Vurgular: İlkokul dördüncü sınıf öğrencilerinin matematik kaygısını oluşturan etmenlerin; öğretmen kaynaklı, öğrenci kaynaklı, aile- arkadaş kaynaklı, ders kaynaklı ve sınav kaynaklı olduğu saptanmıştır.

¹ It was produced from the master's thesis titled "Investigation of the relationship between the mathematics anxiety of primary school 4th grade students and their achievement in mathematics and the determination of the factors that cause mathematics anxiety" ..

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INTRODUCTION

In our age, human life is differentiating day by day in the face of developing and changing scientific activities. Countries compete with each other in scientific developments and technology and make serious investments in scientific studies. This race in science and technology affects the educational policies of the countries, and scientific and technological contents have been making ground in the education programs of the countries. One of the lessons that come to mind concerning science and technology is undoubtedly mathematics.

Mathematics is one of the sciences that dates back to ancient times in terms of its origin. Erdem, Gürbüz & Duran (2011) stated that the science of mathematics emerged as a result of the daily life activities of ancient societies. In this context, Tuncer (1995) defined mathematics as "the branch of science that studies the properties of abstract entities such as numbers, shapes and operations and the relations between these entities."

Although the science of mathematics originated from only numbers and measurements in the early ages, today, it is seen as the fundamental building block of technological developments and other sciences (Douglas & LeFevre, 2017) and is described as a source of power in the development of people and societies (Tural, 2005). In this context, especially developed countries carry out activities to increase mathematical achievement by making arrangements in the mathematical education program.

When the literature is reviewed, it is seen that there are many factors affecting mathematical achievement. Mathematical achievement is influenced by factors linked to the structure of the mathematics lesson, educational reasons, student age, gender, development level, intelligence, family support, teacher factor, the environment factor, interests and needs, students' attitudes towards the mathematics lesson, self-efficacy perceptions, motivations, prior knowledge and their anxiety about the mathematics lesson (Mata, Monteiro, & Peixoto, 2012; Özdemir & Gür, 2011; Recber, 2011). It has been determined that anxiety, which is an affective concept, is highly correlated with mathematical achievement (Bozkurt, 2012; Gunderson, Park, Meloney, Beilock, & Levine, 2018; Henschela & Roick, 2017; Karlı Şentürk, 2016; Mata, Monteiro, & Peixoto, 2012). Besides, Taşdemir (2015) stated that students would not be successful unless anxiety, one of the factors affecting learning, is eliminated.

Anxiety and Mathematics Anxiety

When the literature is examined, it is seen that there is no consensus on the definitions of the concepts of anxiety, fear, and worry. Although it has been stated that there are differences between these concepts (Zebb & Beck, 1998), it is also stated that there is no clear line that distinguishes these concepts from each other (Namlu & Ceylan, 2000). In this context, Scovel (1978) defines anxiety as "uneasiness and anxiety emerging in the face of a threatening event."

When the definition of Mathematics Anxiety is examined, Dreger & Aiken (1957) described mathematics anxiety as "a syndrome of emotional reactions to mathematics and arithmetic," Richardson & Suuin (1972) as "feelings of tension and anxiety emotions that interfere with the manipulation of numbers and the solving of mathematical problems" and finally Fennema & Sherman (1976) as "feelings of fear, anxiety and nervousness towards mathematics and the physical symptoms associated with them."

When the literature is examined, it is seen that there are many factors that affect the development of mathematics anxiety. In this context, mathematics anxiety is influenced by the student characteristics, the school system, the teacher characteristics, friends circle, gender, socioeconomic structure, exams and familial characteristics (Alexandra & Cobb, 1984; Aydın & Keskin, 2017; Bekdemir, 2007; Devine, Fawcett, Szűcs & Dowker, 2012; Furner and Duffy, 2002; Mata, Monteiro, and Peixoto, 2012; Ramirez, Shaw, & Maloney, 2018; Şimşek, Çetinkaya, & Alptekin, 2017; Vukovic, Roberts, & Wright, 2013; Wood, McLeod, Sigman, Hwang, & Chu, 2003; Yenilmez & Özbey, 2006).

It is stated that mathematics anxiety has both positive and negative effects on students, contrary to the general tendency. Alpert & Haber (1960) stated that a low level of mathematics anxiety makes students more attentive and increases their motivation. Accordingly, it was determined that a low level of anxiety prompted students to study and positively affected the achievement (Alkan, 2011; Newstead, 1998). Also, it was observed that students displayed a positive attitude towards the mathematics lesson thanks to this positive effect (Karlı Şentürk, 2016). On the other hand, it was observed that students' negative mathematics anxiety makes learning difficult and decreases achievement (Scovel, 1978). Besides, studies reveal that the academic achievement of students with negative mathematics anxiety is low (Gunderson et al., 2018).

The Significance of the Study

Today, the most important aim of societies is to grow in information and technology and pioneer innovations. Mathematics science is of great importance in realizing the desired pioneering technological innovations in engineering, medicine, and science. Accordingly, countries strive for expanding mathematics science and increasing mathematical achievement and are trying to offer solutions by determining the factors that reduce mathematical achievement. In order to make sure that desired solutions are successful, it might be a good idea first to identify students who both approach mathematics with prejudice and develop negative anxiety. As a result of the negative anxiety, lack of motivation, withdrawal from the lesson and lack of self-

confidence develop in the students. In particular, the negative anxiety experienced by students towards the mathematics lesson in the first years of their school life affects the students' perspective towards the lesson and reduces their achievement. In this context, Uusimaki & Nason (2004) found in their study that mathematics anxiety and negative views of 66% of the participants developed during their primary school years. Therefore, beginning from the first degree of education, it is essential to take steps to enhance student achievement with measures to eliminate the negative mathematics anxiety of students. In order to take these steps, it is significant to describe the current situation in depth.

To this end, the study aims to examine the relationship between primary school fourth-grade students' mathematics anxiety and their mathematics lesson academic achievement and discover the factors that create mathematics anxiety. For this purpose, answers to the following questions were sought:

1. What are the mathematics anxiety levels of primary school fourth-grade students?
2. Do mathematics anxiety levels of primary school fourth-grade students differ significantly in terms of gender variable?
3. Is there a relationship between the mathematics anxiety levels of primary school fourth-grade students and their mathematics lesson academic achievement?
4. Do mathematics anxiety levels of primary school fourth-grade students predict mathematics lesson achievement?
5. What are the views on the factors that create mathematics anxiety of primary school fourth-grade students?

METHOD

Research Design

The mixed-method, in which quantitative and qualitative methods are used together, was employed in this study, which was conducted to examine the relationship between the mathematics anxiety of primary school fourth-grade students and their mathematics achievement and to determine the factors that create mathematics anxiety. The main reason for using the mixed method is to handle the research in quantitative and qualitative dimensions and minimize the limitations found in both approaches. Tashakkori & Creswell (2007) define the mixed method as the research where the researcher collects data, analyses the data, integrates the findings and makes prospective comments employing quantitative and qualitative methods and approaches in the same study. The sequential explanatory design, one of the mixed-method designs, was used in this study. In the sequential explanatory design, quantitative analysis comes first and in the light of the results obtained, the final result is found by applying the qualitative analysis (Creswell, 2017).

Research Group

In order to realize the aims determined in the study, 3 different research groups were formed. They are stated below, respectively.

1. Research Group

It is the group that is studied to develop the mathematics anxiety scale. In this context, in line with the data obtained from the Turkey Statistical Institute (TSI), it consists of 832 students (lower level: 252 students, middle level: 237 students, higher-level: 269 students) enrolled in 7 primary schools and 8 middle schools third, fourth, fifth, sixth and seventh grades, which were determined by means of the by stratification sampling according to socioeconomic level (lower, middle, higher).

2. Research Group

It is the group that is studied to apply the mathematics anxiety scale. In this context, in line with the data obtained from the Turkey Statistical Institute (TSI), it consists of 636 fourth-grade students enrolled in 14 primary schools, which were determined by means of the stratification sampling according to socioeconomic level (lower, middle, higher) in Erzincan province Central District for 2018-2019 academic year.

3. Research Group

It is the group studied to reveal the factors that cause mathematics anxiety in students by examining the causes of mathematics anxiety in more depth. In this context, within the scope of the mathematics anxiety scale data, it consists of 27 students chosen from among students with high mathematics anxiety scores and with low mathematics anxiety scores by means of the maximum diversity sampling.

Data Collection Tools

The mathematics anxiety scale and mathematics semi-structured interview form were used as data collection tools in the study. Besides, mathematics report card grades were taken as the academic achievement scores of primary school fourth-grade students.

Mathematics Anxiety Scale

"Mathematics Anxiety Scale" was developed by the researcher in order to determine the mathematics anxiety of the students. First, the studies in the relevant literature were reviewed (Alexander & Martray, 1989; Baloğlu & Koçak, 2006; Bindak, 2005; Dowker, Sarkar & Looi, 2016; Fennema & Sherman, 1976; Gierl & Bisanz, 1995; Ma, 1999; Plake & Parker, 1982; Resnick, Viehe, & Segal, 1982; Richardson & Suinn, 1972) and related dimensions were determined, and a pool of 38 items thought to cover these dimensions was created.

In order to evaluate if the items in the 38-item form covered the relevant criteria and the mathematics anxiety process, opinions were taken from a total of 7 field experts, including one assessment and evaluation field specialist, three curriculum development field specialist, two mathematics field specialist, and 1 Turkish education field specialist. In this context, expert opinions were obtained using the three-point scoring method (suitable, must-be-fixed and not suitable).

Yurdagül (2005) stated that the Content Validity Ratio (CVR) of the created items could be obtained by dividing the number of experts who say suitable (NG) for the items by half of the number of experts (N) who express their opinions for the items and minus 1. In this context, by analysing the data from expert opinions, it was decided that the draft scale would consist of 3 criteria and 22 items.

The scale created as a 3-point Likert was designed as "Always (3)", "Sometimes (2)" and "Never (1)" for positive items, "Always (1)", "Sometimes (2)" and "Never (3)" for negative items. Scales used in Likert type are used as 2-point, 3-point, 4-point, 5-point, 6-point and 7-point. However, the most practical of these is the 5-point Likert, but if the sample is a young age group, it is more appropriate to use a 3-point or even 2-point Likert (Köklü, 1995).

Normality Analysis of the Mathematics Anxiety Scale

74 students who gave incomplete and incorrect answers from the study group consisting of 832 students were excluded from the data analysis. Then, normality analysis was performed for the data obtained from 758 students. As a result of the analysis, it was seen that the skewness and kurtosis values were .324 (skewness) and -.159 (kurtosis). However, it was seen in the analysis that there were 14 outliers, and these outliers were removed from the data set, and normality analysis was performed again. Then, the skewness and kurtosis were re-analysed, and it was determined that skewness was 215 and kurtosis was -.481. When the analyses were carried out again, it was seen that there were not any outliers and the skewness and kurtosis coefficients showed a normal distribution between -1 and +1 again. (Büyükoztürk, 2019, Hair, Black, Babin, & Anderson, 2014).

Validity and Reliability Analysis of the Mathematics Anxiety Scale

Exploratory Factor Analysis (EFA) was conducted to test the validity of the mathematics anxiety scale. To this end, Kaiser-Meyer-Olkin (KMO) test was performed to determine whether the sample size studied was sufficient, and this value was found to be .785. It shows that the sample size found in this value is at a very good level. In addition, in order to test whether the relationships in the correlation matrix were significant or not, the result of Bartlett's Test of Sphericity was examined. Bartlett test result was found to be 1690.12 ($p < 0.05$), and it was concluded that this value was significant (Bursal, 2017).

Examining the results of the exploratory factor (principal components) analysis carried out to make sure that the tool can measure the most features with the least number of items, it was observed that there were 6 factors with eigenvalues greater than 1 and the total variance explained by these factors was 54.28%. However, it was observed that some items in the draft scale were loaded on more than one factor. 11 items loaded on more than one factor and whose difference was higher than 0.10 were removed from the scale, and the factor loadings were analysed again. When looking at the results of the factor analysis performed after the specified items were removed, it was determined that there were 3 factors with an eigenvalue greater than 1, and the total variance explained by these factors was 51.64%. In this context, it was observed that the mathematics anxiety self-efficacy dimension factor loadings were between .816 and .518, factor loadings of the mathematics anxiety exam dimension were between .787 and .485, and factor loadings of the mathematics anxiety lesson dimension were between .807 and .493. As a result, the final version of the scale consisted of 11 items. 4 items were in the mathematics anxiety self-efficacy dimension, 4 were in the mathematics anxiety exam dimension, and 3 items were in the mathematics anxiety lesson dimension.

Based on the results of the reliability analysis of the mathematics anxiety scale, it was determined that the total internal consistency coefficient (Cronbach Alpha) was .72. This ratio indicates that the scale is reliable (Özdamar, 2004). When the reliability was examined based on dimensions, it was determined that the mathematics anxiety self-efficacy dimension was .69, the mathematics anxiety exam dimension was .60, and the mathematics anxiety lesson dimension was .58. There are two main reasons why the total internal consistency coefficient of the mathematics anxiety scale was not very high. The first of these stems from the fact that the scale is prepared as a three-point Likert. The fact that the items in the scales can be answered according to many options (likert) increases the internal consistency coefficient (Köklü, 1995). Another factor affecting the reliability is the number of items on the scale. As the number of items increases, the reliability of the scale increases (Thorndike, 1997, as cited in Uyumaz & Çokluk, 2016). If the number of items in each dimension in the scale is low, the inter-item correlation value should be examined. If this value is found between .15 and .50, the scale dimensions are said to be reliable (Clark & Watson, 1995). Accordingly, the inter-item correlation values (.319, .421, .426, respectively) examined for the three dimensions in the mathematics anxiety scale within the specified range prove that the dimensions of the scale are reliable.

Mathematics Anxiety Semi-Structured Interview Form

By the literature review, the characteristics of mathematics anxiety and the factors that may affect mathematics anxiety and the characteristics and scope of these factors were determined. A 15-question draft form was then created, and the researcher applied this draft form to 3 fourth-grade primary school students. As a result of the data obtained from student interviews, the draft form was revised and reduced to 12 questions. Later, the draft form was sent to three field experts, one Turkish field expert and one assessment and evaluation expert, and their opinions were taken. Necessary adjustments and changes were made on the draft form in line with the feedback. 6 students were interviewed again in order to measure if the draft form was serving the determined purpose and was understandable for students. In line with the students' feedback, the necessary corrections were made on the interview questions, and the 6-item interview form was finalized by re-interviewing with three field experts to finalize the draft form.

Data Analysis

Quantitative Data

In the study, descriptive statistics (mean, standard deviation) scores were calculated based on the mathematics anxiety scores of the students using the SPSS program. Tabachnick & Fidell (2013) stated that multivariate analysis of variance (MANOVA) must be used in data where the dependent variable is more than one and the independent variable is categorical. In this context, univariate and multivariate normality analyses of the data were performed initially. As a result of the analysis, it was determined that there were 5 outliers in the data set consisting of 594 participants and they were removed from the data set. In addition, in order to evaluate the homogeneity of variance-covariance matrices, the "Box's M" value was examined, and it was seen that the value was 371. Since this value is greater than .001, it can be said that the variance-covariance matrices are homogenous. In order to evaluate the equivalence of variances, the results of "Levene's Test" were examined. According to Levene's Test results, it is seen that none of the variables have significant values. Additionally, Pearson moment multiplication correlation was computed to determine whether there is a significant relationship between variables and Multiple Linear Regression Analysis was carried out to determine the predictive power.

Qualitative Data

Interviews were conducted with the students using a semi-structured interview form in order to determine the factors that create the mathematics anxiety of primary school fourth-grade students. Before the interviews started, consent of the school administration and the participants was obtained, and the interviews were recorded on a tape recorder. The recorded data were transcribed for an accurate and easy evaluation. Transcribed data were analysed using the content analysis technique. In this context, 3 researchers independently read 10% of the data to create codes and themes. Experts created themes based on codes and codes that are related to each other. The data were re-read and rearranged according to the codes and themes determined. In addition, to ensure internal validity, the data were continuously discussed and analysed with a field expert. In the qualitative part of the study, the "Reliability of Observational Data" method, which indicates if different field experts can measure an event or phenomenon in the same way using the same data set in the same time period, was applied in order to create internal reliability. In this context, internal reliability analysis was conducted with 3 field experts. In order to ensure external reliability in the study, the "Time-Dependent Reliability" method, which is used to measure cases that do not change over time, was applied. In this context, external reliability analysis was carried out with three field experts at intervals of fifteen days (Kirk & Miller, 1986 as cited in Yıldırım & Şimşek, 2008). Also, the reliability formula of Miles & Huberman (1994) was used to calculate the reliability of the study. As a result of the calculation, the reliability was calculated as 79%. Since this result is above 70%, the study is considered to be reliable (Miles & Huberman, 1994).

FINDINGS

In this part of the research, the findings will be dealt with sequentially in line with the determined sub-problems.

1. What is the Mathematics Anxiety Level of Primary School Fourth-Grade Students?

Descriptive statistics on the mathematics anxiety levels of primary school fourth-grade students are given in Table 1.

Table 1. The Arithmetic Mean and Standard Deviation Scores of Primary School Fourth-Grade Students Regarding the Mathematics Anxiety Level

Mathematics Anxiety Levels	n	\bar{x}	sd
Mathematics Self-Efficacy Dimension	589	5.13	1.27
Mathematics Lesson Dimension	589	3.89	1.11
Mathematics Exam Dimension	589	9.17	2.37

When Table 1 was examined, it is seen that the mean score for the mathematics anxiety self-efficacy dimension (5.13) is below the middle score (8.00), the mean score for the mathematics anxiety lesson dimension (3.89) is below the middle score (6.00), and the mean score for the mathematics anxiety exam dimension (9.17) is above the middle score (8.00).

2. Do Mathematics Anxiety Levels of Primary School Fourth-Grade Students Differ Significantly in Terms of Gender Variable?

MANOVA statistics are given in Table 2 to determine whether there is a significant difference between the mathematics anxiety levels of primary school fourth-grade students in terms of the gender variable.

Table 2. Arithmetic Mean and Standard Deviation Scores of Primary School Fourth-Grade Students' Mathematics Anxiety Levels in Terms of Gender Variable

	Gender	n	\bar{x}	ss
Mathematics Self-Efficacy Dimension	Female	297	5.20	1.25
	Male	292	5.07	1.24
Mathematics Lesson Dimension	Female	297	3.38	1.05
	Male	292	3.94	1.17
Mathematics Exam Dimension	Female	297	9.29	2.36
	Male	292	9.05	2.39

When Table 2 is examined, it is seen that the female and male students' mean scores of the mathematics anxiety self-efficacy dimension (5.20 and 5.07, respectively) are below the middle score (8.00), the mean scores of the mathematics anxiety lesson dimension (3.38 and 3.94, respectively) are below the middle score (6.00), and the mean scores on the mathematics anxiety test dimension (9.29 and 9.05, respectively) are above the middle score (8.00).

The mathematics anxiety levels of primary school fourth-grade students according to the gender variable are given in Table 3.

Table 3. MANOVA Results Showing the Comparison of Primary School Fourth-Grade Students' Total Scores Regarding Mathematics Anxiety Levels in Terms of Gender Variable

Wilks' Lambda	F	Hypothesis sd	Error sd	p
,98	2.11	3	585	.98

When Table 3 is examined, it is found that the mean scores of the students regarding their mathematics anxiety levels in terms of gender variable does not show a significant difference at .05 level (Wilks' Lambda value, 989, $F = 2.110$, $p > .05$).

Statistics on the comparison of the mean scores of primary school fourth-grade students in terms of mathematics anxiety levels in terms of gender variable is given in Table 4.

Table 4. MANOVA Results Showing the Comparison of Primary School Fourth-Grade Students' Mathematics Anxiety Levels in Terms of Gender Variable

	Sum of Squares	Sd	Mean of Squares	F	p
Mathematics Self-Efficacy Anxiety	2.47	1	4.47	1.590	.208
Error	914.25	587	1,55		
Mathematics Lesson Anxiety	1.97	1	1.97	1.579	.209
Error	734.69	587	1,25		
Mathematics Exam Anxiety	8.57	1	8.57	1.516	.219
Error	3321.31	587	5.65		

When Table 4 is examined, no significant difference is seen between mathematics anxiety self-efficacy dimension ($F = 1.590$, $p > 0.05$), mathematics anxiety lesson dimension ($F = 1.579$, $p > 0.05$) and mathematics anxiety exam dimension ($F = 1.516$, $p > 0.05$) in terms of gender variable.

3. Is There A Relationship Between the Mathematics Anxiety Levels of Primary School Fourth-Grade Students and Their Academic Achievement in Mathematics Lesson?

In order to determine whether there is a relationship between the mathematics anxiety levels of primary school fourth-grade students and their academic achievement in mathematics lesson, Pearson Moments Multiplication Correlation is given in Table 5.

Table 5. Pearson's Moment Multiplication Correlation Results for Determining the Relationship Between the Mathematics Anxiety Levels of Primary School Fourth-Grade Students and their Mathematics Lesson Achievement

		Mathematics Anxiety Levels	Mathematics Lesson Achievement
Mathematics Anxiety Levels	Pearson Correlation	1	-.570**
	Sig. (2-tailed)		.000
	N	589	589

Considering the results of the Pearson moment multiplication correlation computed to determine whether there is a relationship between the mathematics anxiety levels of primary school fourth-grade students and their mathematics lesson achievement, it was found that there is a moderately negative correlation between students' mathematics anxiety levels and their mathematics lesson achievement ($p < 0.05$).

The Pearson moment multiplication correlation, which was computed to determine the relationship between the mathematics anxiety levels of primary school fourth-grade students and their mathematics lesson achievement, is given in Table 6.

Table 6. Pearson's Moment Multiplication Correlation Results for Determining the Relationship Between the Mathematics Anxiety Levels of Primary School Fourth-Grade Students and Their Mathematics Lesson Achievement

		Mathematics Self-Efficacy Dimension	Mathematics Lesson Achievement
Mathematics Self-Efficacy Dimension	Pearson Correlation	1	.252**
	Sig. (2-tailed)		.001
	N	589	589
Mathematics Lesson Dimension		Mathematics Lesson Dimension	Mathematics Lesson Achievement
Mathematics Lesson Dimension	Pearson Correlation	1	-.132
	Sig. (2-tailed)		.001
	N	589	589
Mathematics Exam Dimension		Mathematics Exam Dimension	Mathematics Lesson Achievement
Mathematics Exam Dimension	Pearson Correlation	1	.057**
	Sig. (2-tailed)		.168
	N	589	589

When we look at the results of the Pearson moment multiplication correlation to determine whether there is a relationship between the mathematics self-efficacy dimension, mathematics course dimension and mathematics exam dimension of primary school fourth-grade students and their mathematics lesson achievement, it is seen that there is a weakly significant negative relationship between the mathematics self-efficacy dimension of the students and their mathematics lesson achievement. There is a weakly significant negative relationship between the mathematics lesson dimension and the mathematics lesson achievement. Finally, there is no significant relationship between the mathematics exam dimension and the mathematics lesson achievement.

4. Do Mathematics Anxiety Levels of Primary School Fourth-Grade Students Predict Mathematics Lesson Achievement?

"Multiple linear regression analysis" was used to determine whether there is an effect on the mathematics anxiety levels of primary school fourth-grade students on their academic achievement of the mathematics lesson. In order to obtain accurate and reliable results by the regression analysis, predictive variables (mathematics self-efficacy dimension, mathematics lesson dimension and mathematics exam dimension) should be independent from each other. In other words, variables should not have a high degree of correlation among themselves. As a result of the analysis, it was determined that the correlation level among the predictor variables was high.

Multiple linear regression analysis results showing to what extent mathematics anxiety level of primary school fourth-grade students predicts the mathematics lesson academic achievement are given in Table 7.

Table 7. Multiple Linear Regression Analysis Results for Primary School Students' Mathematics Anxiety Levels Predicting Mathematics Lesson Achievement

Predictor Variable	R	R ²	Corrected R ²	Standard Error
Mathematics Anxiety Levels	.025	.158	.120	14,970005

When Table 7 is examined, it is seen that the rate of the predictor variable (mathematics anxiety levels) to predict the change in mathematics lesson achievement, which is the predicted variable, is $R^2 = .158$. In this context, the mathematics anxiety levels of primary school fourth-grade students (predictor variable) predicts 15.8% of the change in mathematics lesson achievement.

Multiple linear regression analysis results showing whether there is a significant relationship between the mathematics anxiety levels (predictor variable) of primary school fourth-grade students and their academic achievement in mathematics lesson (predicted variable) are shown in Table 8.

Table 8. Multiple Linear Regression Analysis Results Regarding Whether There is a Significant Relationship Between Primary School Students' Mathematics Anxiety Levels and their Mathematics Lesson Achievement

	Sum of Squares	Df	Mean of Squares	f	p
Regression	3368,576	3	1122,859	5,010	.000

When Table 8 is examined, it is seen that the p value analysed in order to test the relationship between the predictor value and the predicted value, in other words, whether the predictor variable's degree of predicting the change is significant or not, is smaller than 0.01 ($p < 0.01$). In this context, it can be stated that there is a significant relationship between the predictor variable and the predicted variable.

The results of multiple linear regression analysis carried out to determine whether there is a significant relationship between the mathematics anxiety levels of primary school fourth-grade students (mathematics self-efficacy dimension, mathematics lesson dimension and mathematics exam dimension) and their mathematics lesson academic achievement are indicated in Table 9.

Table 9. Multiple Linear Regression Analysis Results Regarding Whether There is a Significant Relationship Between Primary School Students' Mathematics Anxiety Levels and their Mathematics Lesson Achievement

Variables	B	Standard Error	T	P
Mathematics Self-Efficacy Dimension	-.309	.559	-.552	.581
Mathematics Lesson Dimension	-1.889	.603	-3.134	.002
Mathematics Exam Dimension	.583	.274	2.214	.034

When Table 9 is examined, it is seen that the p-value of the mathematics anxiety lesson dimension and the mathematics anxiety exam dimension is smaller than 0.05 ($p < 0.05$). However, the p-value of the mathematics anxiety self-efficacy dimension is seen to be greater than 0.05 ($p > 0.05$). In this context, it can be stated that the mathematics anxiety lesson dimension and mathematics anxiety exam dimension of primary school fourth-grade students significantly predict mathematics lesson achievement, but the mathematics anxiety self-efficacy dimension does not predict mathematics lesson achievement.

5. What are the Views on the Factors That Create Mathematics Anxiety of Primary School Fourth-Grade Students?

As a result of the content analysis of the data obtained from primary school fourth-grade students, the themes of "Teacher-Related Factors", "Student-Related Factors", "Lesson-Related Factors", "Family and Friend-Related Factors" and "Exam-Related Factors" were determined. Descriptions regarding the themes obtained from the primary school fourth-grade student interviews will be given under the sub-headings respectively.

5.1. Teacher-Related Factors Theme

Within the scope of the factors affecting mathematics anxiety, opinions of primary school fourth-grade students on the theme of "Teacher-Related Factors" and the frequency and percentages of these views are given in Table 10:

Table 10. Views of Primary School Fourth-Grade Students on Teacher-Related Factors and Their Frequency

Themes	Code	Sub-code	f(n:27)	%
Teacher-Related	Factors Increasing Anxiety	Negative Feedback	13	48
		Negative Attitude Towards Students	7	26
	Factors Decreasing Anxiety	Reward- Reinforcer	4	15
		Positive Attitude Towards Students	3	11
		Method-Techniques	4	15

When Table 10 is examined, out of 27 primary school fourth-grade students, 13 (48%) stated that negative feedback and 7 (26%) stated that negative attitude towards the student increased their anxiety, while 4 (15%) of the students stated that reward-reinforcer, 3 (11%) stated that the positive attitude towards the student and 4 (15%) stated that teaching methods and techniques applied reduced their anxiety.

In this context, regarding the factors increasing the mathematics anxiety, the S 10 participant said, "My teacher gets angry if I cannot answer the questions and says "study." Then I am more afraid of mathematics.", while participant S 16 said "For example, in primary school (2nd grade), my teacher asked me to come to the board, and I could answer the question. He/She asked me another question, and I couldn't answer it, too. Then he/she got angry at me for not studying. After that, I became afraid of mathematics". They stated that teachers' negative attitudes and feedback caused their mathematics anxiety to increase.

Regarding the factors that decrease mathematics anxiety, the participant S 17 said, "My teacher said "Well done" to me in the first mathematics lesson. After that, I now love mathematics, I study numbers, I solve problems when I am assigned homework. We also play games in the mathematics lesson". Similarly, S 4 participant stated that "I hear well done from the teacher, that's why I study." They stated that especially the positive attitude used by the teachers caused their math anxiety to decrease.

5.2. Student-Related Factors Theme

Within the scope of the factors affecting mathematics anxiety, opinions of primary school fourth-grade students on the theme of "Student-Related Factors" and the frequency and percentages of these views are given in Table 11:

Table 11. Views of Primary School Fourth-Grade Students on Student-Related Factors and Their Frequency

Themes	Code	Sub-Code	f(n:27)	%
Student-Related	Factors Increasing Anxiety	Nervousness – Stress	12	44
		Lack of Self-Confidence	8	30
		Not Studying	7	26
		Not Listening to the Lesson	6	22
	Factors Increasing Anxiety	Absenteeism	3	11
		Not Finding Oneself Intelligent	4	15
		Self-Confidence	3	11
		Positive Self-Efficacy Belief	2	7

When Table 11 is analysed, out of 27 primary school fourth-grade students, 12 (44%) stated that nervousness-stress, 8 (30%) stated that lack of self-confidence, 7 (26%) stated that not studying, 6 (22%) not listening to lessons, 3 (11%) stated that absenteeism and 4 (15%) stated that not finding themselves intelligent increased their anxiety. In addition, 3 (11%) of the students stated that having self-confidence and 2 (7%) positive self-efficacy beliefs reduced their anxiety.

In this context, regarding the factors that increase mathematics anxiety, the S 2 participant said, "I am very nervous thinking if I cannot do it. I am not very smart, and I do not understand mathematics, so I am afraid." Participant S 21 stated that "I do not study; it is difficult anyway. I do not like it, and I say that I cannot even do what I know; how am I supposed to do what I do not know". Besides, participant S 5 said, "I do not like mathematics. I am afraid because I do not study". They stated that they suffered from stress, particularly about the lesson and underlined that they did not study the lesson, which led to an increase in their mathematics anxiety.

Regarding the factors that reduce mathematics anxiety, participant S 12 said, "I trust myself, I study, and I also solve the questions. Therefore, I love mathematics.", while participant S 9 similarly stated that "I study so I am not afraid of mathematics, I do it easily." They expressed that students' self-confidence and positive self-efficacy beliefs cause their mathematics anxiety to decrease.

5.3. Family and Friends-Related Factors Theme

Within the scope of the reasons affecting mathematics anxiety, opinions of primary school fourth-grade students on the theme of "Family and Friend-Related Factors" and the frequency and percentages of these views are given in Table 12:

Table 12. Views of Primary School Fourth-Grade Students on Family and Friend-Related Factors and Their Frequency

Themes	Code	Sub-Code	F(n:27)	%
Family and Friends Related	Factors Increasing Anxiety	Indifference	10	37
		Excessive Expectations	12	44
		Being a Subject of Ridicule	8	30
	Factors Decreasing Anxiety	Family Support	3	11
		Friend Support	2	7

When Table 12 is examined, it is seen that out of 27 primary school fourth-grade students 10 (37%) stated that indifference, 12 (44%) stated that excessive expectations, and 8 (30%) stated that being a subject of ridicule increased their anxiety. In addition, 3 (11%) of the students stated that family support and 2 (7%) stated that friend support decreased their anxiety.

In this context, regarding the code of the factors that increase mathematics anxiety, participant S 8 said, "My mother's favourite subject is mathematics, so she told me to get a high grade. That's why I study, but I am afraid that I won't get a high grade". Similarly, participant S11 said, "If I cannot solve the question when I come to the whiteboard, I am afraid that my friends

will laugh at me and I will feel sad. That's why I do come to the whiteboard". Participant S 3 said, "My mother does not know mathematics, and my father does not help me, so I cannot do it, and I do not understand it." The participants underlined that indifference, excessive expectations and being a subject of ridicule increased their anxiety.

Regarding the code of the factors that decrease mathematics anxiety, participant S 25 said, "We study together with my friend X and do it. I get along well with him/her. We both do it together, and we help each other out. We sometimes explain the questions and homework to each other and understand better". Participant S 17 said, "If I can't do it, I will ask my mother. If I cannot do it, she will help so I will not be afraid". The participants stated that students' family support and friend support led to a decrease in mathematics anxiety.

5.4. Exam-Related Factors Theme

Within the scope of the reasons affecting mathematics anxiety, opinions of primary school fourth-grade students on the theme of "Exam-Related Factors" and the frequency and percentages of these views are given in Table 17:

Table 13. Views of Primary School Fourth-Grade Students on Exam-Related Factors and Their Frequency

Themes	Code	Sub-Code	f(n:27)	%
Exam Related	Factors Increasing Anxiety	Fear of Exam	15	55
		Exam Nervousness- Stress	13	48
		Low Grade Anxiety	16	59

When Table 13 is examined, out of 27 primary school fourth-grade students, 15 (55%) stated that fear of exams, 13 (48%) stated that exam nervousness-stress, and 16 (59%) stated that low grade anxiety increased their anxiety.

In this context, regarding the factors that increase mathematics anxiety, participant S 22 said, "I study to get a high grade in mathematics, but sometimes I get low grades. That's why I'm afraid. I sometimes study, but I still forget during the exam.", while the participant S19 stated, "I do not know how to say. Sometimes the questions are difficult, so I also have exam stress on me, so sometimes I feel nervous." Participant S 18 said, "My grades are good, but I still get nervous in the exams thinking I will get low grades," and also, participant S 1 said, "I got nervous thinking I will get a low grade during the exam and I got a low grade". They stated fear of exams, exam nervousness-stress and low-grade anxiety caused their mathematics anxiety to increase.

DISCUSSION

When the findings of the mathematics anxiety levels of primary school fourth-grade students were considered, it was seen that the mean score for the mathematics anxiety exam dimension was the highest (9.17), and the mean score for the mathematics anxiety lesson dimension (3.89) was the lowest. When the literature is reviewed, it is seen that there are findings that both support and do not support this finding. In this context, similarly, in the study conducted by İpek (2019) on the mathematics anxiety of middle school students, it was found that the highest mean score belongs to exam anxiety, and the lowest mean score belongs to mathematics lesson anxiety. In the study conducted by Doğan (2018), it was determined that the highest frequency of the factors that increase mathematics anxiety belongs to exam anxiety. Additionally, Uusimaki & Nason (2004) stated in their study that 48% of the participants stated that the situations that created the highest mathematics anxiety were written and oral exams.

It was determined that the mean score of primary school fourth-grade students in terms of gender variable for their math anxiety levels did not show a significant difference. This finding is supported by Aydın & Keskin (2017), Dede & Dursun (2008), Gunderson, et al. (2018), Sorvo, Koponen, Viholainen, Aro, Raikkonen, Peura, Dowker, & Aro (2017), Şimşek, et al. (2017), Zakaria, Zain, Ahmad, and Erlina (2012), whereas it is not supported by the studies conducted by Bozkurt (2012), Eldemir (2006), Gündem (2017) and Konca (2008).

When the findings regarding the relationship between the mathematics anxiety levels of primary school fourth-grade students and their mathematics lesson academic achievement were examined, it was found that there was a moderately negative relationship between mathematics anxiety and mathematics lesson academic achievement. When the literature is examined, the studies carried out by Arslan, Güler & Gürbüz (2017), Cargneluttia, Tomasettob & Passolunghia (2017), Devine, Fawcett, Szűcs & Dowker (2012), İlhan & Öner Sünkür (2012), İpek (2019), Kesici (2015), Kılıç (2011), Richardson & Suinn (1972), Yenilmez & Özabacı (2003) and Zakaria, et al. (2012) seem to support this finding.

When the findings regarding whether or not mathematics anxiety levels of primary school fourth-grade students affect their academic achievement in the mathematics lesson, it was determined that mathematics anxiety predicted the academic achievement in mathematics lesson by 15.8%. When the literature is reviewed, studies supporting this finding are available. In this context, Pekdemir (2015) found this rate as 7% in their study carried out with ninth and tenth-grade students, and İlhan & Öner Sünkür (2012) found the predictive rate of mathematics anxiety for mathematics lesson as 18%. Finally, Bozkurt (2012) found in his study with secondary school students that 23% of mathematics anxiety variance was associated with mathematics grade.

When the findings of the interviews conducted to determine the factors that create students' mathematics anxiety were examined, it was seen that teachers could have increasing or decreasing effects on students' mathematics anxiety. In this context, it is seen that the factors of "Negative Feedback" and "Negative Attitude Towards Students" increase mathematics

anxiety in students. On the other hand, it is observed that factors such as "Reward-Reinforcer", "Positive Attitude Towards Students," and "Method-Technique" decrease mathematics anxiety in students. When the results obtained are examined in the literature, it is seen that these findings are supported by many researchers. In this context, Karlı Şentürk (2016) stated that the teacher-student relationship is a predictor of mathematics anxiety. Elçi (2002) stated that the behaviors and attitudes of mathematics teachers can affect students positively or negatively. Bekdemir, Işık & Çıkılı (2004) stated that the most important factor in the development of mathematics anxiety is the negative behaviours of teachers. On the other hand, it is known that teachers' positive attitudes towards students help students love the teacher, and thus loving the teacher encourages students to love the lesson and their anxiety towards the declines (Alkan, 2011; Baban, 2018; Furner & Berman, 2003; Öztürk, 2016). Harper & Dianne (1998) stated in their study that the inflexible and strict classroom environment and the method and techniques used by teachers were effective in the development of mathematics anxiety. Finally, Newstead (1998) stated that students who are taught with traditional methods have higher mathematics anxiety levels than students who are taught with alternative methods.

Another finding is that the factors of "Nervousness - Stress", "Lack of Self-Confidence", "Not Studying", "Not Listening to the Lesson", "Absenteeism" and "Not Finding Oneself Intelligent" increase students' mathematics anxiety, whereas "Self-confidence", "Positive Self-Efficacy Belief," and "Studying Enough" decreased mathematics anxiety. It is determined that these findings are supported in the literature. In this context, Aydın & Keskin (2017) stated in their study that there was a significant relationship between students' feeling self-confident or self-efficacious in a mathematics lesson and their mathematics anxiety levels and feeling self-confident or self-efficacious reduced their anxiety levels. Sapma (2013), on the other hand, stated that lack of self-confidence, forgetting, fear, not finding oneself intelligent, and hopelessness lead to mathematics anxiety. In addition, Gündem (2017) stated in their study that there was a significant relationship between the mathematics levels at which students saw themselves and their mathematics anxiety levels and the anxiety scores of the students who considered themselves inefficacious in mathematics class were found to be the highest. Finally, Kalın (2010) stated that as the positive self-efficacy belief increases, anxiety decreases.

When the findings of the study are examined, it is seen that one of the factors that increase or decrease mathematics anxiety is family and friend-related. In this context, it is observed that the factors of "Indifference," "Excessive Expectations," and "Being a Subject of Ridicule" increase students' mathematics anxiety. On the other hand, it is seen that the factors of "Family Support" and "Friend Support" are factors that decrease mathematics anxiety in students. When the results obtained are compared with the literature, it is seen that they are supported by many researchers. In this context, Şimşek et al. (2017) stated that the most important reason for mathematics anxiety in students is students' friends. In addition, Yenilmez & Midilli (2006) found a significant relationship between parents and students' mathematics anxiety levels. In this context, Varol (1990) stated that the high academic achievement expected by parents from their children causes the fear of not achieving a high level of success in children, and this fear results in anxiety in children and therefore negatively affects their academic success. On the other hand, Baban (2018) stated that there are differences between the students who receive support from the family and those who do not and that the mathematics anxiety levels of the students who receive support from their families are lower than the students who do not receive support from their families. Finally, Öztürk (2016) stated that family support increases motivation, and thus, mathematics anxiety decreases and mathematics achievement rises.

When the study findings are examined, it is seen that one of the factors increasing or decreasing mathematics anxiety is exam-related. In this context, it is seen that the factors of "Exam Fear," "Exam Nervousness-Stress," and "Low-Grade Anxiety" increase students' mathematics anxiety. When the obtained results are compared with the literature, it is seen that they are supported by many researchers. In this context, Şan & Akdağ (2017) stated that exam anxiety affects exam performance, and there is a negative relationship between exam anxiety and exam performance. On the other hand, Karadağ & Karadeniz (2014) stated that high-grade expectation causes students to make mistakes, resulting in mathematics anxiety. Besides, Yenilmez & Midilli (2006) stated that students with low mathematics grades have a high mathematics anxiety level.

When the research findings are examined, it is seen that one of the factors increasing or decreasing mathematics anxiety is lesson-related. In this context, it is seen that the factors of "Difficulty Level of the Lesson," "Complexity of the Subjects," and "Disliking Lesson" increase the students' mathematics anxiety. On the other hand, it is seen that the factor of "Liking the Lesson" is a factor that decreases the mathematics anxiety in students. When the results obtained are compared with the literature, it is seen that they are supported by many researchers. In this context, Yenilmez, Girginer, & Uzun (2004) stated that the difficulty level of the mathematics lesson perceived by the students causes them to have negative feelings towards the reading. Also, Türkmenoğlu, Aytekin, & Arıkan (2019) found that the anxiety levels of pre-service teachers who liked the subject were lower than those who did not like the subject. In their study with middle school students, Taşdemir (2015) found a significant relationship between liking or disliking the mathematics lesson and mathematics anxiety levels, and those who loved the mathematics lesson had lower anxiety levels than those who did not. Finally, Baban (2018) stated that there is a significant relationship between mathematics anxiety level and liking the mathematics lesson, and the more the student likes the lesson, the lesser level of anxiety towards the lesson.

CONCLUSION AND RECOMMENDATIONS

In the study, it is seen that there is not a single factor that causes mathematics anxiety. Different factors come together and lead to math anxiety in students. In this context, by considering the factors that cause mathematics anxiety as a whole, studies for cooperation between teachers, students and parents can be carried out.

In the study, it is seen that the parents' approach to the student affects the level of math anxiety in the student. In this context, guidance studies can be carried out for families on how to approach students.

It is observed that there is a significant negative relationship between the mathematics anxiety self-efficacy dimension of students and their mathematics lesson achievement. In this context, face-to-face guidance services, seminars or courses can be provided to increase students' self-efficacy levels.

It is seen in the present study that one of the reasons for mathematics anxiety is related to the teacher. In this context, practical in-service training activities can be conducted to help teachers adopt approaches in their attitudes and behaviours towards students in the classroom. In addition, considering that the positive reinforcers given to the students reflect positively on the students, it can be suggested to conduct studies on how to give positive reinforces in the classroom.

The study determined that the factors that create mathematics anxiety are teachers, students, lessons, and exams. In this context, researchers may be suggested to work on these themes.

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Statements of publication ethics

We hereby declare that the study has not unethical issues and that research and publication ethics have been observed carefully.

Researchers' contribution rate

The study was conducted and reported with equal collaboration of the researchers.

Ethics Committee Approval Information

Ethics Committee approval of the research was obtained with the Ethics Committee Decision dated 03/04/2019 and numbered 04-01 of Erzincan Binali Yıldırım University Institute of Social Sciences (Number: 44495147-50.01.04-E.17931).

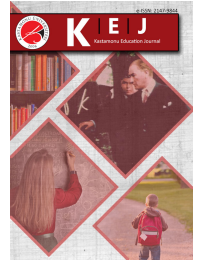
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| Research Article / Araştırma Makalesi |

How Well Do International Students Adapt to The Turkish Higher Education System?

Uluslararası Öğrenciler Türk Yükseköğretim Sistemine Ne Kadar İyi Uyum Sağlıyor?

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Keywords

1. Adaptation
2. Adjustment
3. International Students
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Anahtar Kelimeler

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Abstract

Purpose: Although several studies have been conducted on international students regarding different variables related to internationalization in higher education, the adaptation issues have been neglected or given little attention in general. This study, designed as descriptive cross-sectional research, explores the general adaptation levels of international students in relation to various variables frequently discussed in the related literature through the data obtained from 1266 participants from 58 countries at a state university with the highest number of international students in Türkiye.

Design/Methodology/Approach: Data collected through the General Adaptation Scale for International Students was analyzed using descriptive statistics, independent sample t-tests, one-way ANOVA and Pearson correlation coefficients.

Findings: Findings reveal that more than half of the international students are at a fairly adapted level. While they achieved the highest mean scores in sociocultural adaptation, the lowest mean scores were in psychological adaptation. Analyses indicate that gender, scholarship, host language proficiency and international students' countries create significant differences in their adaptation levels. Also, there are significant low or moderate positive correlations among the sub-factors and general adaptation.

Highlights: Findings, discussion, and implications offer novel insights for higher education administrators, authorities, and policymakers to facilitate the adaptation process of international students at universities.

Öz

Çalışmanın amacı: Yükseköğretimde uluslararasılaşma ile ilgili farklı değişkenler konusunda uluslararası öğrenciler üzerinde birçok çalışma yapılmış olmasına rağmen, uluslararası öğrencilerin uyum konusu ihmal edilmiş veya oldukça sınırlı sayıda araştırmada dikkate alınmıştır. Kesitsel tarama modelinde tasarlanan bu çalışmada, Türkiye'de en fazla uluslararası öğrenciye ev sahipliği yapan bir devlet üniversitesinde öğrenim gören 58 ülkeden toplam 1266 katılımcıdan elde edilen veriler temel alınarak ilgili literatürde sıkça tartışılan çeşitli değişkenler bağlamında uluslararası öğrencilerin genel uyum düzeylerinin belirlenmesi amaçlanmıştır.

Materyal ve Yöntem: Uluslararası Öğrenciler için Genel Uyum Ölçeği aracılığıyla toplanan veriler, tanımlayıcı istatistikler, bağımsız örneklem t testi, tek yönlü ANOVA ve Pearson korelasyon katsayıları kullanılarak analiz edilmiştir.

Bulgular: Bulgular, araştırmaya katılan uluslararası öğrencilerin yarısından fazlasının oldukça uyumlu bir düzeyde olduğunu ortaya koymaktadır. Öğrenciler en yüksek ortalamayı sosyokültürel uyumda elde ederken, en düşük ortalamayı psikolojik uyumda göstermişlerdir. Analizler cinsiyet, burs alma durumu, ev sahibi dil yeterliliği ve uluslararası öğrencilerin geldikleri ülkelerinin uyum seviyelerinde önemli farklılıklar yarattığını göstermektedir. Ayrıca alt faktörler ile genel uyum arasında anlamlı düzeyde düşük veya orta düzeyde pozitif ilişkiler bulunmaktadır.

Önemli Vurgular: Bulgular, tartışma ve öneriler, uluslararası öğrencilerin üniversitelere uyum sürecini kolaylaştırmak için yükseköğretim yöneticilerine, yetkililere ve politika yapıcılara yeni bakış açıları sunmaktadır.

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INTRODUCTION

The demand for higher education has risen considerably due to globalization and increasing internationalization in higher education (HE). Furthermore, a substantial number of students aspiring to study abroad leads to the rapid growth of overseas higher education (Mok et al., 2021). As a result, millions of students have been travelling across geographic and cultural frontiers for educational purposes. To illustrate the magnitude of this global movement, De Wit and Altbach (2021) claim that student mobility has doubled every other decade for the past fifty years, and the estimation for the next decade is 8 million mobile students. Since international students bring about social, cultural, and economic benefits for host countries (Terry, 2011), student mobility trends are important to universities, educators, corporate leaders, and governments to boost profitability and diversity on campuses around the world (Bista, Sharma & Gaulee, 2018). Therefore, it is critical to look into ways to attract and accommodate these students well.

Given the importance of international students to host countries, various nations have devoted extensive efforts to devising HE policies in a more international direction. Some of these nations have already undergone this process and achieved great success in the internationalization of higher education. For instance, the United States and the United Kingdom, due to the outstanding reputations of their higher education institutions (HEIs), have been the two most popular destinations for international students (Austin & Shen, 2016). Canada, China, Australia, France, Russia, Germany and so on are among those nations on the list of the most preferred countries by international students (Atlas, 2020). Furthermore, internationalization in higher education with a specific emphasis on global student mobility has become a significant policy and practice agenda for most other nations. Thus, international competition has intensified among countries that desire more benefits from the process. De Wit and Altbach (2021) point out a shift from traditional destinations to emerging ones for international students across the world. China, Singapore, and Malaysia could set an exemplar of those new destinations (Altbach & Engberg, 2014). Over five million students travel across national borders for higher education today, and this crossing provides financial gain and serves national interests (Bista, Sharma & Gaulee, 2018). For these reasons, the benefit-driven perspective has transformed national HE policies; thus, a growing body of countries has started to look for ways to gain more of the process. In this respect, Teichler (2017) posits that student mobility has become a fundamental priority of policy and practice in higher education as the number of students in a host country has become a key indicator of internationalization.

Among all the countries mentioned above and some others too, Türkiye, a developing country, as many others do, has adopted the benefit-driven approach, and started to devise HE policies for more internationalization in higher education. The policies have enabled the country to host a growing number of international students (Seggie & Ergin, 2018). According to the statistics released by the Turkish Higher Education Council (CoHE), the number has been increasing for the last twenty years.



Figure 1. Growing number of international students at Turkish HEIs (CoHE, 2022)

As shown in Figure 1, there has been a steady increase in international students for the last two decades. Several factors have contributed to this constant growth in numbers. To illustrate, Kılınç, Kurt and Ortaç (2021) point out that Erasmus+, Türkiye Scholarships, Mevlana Exchange Program, Joint Diploma Programs and Project-Based International Exchange Program are among the significant initiatives taken to foster the number of international students at Turkish HEIs. However, during the last decade, particularly after the Syrian conflict, millions of people had to take shelter in Türkiye as the situation intensified (Arslan & Kılınç, 2021). Since then, Syrian students have had a considerable impact on the rise in the numbers, and the increase rate has almost doubled compared to the first decade of the last twenty years.

In addition, government policies that enable and encourage students from especially Turkic Republics, Middle Eastern countries and other Muslim countries to study in Türkiye, wars, and internal conflicts in Türkiye's close geography in recent years, Türkiye's position as a model state for these countries are regarded the influential factors in this process (Erdem & Polat, 2019). The historical, social, cultural and linguistic similarities between their countries and Türkiye, geographical proximity, affordability, accessibility, student admission conditions and bilateral relations between countries are other factors that international students consider while preferring higher education institutions in Türkiye (Erişti, Polat & Erdem, 2018). In sum, in the case of Türkiye, a

wide range of factors has played a significant role in attracting more international students and having a competitive edge in terms of internationalization in higher education.

In recent decades, the Turkish HE system has expanded its capacity for the growing number of international students. With this expansion, Turkish HEIs have begun to redesign their systems and infrastructure accordingly, yet international students' adaptation challenges and issues have become more ubiquitous. As the adaptation to a new cultural setting unfolds itself on multiple levels, involving social, psychological, academic, and environmental, adapting effectively is critical for social and academic success (Ashifa, 2021). Regarding the adaptation challenges international students have faced, Berry (2005) states that adapting to a host culture is a stressful and arduous experience. In this sense, the notion of adaptation, a combination of subsets that constitute this multi-faceted concept, has come to the fore (Polat & Arslan, 2022). However, the literature on this broad concept is widely dispersed. As in the case of international students, for example, acculturation with a specific emphasis on acculturative stressors that is frequently addressed by many (e.g., Akdağ & Koçak, 2020; Boynuegri & Sener, 2021; Gomez et al., 2014; Khawaja & Stallman, 2011; Li et al., 2014; Nasirudeen et al., 2014), could be regarded one of the subsets of the general adaptation concept. Besides, when the literature on international students' adaptation is examined, it is evident that several other studies (e.g., Gibbs et al., 2020; Kağnıcı, 2012; Li & Gasser, 2005; Wang et al., 2015; Zhou et al., 2008) embrace a different term as cross-cultural adaptation instead of acculturation and acculturative stressors, yet the topical foci of the studies deal with the similar issues. In this regard, cross-cultural adaptation, which refers to another broad term consisting of two closely intertwined but empirically distinguished concepts of sociocultural adaptation and psychological adaptation (Berry, 1997), could also be considered another subset of general adaptation. In a broad sense, although the literature on the subject is vast and conceptually diverse, the main focus revolves around the adaptation challenges international students face.

In line with the mentioned above, the available research has shown that international students suffer from various stressful experiences, including challenges with the host country's culture and language, racial tensions, climate differences, isolation, psychological issues, new daily life routines, economic problems and so on (Knight, 2011; Oyenini et al. 2021; Smith & Khawaja, 2011; Spencer-Oatey & Xiong, 2006; Wang & Mallinckrodt, 2006). Hence, various factors have been identified as critical determinants of the general adaptation process. Consistent with the previous research, language proficiency (Wang & Hannes, 2014), social support from family, local people, international or local friends (Hendrickson et al., 2011), cultural awareness and intercultural communication skills (Dai & Zhao, 2021) are considered among those determinants of the process. In this sense, today, it is more important than ever to assess their needs and engage in practices that can help them with their adaptation phase.

With the heightened awareness of the adaptation challenges international students confront, a growing body of literature on the issue has revealed significant findings, in particular to Turkish HEIs. In a recent study on international students, for example, Gibbs et al. (2020) have indicated that the host country's language proficiency and interpersonal connections with host nationals are critical elements for sociocultural adaptation. Yet, interpersonal connections with co-nationals brought about a poor level of psychological adaptation. Besides, Cura and Işık (2016) have pointed out that low-level acculturative stressors improve academic adjustment and success. In another study conducted in Türkiye, homesickness has been demonstrated to have a negative impact on the process of sociocultural adaptation (Sezer, Karabacak & Narseyitov, 2021). Among many other problems that international students cope with, Titrek et al. (2016) have mentioned that international students experience communication, housing, health, and cultural challenges throughout their stay in Türkiye. Ashifa (2021), in a recent study, has proved the importance of language skills for effective adjustment. Snoubar (2017) has listed in his research that academic and financial problems, together with social pressure and discrimination, are among the most prevailing issues experienced by international students in Türkiye. From a broader perspective, Kılınç, Arslan and Polat (2020) have reported that international students often confront sociocultural, psychological, financial, and academic challenges.

Against this backdrop, by being cognizant of the needs of international students, developing new ways to facilitate the adaptation process has taken precedence. To this end, the current study utilizing a holistic instrument developed by Polat and Arslan (2022) aims to examine the general adaptation levels of international students in relation to various variables frequently discussed in the related literature. The research questions addressed in the study are as follows:

1. What are the adaptation levels of international students?
2. Do the adaptation levels of international students differ significantly regarding their genders?
- 3- Do the adaptation levels of international students differ significantly regarding their scholarship status?
- 4- Do the adaptation levels of international students differ significantly regarding their Turkish language levels?
- 5- Do the adaptation levels of international students differ significantly regarding their home countries?
- 6- What are the correlation levels among the factors?

METHOD

Research Design

This study employs a descriptive cross-sectional research design to reach an understanding of the general adaptation levels of international students. Cross-sectional survey research gathers descriptive information from a group of participants selected

among a pre-set population at a specific point in time (Fraenkel, Wallen, & Hyun, 2011). This type of research has been regarded as getting an image of the target group in terms of certain variables (Lavrakas, 2008).

Participants

The research data were obtained from a sample of international students studying at Karabuk University. The university holds more than 310 bilateral agreements globally and welcomes more than 11,000 international students from 94 countries. Additionally, since the vision of the university is to become a pioneer in the internationalization process, it offers BA, MA, MSc, and PhD programs compatible with the Bologna Process quality assurance standards, and hence it has become one of the most favored destinations among Turkish universities (KBU, 2022). A total of 1266 international students, who were selected using random sampling, (see Table 1.) participated in the research. Descriptive statistics indicated that the participants were from 58 countries. While 24 countries were represented by at least 30 students, which is regarded as a threshold for the statistical tests to compare the means of two or more groups, a total of 106 students from 34 other countries contributed to the richness of the quantitative data. As depicted in Table 1, the distribution of the participants in terms of gender, duration of stay, and the host language proficiency levels also, reflects the diversity in the study sample.

Table 1. Participants' profile

Variables		N	%	Country	N	%
Gender	Female	303	23,9	Syria	116	9,2
	Male	963	76,1	Chad	69	5,5
Scholarship	Yes	159	12,6	Gabon	67	5,3
	No	1107	87,4	Egypt	65	5,1
Duration of Stay	0-6 Months	205	16,2	Pakistan	63	5,0
	7-12 Months	332	26,2	Somalia	63	5,0
	13-24 Months	212	16,7	Jordan	55	4,3
	25 or more months	517	40,8	Yemen	53	4,2
Turkish Proficiency	A1	64	5,1	Kazakhstan	50	3,9
	A2	83	6,6	Sudan	43	3,4
	B1	157	12,4	Afghanistan	42	3,3
	B2	367	29,0	Senegal	42	3,3
	C1	451	35,6	Uzbekistan	42	3,3
	C2	144	11,4	Iraq	41	3,2
				Morocco	41	3,2
				Palestine	40	3,2
				Guinea-B.	39	3,1
				Azerbaijan	36	2,8
				Cameroon	34	2,7
				Djibouti	34	2,7
				Rep. of the Congo	33	2,6
				D. Rep. of the Congo	31	2,4
			Iran	31	2,4	
			Turkmenistan	30	2,4	
			Others (34 countries)	106	9,1	
			Total	1266	100	

Data Collection Tools

The research utilizes the General Adaptation Scale for International Students (GASIS) developed by Polat & Arslan (2022) to collect quantitative data. GASIS consisting of four factors labelled as academic adaptation, sociocultural adaptation, psychological adaptation, and daily life adaptation, was designed to determine international students' general adaptation levels to a host country. Based on a set of particular parameters explicitly specified in the literature, the researchers created a comprehensive and sequential strategy to develop the scale. The scale's validity and reliability were examined in two phases on two separate groups of international students. According to the results, GASIS composed of 28 items grouped under four factors has been proven a reliable and valid instrument. GASIS also classifies students into five categories based on their mean scores achieved on the scale as not adapted, partly adapted, moderately adapted, fairly adapted, and totally adapted according to its scoring key.

Data Collection Process

Upon receiving permission from the Ethics Committee of the institution, the researchers began data collection. Research data were collected by the researchers in classes over a two-week period from the faculty of engineering, economics and administrative sciences, school of foreign languages and TOMER at Karabuk University. Following a preset plan, the researchers first explained the research's purpose, scope and importance in the classrooms they visited, then collected data only from students who volunteered to participate. Before the analysis, the complete questionnaires from a total of 1304 students were checked in detail,

and 38 of them were excluded as they were left unmarked or marked more than one option in the same question. Hence, the researchers decided to continue with the dataset collected from 1266 students.

Data Analysis

Before deciding on the data analysis techniques, preliminary analyses to check the normality of the data were conducted by graphical methods through histogram and Q-Q plot (see Figure 2) (McKillup, 2011) and descriptive statistics (Table 2) including the three measures of central tendency such as mean, mode, median, skewness and kurtosis values (Kirk, 2008). According to the findings, mean, median and mode are moderately close to each other which is regarded as an indicator of normal distribution (Steinberg & Price, 2020). Likewise, skewness and kurtosis values are between the acceptable thresholds (Field, 2009; Hair et al., 2010). Finally, the bell-shaped histogram and normal Q-Q plot of the mean representing the normal distribution of the data (Figure 2) verify the descriptive statistics. Based on the findings above, the researchers opted to run parametric tests in the data analysis procedure after validating the normality assumptions.

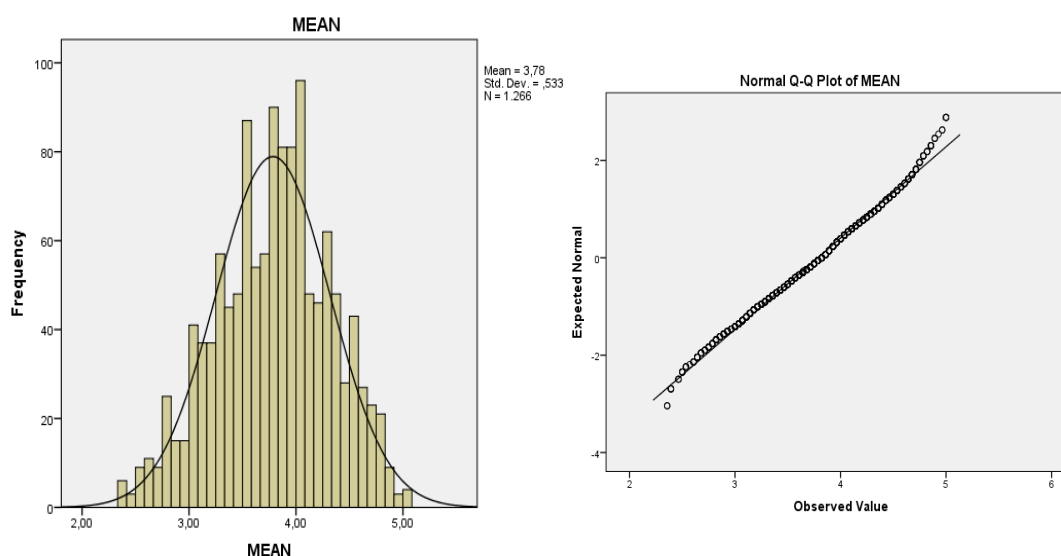


Figure 2. Histogram & Q-Q plot of mean

Validity and Reliability

In this research, to confirm the validity of the instrument utilized in the study the confirmatory factor analysis was carried out. Before performing CFA, the Kaiser-Meyer-Olkin (KMO=.91) coefficient was examined first, then the Barlett sphericity test (11248.121, $p < .001$) was calculated to determine the suitability of the data. According to the preliminary analysis and calculations, the data were found to be suitable for the analysis. CFA was then conducted to confirm the four-factor structure. At this stage, the χ^2/df ratio, RMSEA, SRMR, GFI, NNFI, CFI and IFI fit indices were used, and it was found that all values verify excellent and good levels of fit (See Table 2). Thus, the scale can be considered a valid and reliable instrument (Jöreskog & Sörbon, 1993; Kline, 2011; Schermelleh-Engel, Moosbrugger & Müller, 2003; Schumacher & Lomax, 2004).

Table 2. CFA results

Fit Indices	Observed Values	Acceptable Values
χ^2/df	4.28	Acceptable Fit $\chi^2/df \leq 5$
RMSEA	0.051	Good Fit RMSEA ≤ 0.80
S RMR	0.045	Good Fit S RMR ≤ 0.80
GFI	0.92	Good Fit GFI ≥ 0.90
AGFI	0.91	Good Fit AGFI ≥ 0.90
CFI	0.93	Good Fit CFI ≥ 0.90
NFI	0.95	Good Fit NFI ≥ 0.90
NNFI	0.96	Excellent Fit NNFI ≥ 0.95
IFI	0.96	Good Fit IFI ≥ 0.95

The reliability of the instrument was calculated through Cronbach's Alpha which is the most common measure of internal consistency. Table 3 presents the alpha values for the total scale and the sub-factors. Cronbach's Alpha changes within the limits of 0 and 1 and Field (2009) highlights that the values between .70 or higher point out an acceptable reliability level. The findings show that internal consistency of the total scale and sub-factors ranges between .79 and .89 which signifies the high level of reliability of the instrument.

Table 3. Reliability test results

Factors	Cronbach's Alpha Values
Academic Adaptation	.79
Socio-cultural Adaptation	.80
Psychological Adaptation	.85
Daily Life Adaptation	.80
General Adaptation	.89

FINDINGS

Adaptation Levels of International Students

Regarding the first research question, the adaptation levels of international students were analyzed in general and within the four sub-factors called Academic Adaptation (AA), Sociocultural Adaptation (SCA), Psychological Adaptation (PA) and Daily Life Adaptation (DLA). The findings, including all descriptive statistics in detail presented in Table 4.

Table 4. Descriptive statistics of international students' adaptation levels

N	Valid Missing	Total 1266 0	AA 1266 0	SCA 1266 0	PA 1266 0	DLA 1266 0
Mean		3,78	3,77	3,94	3,54	3,90
Median		3,82	3,83	4,00	3,62	4,00
Mode		3,93	4,00	4,00	4,00	4,00
Std. Deviation		,533	,735	,653	,862	,649
Skewness		-,185	-,662	-,696	-,453	-,444
Std. Error of Skewness		,069	,069	,069	,069	,069
Kurtosis		-,385	,499	,916	-,166	,379
Std. Error of Kurtosis		,137	,137	,137	,137	,137

The findings display that the mean scores of international students in the total scale is 3,78 which is categorized as "fairly adapted" according to the scoring system of the instrument (Polat & Arslan, 2022). Similarly, although there are differences among the mean scores of the factors, all of the observed values point out that there is no significant difference in the adaptation levels of international students regarding the sub- factors. While the highest level is acquired in sociocultural adaptation (3,94), the lowest level is achieved in psychological adaptation (3,54).

Table 5. Adaptation levels of international students

	General Adaptation		Academic Adaptation		Socio-Cultural Adaptation		Psychological Adaptation		Daily-life Adaptation	
	M	%	M	%	M	%	M	%	M	%
Not adapted	0	0	15	1,2	7	0,6	37	2,9	4	0,3
Partly adapted	18	1,4	75	5,9	43	3,4	145	11,5	45	3,6
Moderately adapted	292	23,1	246	19,4	145	11,5	324	25,6	182	14,4
Fairly adapted	671	53,0	611	48,3	640	50,6	457	36,1	675	53,3
Totally adapted	285	22,5	319	25,2	431	34,0	303	23,9	360	28,4

When the mean scores of the international students were classified according to the GASIS's scoring key, the findings show that more than half of the students are at the "fairly adapted" level in general (see Table 5). In addition, it is clear that only 1.4% of the students are in the "not adapted" and "partly adapted" categories. Finally, it can be stated that approximately one out of every five students has reached the "well-adapted" level. Although there are some differences in terms of frequency and percentage distribution, the mean scores of students obtained in the sub- factors are quite similar to the general adaptation levels. In addition, the descriptive statistics of international students on the basis of items are presented in Table 6.

Table 6. Mean scores and standard deviation of the scale items.

Item	Mean	SD
<i>Academic Adaptation</i>		
1 I feel supported by my university.	3,77	1,15
2 I am satisfied with my academic progress.	3,43	1,01
3 My teachers provide the necessary support when I need.	3,94	1,07
4 When I need help, my classmates are there for me.	3,85	1,06
5 I am comfortable with the teaching styles of my new teachers.	3,88	1,01
6 I collaborate with my classmates on school projects.	3,82	1,01
<i>Socio-Cultural Adaptation</i>		
7 I am aware of national days and religious festivals of the host country.	3,80	1,09
8 I enjoy the local food of the host country.	3,77	1,04
9 I love the local music of the host country.	3,90	1,01
10 I understand and tolerate jokes and humor.	3,82	,985

11	I respect the values and cultural norms of the host country.	4,40	,768
12	I am aware of culturally accepted manners in the host country.	4,10	,892
13	I believe that I have integrated myself into the host culture.	3,81	,971
<i>Psychological Adaptation</i>			
14	I feel like I don't fit in this country.	3,30	1,23
15	I feel lonely in a social environment.	3,44	1,24
16	I feel powerless in this country.	3,39	1,27
17	Talking with locals makes me anxious.	3,58	1,23
18	When I wake up, I don't feel motivated for a new day.	3,51	1,26
19	I don't know how to cope with my anxieties.	3,54	1,21
20	I want to give up everything because I feel lost here.	3,96	1,17
21	I feel burned out here.	3,65	1,21
<i>Daily Life Adaptation</i>			
22	I know the basic legal regulations of this country.	3,37	1,09
23	I know how to travel here.	4,03	,893
24	I know where to buy basic supplies.	4,13	,884
25	I know what to do in a state of emergency.	3,78	1,07
26	I'm getting used to my new lifestyle in this country.	4,13	,865
27	I know how to survive on my budget in this country.	3,98	1,01
28	I can deal with everyday problems that I face.	3,93	,934

As reflected in Table 6, five items with the lowest mean scores are the items numbered 14(PA), 22(DLA), 16(PA), 2(AA), and 15(PA), respectively. Three of these items are grouped under psychological adaptation, one of them is associated with daily life adaptation, and one of them is linked to the academic adaptation factor. In addition, five items with the highest mean score are the ones numbered 11(SCA), 24(DLA), 26(DLA), 12(SCA) and 23(DLA), respectively. While two of these items are related to sociocultural adaptation and three of them are connected with daily life adaptation.

Adaptation Levels of International Students Regarding Their Genders and Scholarship Status

Independent sample t-tests were conducted to reveal whether the adaptation levels of international students differ significantly according to gender and whether they receive scholarships or not. There is no significant difference in the mean scores of the total scale $t(1264) = -0.911$ $p > 0.05$. However, there are significant differences in favor of males in the mean scores obtained in the sociocultural adaptation $t(1264) = -3.159$ $p < 0.005$ and daily life adaptation $t(1264) = -2.429$ $p < 0.05$ factors (see Table 7).

In addition, the results also indicate a significant difference in the means of the total scale for scholarship status $t(1264) = 2,213$ $p < 0.05$. Although there is no significant difference in terms of three factors, the difference between the scholarship students and non-scholarship students is also significant in the academic adaptation factor (1264) = 4,109 $p < 0.001$ (See Table 7).

Table 7. T-test results regarding gender and scholarship variables

Variables	Adaptation of International Students										
	Total			Academic Adaptation		Socio-Cultural Adaptation		Psychological Adaptation		Daily Life Adaptation	
	<i>M</i> <i>SD</i>	<i>t</i> (<i>p</i>)	<i>df</i>	<i>M</i> <i>SD</i>	<i>t</i> (<i>p</i>)	<i>M</i> <i>SD</i>	<i>t</i> (<i>p</i>)	<i>M</i> <i>SD</i>	<i>t</i> (<i>p</i>)	<i>M</i> <i>SD</i>	<i>t</i> (<i>p</i>)
<i>Gender</i>											
Female	3.76 0.55	-911 (,362)	1264	3.84 0.72	1.810 (0.071)	3.83 0.64	-3.159 (0.002)**	3.57 0.89	0.553 (0.581)	3.82 0.66	-2.429 (0.015)*
Male	3.79 0.53			3.75 0.73		3.97 0.65		3.54 0.85		3.93 0.64	
<i>Scholarship</i>											
Yes	3.87 0.51	2,213 (0.027)*	1264	4.00 0.70	4.109 (0.000)***	4.00 0.66	0.068 (0.219)	3.57 0.85	0.027 (0.707)	3.97 0.69	0.081 (0.165)
No	3.77 0.53			3.74 0.73		3.93 0.65		3.54 0.86		3.89 0.64	

Notes: * $p < .05$, ** $p < .01$, *** $p < .001$.

Adaptation Levels of International Students Regarding Their Duration of Stay

One-way ANOVAs were conducted to find out answers to the third, fourth and fifth research questions. International students were classified into four groups based on the length of stay in Türkiye. The results demonstrate a statistically significant difference among the groups in the total scale $F(3, 1262) = 7.915, p = .000$. Similarly, there are significant differences both in the socio-cultural adaptation $F(3, 1262) = 17.390, p = .000$ and the daily life adaptation $F(3, 1262) = 15.212, p = .000$ according to international students' duration of stay (see Table 8). Post-hoc comparisons using Hochberg's GT2 uncovered the significant differences between groups in detail (see Table 9).

Table 8. Adaptation levels of international students regarding their duration of stay

Duration of Stay	Source	df	SS	MS	F	p
General Adaptation	Between groups	3	6,646	2,215	7,915	,000
	Within groups	1262	353,197	,280		***
	Total	1265	359,843			
Academic Adaptation	Between groups	3	,976	,325	,601	,614
	Within groups	1262	683,280	,541		
	Total	1265	684,256			
Socio-Cultural Adaptation	Between groups	3	21,435	7,145	17,390	,000
	Within groups	1262	518,533	,411		***
	Total	1265	539,968			
Psychological Adaptation	Between groups	3	4,812	1,604	2,164	,090
	Within groups	1262	935,317	,741		
	Total	1265	940,129			
Daily Life Adaptation	Between groups	3	18,595	6,198	15,212	,000
	Within groups	1262	514,229	,407		***
	Total	1265	532,823			

Notes: * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 9. Key findings of post-hoc analysis using Hochberg's GT2

Duration of Stay	Groups with significant mean differences	Mean Difference	p	95% Confidence interval	
				Lower Bound	Upper Bound
General Adaptation	0-6 months < 13-24 months	-,15388	0,018*	-0,2904	-0,0173
	0-6 months < 25 or more months	-,20544	0,000***	-0,3205	-0,0904
	7-12 months < 25 or more months	-,09930	0,045*	-0,1973	-0,0013
Socio-Cultural Adaptation	0-6 months < 13-24 months	-,28901	0,000***	-0,4545	-0,1236
	0-6 months < 25 or more months	-,34552	0,000***	-0,4849	-0,2061
	7-12 months < 13-24 months	-,15384	0,038*	-0,3023	-0,0054
Daily Life Adaptation	7-12 months < 25 or more months	-,21035	0,000***	-0,3291	-0,0916
	0-6 months < 7-12 months	-,14996	0,049*	-0,2994	-0,0005
	0-6 months < 13-24 months	-,27060	0,000***	-0,4354	-0,1058
Daily Life Adaptation	0-6 months < 25 or more months	-,33214	0,000***	-0,4710	-0,1933
	7-12 months < 25 or more months	-,18218	0,000***	-0,3005	-0,0639

Notes: * $p < .05$, ** $p < .01$, *** $p < .001$.

Adaptation Levels of International Students Regarding Their Turkish Proficiency Levels

The values obtained regarding the sixth research question (see Table 10) display that the Turkish proficiency level of international students is a significant variable in their mean scores in total scale scores and all sub-factors. Post hoc analysis using Hochberg's GT2 revealed that especially A1 level students have significantly lower adaptation levels than almost all other levels regarding the total mean scores and four factors. When Table 11 is examined holistically, it could be stated that lower-level students obtained significantly lower scores than the upper levels, but in terms of their lower overall scale scores, A1 level students appeared to be clearly distinct from all other levels.

Table 10. Adaptation levels of international students regarding their Turkish proficiency levels

Turkish Level	Source	df	SS	MS	F	p
General Adaptation	Between groups	5	28,707	5,741	21,847	,000
	Within groups	1260	331,136	,263		***
	Total	1265	359,843			
Academic Adaptation	Between groups	5	18,303	3,661	6,926	,000
	Within groups	1260	665,953	,529		***
	Total	1265	684,256			

<i>Socio-Cultural Adaptation</i>	Between groups	5	46,633	9,327	23,820	,000
	Within groups	1260	493,335	,392		***
	Total	1265	539,968			
<i>Psychological Adaptation</i>	Between groups	5	31,785	6,357	8,818	,000
	Within groups	1260	908,344	,721		***
	Total	1265	940,129			
<i>Daily Life Adaptation</i>	Between groups	5	28,977	5,795	14,493	,000
	Within groups	1260	503,846	,400		***
	Total	1265	532,823			

Notes: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 11. Key findings of post-hoc analysis using Hochberg's GT2

Turkish Level	a:A1 b:A2 c:B1 d:B2 e:C1 f:C2 Groups with significant mean differences	Mean Difference	p	95% Confidence interval	
				Lower Bound	Upper Bound
<i>General Adaptation</i>	A1 < A2	-,383	0,000***	-0,6335	-0,1333
	A1 < B1	-,485	0,000***	-0,7088	-0,2628
	A1 < B2	-,496	0,000***	-0,6999	-0,2925
	A1 < C1	-,490	0,000***	-0,6914	-0,2897
	A1 < C2	-,783	0,000***	-1,0093	-0,5575
	A2 < C2	-,399	0,000***	-0,6072	-0,1927
	B1 < C2	-,297	0,000***	-0,4711	-0,1241
	B2 < C2	-,287	0,000***	-0,4350	-0,1393
<i>Academic Adaptation</i>	C1 < C2	-,292	0,000***	-0,4367	-0,1489
	A1 < A2	-,412	0,010**	-0,7672	-0,0577
	A1 < B1	-,491	0,000***	-0,8078	-0,1754
	A1 < B2	-,511	0,000***	-0,8000	-0,2223
	A1 < C1	-,391	0,001**	-0,6765	-0,1069
<i>Socio-Cultural Adaptation</i>	A1 < C2	-,572	0,000***	-0,8927	-0,2520
	A1 < A2	-,426	0,001**	-0,7320	-0,1214
	A1 < B1	-,521	0,000***	-0,7941	-0,2497
	A1 < B2	-,545	0,000***	-0,7940	-0,2967
	A1 < C1	-,614	0,000***	-0,8595	-0,3692
	A1 < C2	-,967	0,000***	-1,2435	-0,6920
	A2 < C2	-,541	0,000***	-0,7940	-0,2881
	B1 < C2	-,445	0,000***	-0,6576	-0,2341
<i>Psychological Adaptation</i>	B2 < C2	-,422	0,000***	-0,6029	-0,2419
	C1 < C2	-,353	0,000***	-0,5291	-0,1778
	A1 < B1	-,542	0,000***	-0,9117	-0,1730
	A1 < B2	-,542	0,000***	-0,8796	-0,2049
	A1 < C1	-,487	0,000***	-0,8203	-0,1550
	A1 < C2	-,817	0,000***	-1,1921	-0,4438
	A2 < C2	-,405	0,008**	-0,7492	-0,0627
<i>Daily Life Adaptation</i>	B2 < C2	-,275	0,015*	-0,5206	-0,0308
	C1 < C2	-,330	0,001**	-0,5687	-0,0919
	A1 < B1	-,379	0,001**	-0,6550	-0,1049
	A1 < B2	-,381	0,000***	-0,6328	-0,1303
	A1 < C1	-,455	0,000***	-0,7029	-0,2074
	A1 < C2	-,740	0,000***	-1,0190	-0,4617
	A2 < C2	-,457	0,000***	-0,7134	-0,2021
	B1 < C2	-,360	0,000***	-0,5744	-0,1464
<i>Daily Life Adaptation</i>	B2 < C2	-,358	0,000***	-0,5412	-0,1764
	C1 < C2	-,285	0,000***	-0,4627	-0,1076

Notes: * $p < .05$, ** $p < .01$, *** $p < .001$.

Adaptation Levels of International Students Regarding Their Countries

Although there were international students from 58 countries only 24 countries were represented by 30 or more students (see Table 12), which is accepted as the threshold for the statistical tests to compare the means of two or more groups, so ANOVA was conducted based on the data obtained from 1159 students from 24 countries. Table 12 displays that adaptation levels of international students differ significantly regarding their countries not only in general adaptation level $F(23, 1136) = 4,421, p = .000$ but also in academic adaptation $F(23, 1136) = 2,872, p = .000$, socio-cultural adaptation $F(23, 1136) = 3,608, p = .000$, psychological adaptation $F(23, 1136) = 3,185, p = .000$ and daily life adaptation $F(23, 1136) = 3,877, p = .000$.

Table 12. Adaptation levels of international students by their countries

Country	Source	df	SS	MS	F	p
General Adaptation	Between groups	23	27,293	1,187	4,421	,000
	Within groups	1136	304,936	,268		***
	Total	1159	332,229			
Academic Adaptation	Between groups	23	34,600	1,504	2,872	,000
	Within groups	1136	595,126	,524		***
	Total	1159	629,726			
Socio-Cultural Adaptation	Between groups	23	34,035	1,480	3,608	,000
	Within groups	1136	465,891	,410		***
	Total	1159	499,926			
Psychological Adaptation	Between groups	23	52,269	2,273	3,185	,000
	Within groups	1136	810,641	,714		***
	Total	1159	862,909			
Daily Life Adaptation	Between groups	23	35,828	1,558	3,877	,000
	Within groups	1136	456,456	,402	4,421	***
	Total	1159	492,284			

Notes: * $p < .05$, ** $p < .01$, *** $p < .001$.

When Table 13 is examined thorough, significant differences between some countries are striking. It can be stated that especially students from Azerbaijan, Kazakhstan, Syria, and partially Turkmenistan have achieved significantly higher levels of adaptation than students from other countries compared in the table, both in terms of total scale score averages and in terms of factors. Particularly, mean differences between the four mentioned countries and some African countries such as D.R. Congo, Egypt, Guinea-Bissau, Senegal, Somalia, Sudan, Morocco, and some Middle Eastern countries such as Palestine, Jordan, and Iran are remarkable.

Table 13. Key Findings of post-hoc analysis using Hochberg's GT2

	Groups with significant mean differences	Mean Difference	p	Lower Bound	Upper Bound	95% Confidence interval
<i>General Adaptation</i>	Azerbaijan > D.R. Congo	,496	0,027*	0,0204	0,9723	
	Azerbaijan > Egypt	,428	0,020*	0,0246	0,8317	
	Azerbaijan > Guinea-Bissau	,668	0,000***	0,2200	1,1179	
	Azerbaijan > Palestine	,481	0,015*	0,0353	0,9278	
	Azerbaijan > Senegal	,617	0,000***	0,1762	1,0585	
	Azerbaijan > Somalia	,542	0,000***	0,1368	0,9485	
	Azerbaijan > Sudan	,542	0,001**	0,1034	0,9810	
	Kazakhstan > Guinea-Bissau	,567	0,000***	0,1521	0,9820	
	Kazakhstan > Senegal	,515	0,001**	0,1089	0,9220	
	Kazakhstan > Somalia	,440	0,002**	0,0729	0,8087	
	Kazakhstan > Sudan	,440	0,013*	0,0363	0,8443	
	Syria > Guinea-Bissau	,488	0,000***	0,1285	0,8476	
	Syria > Senegal	,436	0,001**	0,0866	0,7862	
	Syria > Somalia	,361	0,002**	0,0577	0,6658	
	Syria > Sudan	,361	0,027*	0,0145	0,7081	
	Turkmenistan > Guinea-Bissau	,515	0,012*	0,0437	0,9871	
	Turkmenistan > Senegal	,463	0,041*	-0,0006	0,9281	
<i>Academic Adaptation</i>	Kazakhstan > Egypt	,640	0,001**	0,1295	1,1505	
	Kazakhstan > Jordan	,600	0,006**	0,0703	1,1309	
	Kazakhstan > Yemen	,558	0,026*	0,0232	1,0932	
<i>Socio Cultural Adaptation</i>	Azerbaijan > Cameroon	,496	0,027*	0,0204	0,9723	
	Azerbaijan > D.R. Congo	,428	0,020*	0,0246	0,8317	
	Azerbaijan > Gabon	,561	0,007**	0,0656	1,0579	
	Azerbaijan > Guinea-Bissau	,854	0,000***	0,2998	1,4096	
	Azerbaijan > Iran	,605	0,032*	0,0174	1,1940	
	Azerbaijan > Morocco	,608	0,009**	0,0598	1,1566	
	Azerbaijan > Pakistan	,575	0,005**	0,0743	1,0776	
	Azerbaijan > Palestine	,680	0,001**	0,1286	1,2318	
	Azerbaijan > Senegal	,624	0,005**	0,0794	1,1701	
	Azerbaijan > Somalia	,700	0,000***	0,1990	1,2023	
	Azerbaijan > Sudan	,756	0,000***	0,2143	1,2991	
Syria > Guinea-Bissau	,512	0,005**	0,0680	0,9569		

<i>Psychological Adaptation</i>	Azerbaijan > Guinea-Bissau	,735	0,047*	0,0033	1,4673
	Azerbaijan > Senegal	,817	0,006**	0,0986	1,5373
	Azerbaijan > Somalia	,705	0,018*	0,0441	1,3676
	Kazakhstan > Guinea-Bissau	,713	0,022*	0,0372	1,3904
	Kazakhstan > Senegal	,796	0,002**	0,1335	1,4593
	Kazakhstan > Somalia	,684	0,006**	0,0845	1,2842
	Syria > Senegal	,609	0,018*	0,0388	1,1795
	Syria > Somalia	,497	0,048*	0,0014	0,9927
	Turkmenistan > Senegal	,808	0,018*	0,0518	1,5660
<i>Daily Life Adaptation</i>	Azerbaijan > Senegal	,560	0,029*	0,0203	1,0999
	Azerbaijan > Sudan	,538	0,049*	0,0011	1,0749
	Guinea-Bissau < Afghanistan	-,599	0,006**	-1,1282	-0,0712
	Guinea-Bissau < Azerbaijan	-,721	0,000***	-1,2703	-0,1717
	Guinea-Bissau < Chad	-,586	0,001**	-1,0622	-0,1100
	Guinea-Bissau < Kazakhstan	-,627	0,001**	-1,1348	-0,1193
	Guinea-Bissau < Syria	-,676	0,000***	-1,1163	-0,2365
	Guinea-Bissau < Turkmenistan	-,595	0,031*	-1,1727	-0,0185
	Syria > Guinea-Bissau	,676	0,000***	0,2365	1,1163
	Syria > Senegal	,515	0,002**	0,0875	0,9435
	Syria > Sudan	,493	0,004**	0,0691	0,9177
	Turkmenistan > Guinea-Bissau	,595	0,031*	0,0185	1,1727

Relationships among the Sub-Factors of General Adaptation

To illustrate the relationships between the general adaptation and each sub-factor Pearson's correlation analysis was conducted (see Table 14). The findings reveal that there are significant, positive low correlations among all factors. Also, the correlation levels of the factors with the general adaptation are significant, positive, and moderate. In other words, any increase or decrease in each sub-factor directly affects international students' general adaptation levels.

Table 14. Correlations among the factors

Factor	Correlations				
	ACA	SCA	PSA	DLA	General Adaptation
ACA	1	,433*	,353*	,361*	,701*
SCA		1	,286*	,545*	,732*
PSA			1	,324*	,752*
DLA				1	,727*
General Adaptation					1

* $p < .001$

DISCUSSION, CONCLUSION AND IMPLICATIONS

Drawing upon the conceptually vast literature, the current research aiming to determine the multi-dimensional adaptation levels of international students has provided substantial results on academic, psychological, and sociocultural dimensions, as well as the key determinants of the process. According to the preliminary findings in the research, the international students are at a fairly adapted level. In line with this finding, Demiral et al. (2020), who investigated the adaptation level of international medical school students to college life in Türkiye, have reported that the adaptation level of the students is at a satisfactory level. The results obtained in the sub factors are also consistent with the total scale. However, sociocultural adaptation is the factor in which students adapted the most, followed by daily life adaptation and academic adaptation, respectively. In addition, psychological adaptation is the factor to which the students adapted the least. The study finding, in particular to low level psychological adaptation compared to other sub factors, has been evidenced by previous research emphasizing the psychological issues such as distress, anxiety caused mostly by the "culture shock" that sojourning people come across. The related literature, therefore, points out that the majority of international students feel stressed after being engaged in a new culture (Brown & Aktaş, 2011; Brown & Holloway, 2008; Hofstede, 2001). Therefore, it is during these times that social support, a powerful facilitator for international students' adaptation process (Ong & Ward, 2005; Wang, Hong, & Pi, 2015), must be provided to international students to ease their cross-cultural transition. Accordingly, social support programs, including orientation programs, organizing student clubs, social and cultural activities could act as a means of boosting their well-being.

The first five items with the highest mean scores were listed under sociocultural adaptation and daily life adaptation factors. It is noteworthy that while the items under the sociocultural factor were related to the level of adaptation to the cultural values and norms of the host country, the ones placed under the factor of daily life adaptation were directly connected with the students' adaptation to daily life routines such as travelling and shopping in a new place. On the other hand, the first five items with the lowest mean scores were the ones listed under psychological, academic, and daily life adaptation factors. While three items under the psychological factor were related to their feelings about the new environment, the one under the factor of academic adaptation was related to the students' perception of their academic progress. Last but not least, international students'

adaptation level in the context of the basic legal regulations of the host country was among the lowest items on the scale. In fact, this indicates that students need support in some specific areas, especially issues related to psychological adaptation and legal regulations of the host country. To improve the adaptation processes of the students, in order to determine what kind of information they will need before and when they come to the host country, comprehensive needs assessment studies can be conducted, and orientation programs can be developed based on the results obtained.

When the adaptation levels of the students were compared in terms of their genders, it was reported that although there is no significant difference in terms of the total scale, there are significant differences in favor of males in sociocultural and daily life adaptation factors. Contradicting with this finding, some earlier studies have documented that both female and male students vary in terms of sociocultural adaptation in favor of women (Güzel & Glazer, 2019; Lee & Padilla, 2014; Neto & Barros, 2007; Ye, 2006). However, some studies argue that cultural adaptation is of a greater challenge for women (Hu & Cheung, 2021; Sungur et al., 2016). In this regard, one possible explanation is that the majority of females in the study are from Islamic countries where religious and cultural beliefs restrict women's ability to mingle as freely as men. Thus, they might tend to restrain interaction at the initial stages of their experience. In relation to this finding, prior literature (Dupius et al., 2008; Francis & Penny, 2014) indicates that women are more susceptible to environmental changes and some gender roles might also hinder social interaction. The second the variable whose effects were examined within the scope of this study was the scholarship status of the students. Accordingly, there were significant differences between the students who receive scholarships and those who do not, both in total scale and academic adaptation factor. The scholarship students' general adaptation and academic adaptation levels were much higher than the non-scholarship students. This finding corroborates in previous research emphasizing the financial power's moderator role in facilitating the general adaptation process with a special emphasis on the psychological adaptation (Bani Ahmad & Meriç, 2021).

When multiple comparisons were analyzed regarding the duration of stay in Türkiye, it was observed that the mean scores in terms of both general adaptation levels and two factors increased in parallel with the length of stay. However, the differences between the scores were only significant in terms of the total scale and sociocultural adaptation and daily life adaptation factors. When the findings obtained in this research question are evaluated holistically, it can be expressed that the level of adjustment clearly increases as the time spent by the students in the host country increases. These results, therefore, resonate with the other findings in the literature which echoed that the length of stay is a strong predictor of the general adaptation of international students (Çetinkaya-Yıldız, Çakır & Kondakçı, 2011). Similarly, Wilton and Constantine (2003) argue that international students' successful adaptation is closely connected to the length of time they spend in the host cultural setting. Additionally, studies showing that the length of stay in the host country is a significant variable in students' adjustment levels (Sungur et al., 2016) supports the finding of the present study. Considering the finding that the time students stay in the country has a significant effect on their adjustment level; handbooks, guides, introductory videos on basic rules and norms in the country can be prepared to introduce what they should do before coming to the host country and what they should pay attention to when they start university.

Among the findings obtained within this research, the variable that caused the most radical results was the host country's language proficiency levels of the students. Because the findings clearly show that as the students' language levels increase, there are significant differences in both the total scale scores and the level of adjustment in all sub-factors. In particular, students who were at the A1 level, which represents the beginner level, had significantly lower adaptation levels than all other levels in terms of total scale, academic adaptation and sociocultural adaptation factors, and significantly lower mean scores than all other language levels except for A2 level in terms of psychological adaptation and daily life adaptation factors. Similarly, although there are variations in the context of different factors and language proficiency levels, it has been determined that C2 level students had significantly different mean scores not only from A1 level students but also from the students at other levels. A number of qualitative and quantitative studies have proven that students' proficiency in the language of the host country is an important variable on their adaptation (e.g., Karaoğlu, 2007; Özçetin, 2013). Of the main factors that determine the level of adaptation, the host country's language proficiency has been widely documented in earlier research (Çetinkaya-Yıldız, Çakır & Kondakçı, 2011; Duru & Poyrazlı, 2007; Gibss, et al., 2020). Given the significance of being competent in the host language, it is not surprising that A1 level students who might be in the initial period of their adaptation process in which international students often experience anxiety and communication challenges resulting in the development of stress-related issues (Brown & Holloway, 2008), thus; they end up in poor adjustment levels. In relation to the finding that signifies the low-level academic adaptation for the host language deficient students, Kondakci, Van den Broeck and Yildirim (2008) have accentuated the negative impact on academic performance in classrooms. Likewise, Pan et al. (2008) have reported that poor proficiency in the host language leads to a high level of acculturative stress. In sum, parallel with the earlier research, the study has exhibited the robust ties between the host language proficiency and general adaptation levels of international students.

Finally, when the adaptation levels of the students were analyzed regarding the countries they came from, the results were quite striking. It is clear that the mean scores obtained both in the context of the total scale and four factors caused significant differences in terms of the students' countries. Hence, it is noteworthy that students from Azerbaijan, Kazakhstan, and Turkmenistan, which are all Turkic countries, and Syrian students who have been under temporary protection in Türkiye for more than ten years, have higher levels of adaptation than students from some African and Middle Eastern countries. According to Karaoğlu (2007) the cultural differences and similarities between students' country and the host country have a meaningful impact

on the adaptation level of the students, and students coming from Turkic countries adapt more easily and quickly to the Turkish higher education system. Besides, an extensive overview of the literature demonstrates that the degree of cultural distance has a substantial role in facilitating the adjustment process (Brown & Aktaş, 2011; Ward et al., 2001). Therefore, the more cultural beliefs and symbols are represented in the host culture, the easier it is for international students to adjust socially. This finding is unpacked by another study (Kılınç, Arslan, & Polat, 2020) suggesting that international students, particularly from Turkic and Islamic nations, find historical, social, religious, and linguistic linkages and affinities within the host culture, which play an important role in the adjustment process. In light of the above discussion, it is feasible that international students from Azerbaijan, Kazakhstan, and Turkmenistan, countries with historical, cultural, and linguistic ties, as well as Syrian students who have spent more than eleven years in Türkiye, have a higher level of general adaptation than those from other culturally, linguistically, geographically, and historically distant countries.

Based on the research findings, the study offers some implications for practice to mitigate challenges and alleviate the cross-cultural transition of international students. In line with the prior research that advocates providing pre-arrival advice through word of mouth or websites designed for the purpose plays a significant role to ease the adaptation process (Brown & Hollaway, 2008). Drawing upon the importance of pre-arrival service, international students particularly in the first six months of their stay in Türkiye, which is of vital importance for them, should be provided with innovative social orientation programs, including online presentations, on-campus orientations jam-packed with engaging activities, seminars, workshops can be organized to foster the social support, a robust predictor of psychological and sociocultural adaptation. To aid their integration, HEIs should provide academic and social support services to international students. Students might have access to social networks through a range of school organizations, such as student clubs, various extracurricular and sports activities that encourage social engagement on campus. Also, qualitative and mixed-methods research can be carried out, where in-depth information can be obtained directly from first-hand experience to find out what students need in the adaptation process. Longitudinal studies might be conducted to better understand the direction and extent of change in the adaptation processes of international students throughout their university life. The data to be obtained from quantitative studies with broad participation at a level to represent different geographical regions of the country will be the basis for the practices to be developed in the context of improving adaptation processes in the coming years.

Along with the aforementioned, there are also limitations worth considering in the current research. Although this study, conducted with a wide range of participants from 58 different countries, has presented generalizable results reflecting “the big picture” of a Turkish university with more than 11,000 international students, the most significant limitation is that the findings were based solely on quantitative data collected from only one public university. Nevertheless, the study sample is relatively large, which might be generalizable and representative of the population as a whole, allowing for maximum diversity; therefore, we believe this limitation is mainly overcome. However, considering the individual traits, multi-dimensional adaptation mediated by various factors is a unique subjective experience, thus; it may not fit well to universally generalize the study findings, yet they may provide significant insight into further research. In this regard, qualitative or mixed methods research that will allow for in-depth investigation of many different dimensions such as international students’ perceptions of the adaptation process, the challenging and facilitating mechanisms they encounter in this process, the strategies they use to cope with the problems can be carried out through semi-structured interviews, focus group discussions, class observations or document reviews in future research. Besides all, this research is one of the first studies in the literature that examines the adaptation of international students in a multidimensional way, and it provides insights limited to a single public university. Thus, comparative evaluations of the validity and reliability of the research findings can be established by carrying out the same or comparable studies in both public and private universities located in various regions of Türkiye.

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Statements of publication ethics

We hereby declare that the study does not have unethical issues and research and publication ethics have been observed carefully.

Researchers’ contribution rate

The study was conducted and reported with equal collaboration of the researchers.

Ethics Committee Approval Information

This research was conducted with the approval of the Social and Human Sciences Ethics Committee of Karabuk University, dated 30.06.2022 and numbered E-78977401-050.02.04-145193.

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