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Dear Readers, We are delighted to present the thirt volume of the 10th issue of e- Kafkas Journal of Educational Research. Our goal with this issue is to provide you with a diverse selection of insightful and thought-provoking articles from esteemed researchers and scholars in the field of education. This issue contains seventeen articles, each offering a unique perspective on current educational research topics. Our contributors who are specialist authours have explored the complexities of education and presented innovative ideas and research findings that are sure to provoke discussion.

- Yunus YILDIZ and Rasim TÖSTEN (2023) conducted a quantitative study on transportation-related problems in mobile teaching as perceived by school administrators. The research involved 317 administrators from 197 schools in Siirt during the 2019-2020 academic years. The "Problems of Mobile Teaching Based Upon Transportation Scale" was used, revealing security and communication issues during transportation according to administrators' opinions. Variations in problems were observed based on administrators' roles, experience, and school locations.

- Birgül ÇAKIR YILDIRIM, Meltem IRMAK, and Büşra TUNCAY YÜKSEL (2023) developed a theoretical framework named Climate Change Literate Citizenship, integrating climate change literacy and citizenship. Analyzing the "Environmental Education and Climate Change" curriculum, they found uneven distribution of objectives within the framework, emphasizing climate change literacy over climate citizenship. The curriculum exhibited a fragmented approach, focusing on functional and personal responsibility components.

- Sevim GÜLSEVEN TANER and Fatma USLU GÜLŞEN (2023) explored the views of school administrators on work-private life balance. Using a phenomenological design, 50 administrators from public high schools in Mersin were interviewed. Content analysis revealed five thematic findings, indicating that despite consideration, school administrators experienced an imbalance.

- Mehmet ŞEN and Yavuz KAMACI (2023) emphasized the importance of students' epistemological beliefs in science education. The study focused on grade level and gender, using the Epistemological Belief Instrument. Findings showed a significant relationship between grade level, gender, and judgment of social truth. No significant relationship was observed between gender and the judgment of physical truth, and between grade level and the judgment of physical truth.

- Esin DÜNDAR and Ali MERÇ (2023) assessed the impact of the hybrid system on English teacher education. Engaging 18 English teacher educators, the study explored post-effects on teacher candidates. Thematic analysis revealed insights on different learner types, effects on educators and candidates, survival tips, and learner types. Implications for education faculties were discussed.In their study by Ayça ÜLKER, Tülay İLHAN İYİ, and Aysel ESEN ÇOBAN (2023) explored the impact of the Socio-Emotional Learning for Professional Development Program on 25 early childhood pre-service teachers. The qualitative research revealed positive changes in the teachers' perceptions, knowledge, and skills related to professional development and socio-emotional learning. The program improved emotional awareness, emotion socialization skills, and classroom practices, highlighting the importance of such training for pre-service teachers.

- Ozden SENGUL (2023) conducted a study to explore the professional identity of three male high school physics teachers. Using Wenger's theory of learning, the research revealed distinct identity characteristics: question-oriented, project-oriented, and lecture-oriented. The findings highlighted the link between teachers' beliefs and practices, offering valuable insights into the development and characteristics of physics teachers' professional identity.
- In their 2023 quasi-experimental study, Fatmagül SARIOĞLU and Seda ALTUNBAŞ YAVUZ investigated the impact of digital stories on teaching proverbs and idioms to second-grade students. With 86 participants, the experiment group received digital story-based instruction, while the control group followed traditional methods. Results showed a significant improvement in the experiment group's Proverbs and Idioms Success Test scores, highlighting the effectiveness of digital stories in enhancing learning and comprehension in language education.
- In their 2023 study, Eda YAPICI and Ismail MİRİCİ investigated the technological pedagogical content knowledge (TPACK) among Turkish EFL instructors. The research, conducted at various universities in Turkey, involved 155 EFL instructors. The findings revealed that instructors generally demonstrated a "sufficient" level of TPACK-Practical skills in classroom applications, with no significant impact of demographic variables on their technology integration skills.
- In the study by Burcu BAĞCI ÇETİN (2023), the predictive roles of self-regulation skills and digital game addiction tendencies in the prosocial behavior of preschool children were examined. The research, involving 255 children aged 5-6, revealed a negative relationship between prosocial behaviors and certain dimensions of digital game addiction tendencies. Additionally, a positive relationship was found between prosocial behaviors and self-regulation skills. Regression analysis indicated that self-regulation skills and digital game addiction tendencies together predicted 14% of the variability in prosocial behavior among 5-6 year old children. The study highlights the importance of addressing self-regulation skills in interventions aimed at encouraging prosocial behaviors in children and emphasizes the need for preventive measures regarding the negative effects of digital games.
- In their phenomenological study, Duran MAVİ, Hakan TOPALOĞLU, Oya USLU ÇETİN, and Gamze TUTİ (2023) explored the impact of mentoring on the self-efficacy of school principals. Data from eight principals in Kahramanmaraş province highlighted that mentoring significantly enhances principals' managerial, instructional, and ethical competencies. The findings contribute to the literature on professional development and self-efficacy among principals, offering suggestions for policymakers and researchers on formalizing and implementing mentoring programs.
- In their study, Seçil İNANLI and Ayşegül METİNDOĞAN (2023) used media diaries to explore the media exposure of preschool-age children. The research aimed to understand the relationship between children's media use duration and their prosocial/aggressive behavior. Results revealed an increase in aggressive behavior with more video game use, and a decrease in time spent on enriching activities. The study provided valuable insights into the factors associated with children's media habits at home.
- In their meta-analysis study, Erdal TOPRAKCI, Aysun AKÇAY GÜNGÖR, and Akın GÜNGÖR (2023) explored the relationship between gender and organizational justice perception in educational organizations. Analyzing 86 theses with a total sample of 37,192 participants, the study revealed a significant gender-based difference favoring men in organizational justice perception. The consistent findings across various moderators suggest a need for causally-determining studies, and educational administrators are encouraged to focus on improving organizational justice perceptions, particularly among women, through enhanced efforts.

- Tuğba BAŞ and Ege AKGÜN (2023) conducted a mixed-method study to examine maternal self-efficacy, its correlations with general self-efficacy, and interactions with children. Involving 251 mothers quantitatively and 20 mothers qualitatively, the study found that mothers with girls had higher self-efficacy. Positive correlations were observed between general self-efficacy and parenting self-efficacy. Mothers with low parenting self-efficacy focused more on "success," while those with high self-efficacy emphasized "sensitivity," "achievement orientation," and "game interaction."
- Ayfer Sayın and Deniz Melanlıoğlu's (2023) study examined Turkish items in the High School Entrance System (LGS) since 2018. Analyzing 100 items from 2018 to 2022, the study observed a decrease in test difficulty, an overall decrease in discrimination, and variations in item lengths, with an average increase. The content primarily comprised informative texts, occasionally featuring poetry and narrative texts.
- Elif Bengi ÜNSAL ÖZBERK and Eda ZENGİNAL conducted a study on the impact of the Positive Psychotherapy-Based 0-6 Age Family Education Program on parents with children aged 0-6. The sample included 34 parents from various Turkish provinces. The program, consisting of four online sessions, positively increased participants' knowledge and awareness levels, parental competencies, and reduced parental stress, authoritarian, and protective attitudes. No significant difference was observed in democratic and permissive parental attitudes. Data analysis involved t-tests, frequency and percentage analysis, and content analysis.

We would like to express our sincere appreciation to the authors who have contributed their work to this issue. Additionally, we extend our gratitude to our diligent reviewers who have worked tirelessly to ensure the articles' quality and rigor. To our readers, we offer our deep appreciation for your unwavering support and interest in our journal. It is our hope that this edition proves to be informative and captivating for you, and we eagerly await your feedback.

We sincerely thank our esteemed readers and researchers for their valuable interest. As we anticipate that the year 2024 will bring brightness to our country and humanity, we joyfully welcome the year 2024, expressing our wishes for peace and tranquility for all.

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Assoc. Prof. Dr. Ali İbrahim Can GÖZÜM

Editör in Cheif e-KJER

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Bağcı Çetin, B. (2023). The role of self-regulation skills and digital game addiction tendencies in predicting preschool children's prosocial behaviors. *e-Kafkas Journal of Educational Research,* 10(3), 555-572. https://doi.org/10.30900/kafkasegt.1265649

Baş, T., & Akgün, E. (2023). An examination of mothers' self-efficacy and their ınteraction with their children aged 60-72 months. *e-Kafkas Journal of Educational Resear*ch, 10(3), 629-651. https://doi.org/10.30900/kafkasegt.1217141

Çakır Yıldırım, B., Irmak, M., & Tuncay Yüksel, B. (2023). Navigating the environmental education and climate change curriculum in türkiye through the prism of climate change literate citizenship. *e-Kafkas Journal of Educational Research,* 10(3), 387-413. https://doi.org/10.30900/kafkasegt.1346835

Dündar, E., & Merç, A. (2023). Post-pandemic teacher education: opinions of english teacher educators on hybrid system. *e-Kafkas Journal of Educational Research,* 10(3), 454-472. https://doi.org/10.30900/kafkasegt.1312992

Gülseven Taner, S., & Uslu Gülşen, F. (2023). High school administrators' views about work-private life balance. *e-Kafkas Journal of Educational Research,* 10(3), 414-431. https://doi.org/10.30900/kafkasegt.1263983

İnanlı, S., & Metindoğan, A. (2023). Preschool - aged children's media use and ıts relationship to their prosocial and aggressive behavior. *e-Kafkas Journal of Educational Research,* 10(3), 589-610. https://doi.org/10.30900/kafkasegt.1374809

Mavi, D., Topaloğlu, H., Uslu Çetin, O., & Tut, G. (2023). How does mentoring affect self-efficacy?: an ınvestigation on turkish principals. *e-Kafkas Journal of Educational Research,* 10(3), 573-588. https://doi.org/10.30900/kafkasegt.1312893

Sarioğlu, F., & Altunbaş Yavuz, S. (2023). The effect of using digital story ın teaching proverbs and ıdioms to primary school students. *e-Kafkas Journal of Educational Research*, 10(3), 520-531. https://doi.org/10.30900/kafkasegt.1359384

Sayin, A., & Melanlioğlu, D. (2023). Investigation of the change in the features of turkish ıtems in the high school entrance system 2018-2022. *e-Kafkas Journal of Educational Research,* 10(3), 652-671. https://doi.org/10.30900/kafkasegt.1377107

Sengul, O. (2023). Examination of high school physics teachers' professional ıdentity: a case study. *e-Kafkas Journal of Educational Research,* 10(3), 505-519. https://doi.org/10.30900/kafkasegt.1377223

Şen, M., & Kamacı, Y. (2023). Investigation of students' personal epistemologies in the judgments of truth about the social and physical world considering their grade level and gender. *e-Kafkas Journal of Educational Research*, 10(3), 432-453.

Toprakcı, E., Akçay Güngör, A., & Güngör, A. (2023). Meta-analysis of the relationship between perception of organizational justice and gender in educational organizations in türkiye. *e-Kafkas Journal of Educational Research,* 10(3), 611-628. https://doi.org/10.30900/kafkasegt.1312318

Ülker, A., İlhan İyi, T., & Esen Çoban, A. (2023). The effect of the socio-emotional learning for professional development (sel-pd) program on turkish preservice teachers' knowledge and

practices. *e-Kafkas Journal of Educational Research*, 10(3), 473-488. https://doi.org/10.30900/kafkasegt.1269904

Yapıcı, E., & Mirici, I. (2023). An Investigation of TPACK-practical for teaching english as a foreign language. *e-Kafkas Journal of Educational Research*, 10(3), 532-554. https://doi.org/10.30900/kafkasegt.1357635

Yıldız, Y., & Tösten, R. (2023). Examining the problems arising from transportation in bussed educatıon in the context of the opinions of school administrators. *e-Kafkas Journal of Educational Research*, 10(3), 372-386. https://doi.org/10.30900/kafkasegt.1130235

Yılmaz, S., & Özkanbaş, M. (2023). Examination of science teachers' burnout levels in terms of school climate and various variables. *e-Kafkas Journal of Educational Research,* 10(3), 489-504. https://doi.org/10.30900/kafkasegt.1380100

Zenginal, E., & Özberk, E. B. Ü. (2023). Investigation of the effectiveness of positive psychotherapy based 0-6 age family education program. *e-Kafkas Journal of Educational Research*, *10*(3), 672-689. https://doi.org/10.30900/kafkasegt.1285867

Investigation of Transport-Related Problems in Bussing in the Context of the Opinions of School Administrators[1]

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To cite this article:

Abstract

This study seeks to investigate the problems caused by transport in bussing in terms of the opinions of the school administrators. The study is based on a quantitative method and a descriptive survey model. The population of the study consists of school administrators (317) working in schools (197 schools in total) transporting students in different neighborhoods in Siirt in the 2019-2020 academic year. Population count was taken as the basis in this study instead of using sampling as a method. "The Transport-related Bussing Problems Scale" was applied to participants in this study. Data collected via Google Form applications were examined by using descriptive analysis and difference tests. According to results and based on the opinions of the school administrators, some lack of security (failure to fast seat belts and remaining standing during the journey, picking up passengers other than students, inadequate information about first aid, etc.) and communication problems were observed in the transport (an argument with on-duty teachers, failure to offer punctual service, conflict with parents, etc.). It was also observed that there was a considerable difference in transport-related problems in terms of managerial position, years of service in management, total experience in bussing, and settlement.

Keywords: School Administrators, bussing, problems confronted by school administrators

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Introduction

Education is the primary service that ensures the development of countries as well as a living construct. It differs from case to case and always needs improvement and change. This calls for different practices in measures taken for education by countries. Educational practices need to be evaluated in a multi-dimensional way to meet the needs. The flexibility of the education system to developments and challenges is important in this regard. Despite the efforts of countries, millions of people are left out of the education and training system. Facts of life and geographical conditions are crucial in this context.

Bearing in mind that education is the indicator of the welfare levels and development of countries, increased quality of education depends on an increased schooling rate, protection of the equality of opportunity among citizens, and access to schools. A great number of measures are taken to meet such expectations. Bussing (also known as bussed education) is among the relevant practices.

Bussing is defined as the practice of daily transport of students to schools and institutions, known as transport centers, which are determined by the National Education Directorates so that they can continue their education (Regulation on Access to Education by Transport, 2014). In Turkey, compulsory education was gradually modulated to 12 years in 2012, including a four-year education for primary school, secondary school, and high school (Official Gazette, 2012). Although compulsory education is in effect, there are no schools in all settlements due to the high additional costs. The inadequacies in access to schools have once again demonstrated the importance of bussing.

The geographical conditions signal the dispersed settlements and scattered population reality. The scattered population hinders the establishment of schools in the settlements. Thus, people living in dispersed settlements fail to benefit from education and training activities sufficiently. The Ministry of National Education is working on different solutions so that all children can benefit from education and training equally. One of them is the "Bussing Model" (Kavak, 1997). The transport of students, namely bussing, can be defined as ensuring that students, who live in a dispersed settlement with a small population or receive their education in inconvenient schools, are transported to the schools in the centers selected by the commissions set up by the Directorate of National Education (Küçüksüleymanoğlu, 2006).

Bussing is aimed at reaching all students within the scope of compulsory education in Turkey. Another reason for bussing is the requirement to overcome the problems such as lack of teachers, schools, insufficient number of classes and materials, and/or inconvenient school environment. It is possible to list the reasons for the introduction of bussing under 6 headings (Seçer and Yanpar Yelken, 2009). Among these are the dissemination of education, dispersed settlements, internal migration, efforts to increase the quality of education, the idea of reducing costs, and equality of opportunity in education.

The contributions of UNESCO in the international arena have allowed the Bussing System to be implemented in many countries including the USA, Australia, and New Zealand while the system was launched in Turkey in the second half of the 1989-1990 academic year. A total of five training centers, three in Kırıkkale and two in Kocaeli, were established. As the relevant centers were found to be successful, a total of 77 centers have also been put into practice in Van, Kocaeli, Eskişehir, Çankırı, Konya, Kırklareli, Çanakkale, Antalya, and Balıkesir provinces as of the 1990-1991 academic year (Büyükkaragöz and Şahin, 1995). Today, the practice is widespread and takes place wherever it is needed.

Following the adoption of eight-year compulsory education, bussing was launched by the General Directorate of Primary Education of the Ministry of National Education to provide education for all students, incorporate students in dispersed and small settlements into primary education, and ensure that students in multi-grade classes received education and training of a higher quality (Kavak, 1997). The main purpose of the bussing system is to expand education throughout the country as well as to provide educational justice among students (Ağırkaya, 2010).

Following the pilot schemes, A. Ekrem YANGIN, the General Director of Primary Education, made the following statements: Equality of opportunity was ensured with the help of bussing and the students in this sense had access to schools where they could receive normal education. As the multi-grade class

practice came to an end in the relocated places, there was also a decrease in the amount of teacher shortage. The enrolment rate increased, especially for female students. A qualified environment was provided in education with the success of students increasing after bussing. Children transported to schools had the opportunity to be engaged in culturally and socially advanced environments, thus exhibiting more positive behaviors regarding cleanliness, clothing, and health. Bussing also resulted in the end of the construction of schools and public houses in small settlements. No funds were allocated to the schools that were closed once bussing was launched (Yangın, 1991).

It is an inevitable fact that bussing has positive aspects, though it also brings with it some challenges. Among these are physical inadequacy and lack of equipment in schools designated as transport centers (Özgün, 2007). Most of the students included in the bussing system have nutrition-related problems, which mainly occur during lunch. The food served for the students is insufficient while the dining area is deprived of suitable conditions (Özgün, 2007). Students are forced to travel standing up when commuting to schools as the local people also use the transport services. Most of the roads are in bad condition and the climatic conditions also hinder transport (Yeşilyurt et al., 2007). Headaches, stomachs, and some psychological disorders occur in students while traveling (Arı, 2003). Students also experience problems in adapting to school and the environment. Guidance teachers are not appointed to help students having problems (Yeşilyurt et al., 2007). Students have difficulty focusing on their first lessons in the morning (Arı, 2003). Bussing vehicle drivers do not have sufficient education (Recepoğlu, 2006). Parents report that their kids are not able to come together with their teachers, so they fail to establish healthy communication with their teachers (Işık & Şentürk, 2003). One of the criticisms leveled at the bussing system is that the stakeholders were not consulted sufficiently before the practice was launched. School administrators report that the opinions of teachers and parents were not taken into account before the implementation of bussing (Işık & Maya, 2003). While the company officials participating in transport tenders, especially in rural areas, participate in the tenders with vehicles with a high number of vehicle seats, they are observed to carry out transport with vehicles with a low number of seats after the tender (Ülker, 2009). Such challenges pose an obstacle to the healthy and regular functioning of bussing. Bussing will be more functional and healthier and provide maximum benefit if such challenges are revealed and analyzed and realistic solutions are found (Recepoğlu, 2009).

Launched to ensure that all individuals benefit from education and training activities with equal opportunities, bussing also brought with it several problems (Altunsaray, 1996; Bilek and Kale, 2012; Cinoğlu, Demir and Öztürk, 2014; Kaya and Aksu, 2009). ; Kayhan, 2014; Kefeli, 2005; Küçükoğlu and Küçükoğlu, 2006; Yalçın, 2006; Yeşilyurt, Orak, Tozlu, Uçakand Sezer, 2007; Yurdabakan and Tektaş, 2012). Studies in Turkey demonstrate that these problems are generally based on teacher-parent or teacher-student communication, health problems, transport, nutrition, course situations, and problems experienced by students in terms of adaptation (Arı, 2000; Küçüksüleymanoğlu, 2006).

Bussing has some aspects that are different from normal education. These aspects can be listed as transport drivers, service, dining halls, diets, and school layout. Schools, where students are transported, have some positive and negative aspects for transported students and other students. To successfully implement bussing, it is necessary to comprehensively determine and examine the negativities that may arise. Thus, the problems experienced in bussing could be solved (Bilek and Kale, 2012).

In the 2019-2020 academic year, while 754555 students in 42210 schools benefited from 12095 relocated schools and relocated unschooled settlements in primary schools across Turkey, 9454 students in 142 schools benefited from 368 relocated schools and relocated unschooled settlements in primary schools in Siirt. While 397965 students benefited from 5103 secondary schools throughout Turkey, 3206 students benefited from 37 secondary schools in Siirt. While 99810 students benefited from 7553 schools providing education within the scope of special education practice throughout Turkey, 262 students benefited from transport services to five special education schools in Siirt (Meb, 2019).

The fact that millions of students are educated and trained as part of the system makes it important to investigate transport-related problems in bussing and bring these problems to light, taking into account the opinions of school administrators who are the main actors of the system in the capacity of administrators and supervisors. The national literature (Karakütük, 1996; Büyükboyacı, 1998; Bulut, 2003; Kabaş, 2006; Özgün, 2007; Kolcu, 2011 and Uslu, 2017) reveals some studies on bussing with

samples selected from mostly students and parents. It is observed that while dealing with the problems of the transport system, transport-related problems are not included in detail. The significance of the present study increases as it is aimed at offering solutions for related problems. In addition, the CFA (Confirmatory Factor Analysis) was not performed since all participants in the population were reached during the scale development stage, which was considered as the limitation of the study.

The research objective

This study was designed to shed light on the level of transport-related problems in bussing and whether the level of these problems differs statistically in terms of some variables based on the perceptions of school administrators. To achieve the main goal of the research, the sub-problems determined by taking into account the opinions of school administrators are listed as follows.

Based on the opinions of the school administrators,

1- What is the level of transport-related problems in bussing?
2- Is there a significant difference in the opinions of school administrators in terms of their managerial position, their years of service in management, their total experience in transported schools, the level of the school, the number of busses used for transport to the school, and the settlement of the school?

Method

Research Model

This study was designed with a survey model, which is one of the quantitative research methods. A survey model is a form of research aimed at determining the current status and characteristics of past or present practices. The event, object, or individual that is been the subject of the research is explained in its own terms. No additions, deletions, or changes are made to its characteristics. What the researcher wants to obtain is there and included in it. The research solely should observe and determine what is desired to be achieved (Karasar, 2009).

Population

The population consists of school administrators working in 197 education institutions included in the bussing system in Siirt in the 2019-2020 academic year. Since the entire population was accessible, a separate sample group was not formed and the relevant population was accepted as the population count. The objective is to obtain information about the population. There is no need to create a sampling when all the units in the population can be reached. Reaching all units in the population and collecting information is called the population count (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz, and Demirel, 2018). Information about the population of the research is given in Table 1.

Table 1.
Number of Schools included in the Bussing System in Siirt

Primary Schools	Secondary Schools	Total
142	37	179

Personal information about the school administrators participating in the research is given in Table 2.

Table 2.
Personal information about the school administrators participating in the research

Variable	Category	N	%
Managerial Position	School Administrator	157	49.5
	Deputy Principal	160	50.5
Years of service	1-3 years	163	51.4
	4-6 years	73	23
	7 years and over	81	25.6
Total Experience in the bussing system	1-3 years	140	44.2
	4-6 years	102	32.2
	7 years and over	75	23.7
Level of the school	Primary school	201	63.4
	Secondary school	116	36.6
Number of vehicles	1-5	149	47
	6-10	65	20.5
	11 and over	103	32.5
Settlement	Village	159	50.2
	District	102	32.2
	City Centre	56	17.7
Total		317	100

Information related to the managerial position highlights that 157 (49.5%) are school administrators while 160 (50.5%) are deputy principals. 163 (51.4%) have an experience of one to three years in management with 73 (23%) having an experience of four and six years and 81 (25.6%) having an experience of seven years or more. Considering experience in bussing, 140 (44.2%) have an experience of one to three years, 102 (32.2%) an experience of four to six years, and 75 (23.7%) an experience of seven years and more. The level of the school is primary school for 201 (63.4%) and secondary school for 116 (36.6%). Considering the number of transport vehicles, 149 are offered (47%) with one to five transport services, 65 (20.5%) with six to ten transport services, and 103 (32.5%) with 11 or more transport services. Finally, and based on settlements, 159 (50.2%) work in villages, 102 (32.2%) work in district centres, and 56 (17.7%) work in city centres.

Data Collection Tool

The "Transport-Related Bussing Problems Scale" developed by the researcher was applied as a data collection tool. The measurement tool consists of two parts. The first part contains questions to determine the personal information of school administrators while the second part contains a total of 20 items related to transport-related problems in bussing. Items 3, 11, 13, and 19 of the scale were coded as reversed items. The level of participation in the judgments in the measurement tool was graded from 1 to 5. Accordingly, 1 represents "I strongly disagree" and 5 represents "I totally agree".

While preparing the scale, an item pool was created by taking into account the previous studies on bussing. While creating the item pool, school administrators working in institutions where bussing is available were interviewed. Graduate theses on the issue were reviewed. The item pool was enriched through the scrutiny of documents related to transport, drivers, and bussing including news, reports, research, etc. Then the problem sources of the measurement tool were categorized in the form of themes/dimensions. Relevant items were collected and studied under the categories. The first draft of the measurement tool included 33 items. Expert opinion was obtained from two faculty members in the field of educational sciences. In this context, five items were revised and the questions in the measurement tool were reduced to 31 items. The assessment tool was examined by a language expert along with their opinions. Once the expert opinions were completed, the scale was applied to 10 school administrators, and the final form of the measurement tool was made ready for application without negativity.

Six questions were added to the personal information form to identify the participants in the measurement tool. These questions are comprised of variables including managerial position, years of service in the management, the level of the school, the number of vehicles, the settlement, and the experience of the administrators in bussing.

While developing the measurement tool, 6 sub-dimensions were planned for the item pool stage. These are security, student, finance, management, comfort, and communication problems. For example, there were items such as "transport drivers have knowledge about first aid responses in case of possible accidents" in safety-related problems or "transport drivers pay attention to the cleanliness of vehicles" in comfort-related problems. However, the exploratory factor analysis revealed a single factor structure and thus, the dimensions were excluded. The necessary information is presented in Table 3.

To ensure the validity of the measurement tool, expert opinions, which were deemed sufficient, were taken for form validity and content validity. However, an exploratory factor analysis was performed to test the construct validity. In this case, Kaiser Mayer Olkin (KMO) values and Bartlett's Sphericity tests were taken as the basis to provide the necessary conditions for factor analysis. The KMO value was .95 and the Barlett Sphericity value was significant (p<.01). The number of samples (317 participants) included in the study was considered sufficient.

There is an ongoing debate on the number of participants to make sense of the statistical analyzes of the data obtained as a result of the practice and to clarify the factor loads. The opinions that emerged as a result of the debates are evaluated in three categories. These are item/observation number ratios, absolute observation numbers, and expected factor/observation number ratios (Yurdugül, 2005). Absolute observation widths of 300 participants in factor formations are considered "good" (Comfrey and Lee 1992). It is sufficient for the observation number ratios to be 10 times the number of items (Osborne and Costello, 2004). Therefore, there was no inconvenience in the factor analysis.

To test the construct validity of the scale, items below .30 were removed from the measurement tool after checking the item-total correlation. Then the factors were checked. It was observed that six dimensions emerged when the factors were first released, but it was difficult to justify the dimensions with the information from the literature. When the structure was re-evaluated based on the single-factor structure, it was seen that the explained variance exceeded 50%. As a result, items with factor loadings below .30 were also excluded from the process and a single factor structure was found to be valid. The final version of the measurement tool was accepted as a 20-item and single-factor scale. Detailed information about the validity of the scale is given in Table 3.

Table 3.
Exploratory Factor Analysis and Item Total Correlation Results for the Validity and Reliability of the Scale

Item Number	Item Total Correlation	Loading Value	Items
1	.676	.561	Transport drivers have knowledge about first aid responses in possible accidents.
2	.632	.583	Transport drivers make sure that children wear seat belts during transport.
3	.393	.327	Transport drivers pick up passengers other than students on transport vehicles.
4	.663	.563	Transport drivers have the maturity to transport children.
6	.505	.368	Parking spaces for transport vehicles are convenient.
6	.694	.621	The safety measures of the transport vehicles are sufficient.
7	.739	.662	Transport drivers are kind to students.
8	.573	.447	Transport drivers are sensitive to the timetable.
9	.707	.624	Transport drivers consider the developmental stages of students.
10	.712	.645	Transport drivers are aware of the service they provide.
11	.366	.311	Persons other than the drivers determined by the national education also use the transport vehicle.
12	.539	.419	The control of the transport drivers works well.
13	.323	.300	During the journey, students transported remain standing.
14	.671	.578	Transport drivers pay attention to the cleanliness of transport vehicles.
15	.752	.677	Transport drivers take into account seasonal conditions in the vehicle.

Table 3 continuing

16	.663	.554	Transport vehicles have sufficient comfort for bussing
17	.726	.640	Transport drivers use proper language around students.
18	.565	,354	School administrators appreciate transport drivers in their work.
19	.395	,303	Transport drivers have problems with on-duty teachers.
20	.679	,604	Transport drivers communicate well with parents.

Explained variance= 50,377   KMO= ,948
Total Cronbach-Alpha = ,944   Barlett Sphericity Test = p=.00 p<.01)

Table 3 reveals that the load values of the factors of the items range between .30 and .67. The item-total correlations of the items range between .32 and .75. The Cronbach Alpha internal consistency coefficient calculated from the scores obtained from the scale items is .94. A reliability coefficient ratio of 60 and above in measurement tools is an indication that the relevant scale is a reliable measurement tool (Can, 2017). The values indicate that the "Transport-Related Bussing Problems Scale" is reliable and valid.

Data Collection

Before the data collection process for the study, an application was made to the Social Sciences Institute of Siirt University to obtain the necessary approvals. Ethics Committee Decision was taken by Siirt University with the session date of 04.05.2020 and the session number of 33. Once the approval dated 26.02.2020 and numbered 4168599 was obtained from the Siirt Provincial Directorate of National Education through the Institute, the schools offering to buss were visited one by one to give the administrators brief information about the research. Then, data collection began by directly reaching the participants through face-to-face interviews voluntarily. However, following the breakout of the first Covid-19 case in Turkey on 11.03.2020, schools were suspended as of 16.03.2020. After 23.03.2020, schools started to continue education via distance education. As a result of the pandemic rules in Turkey, the data collection process, which would have been initially conducted through face-to-face interviews, was abandoned. Instead, the "Transport-Related Bussing Problems Scale", which had been prepared before through the "Google Form" application, was created and made ready. As a first step, the measurement tool, created via Google Form, was delivered to the school administrators with the help of the branch managers responsible for the transport in the Provincial and District National Education Directorates. In the second stage, the contact numbers of the school administrators of the institutions offering to buss were obtained from the branch managers responsible for the transport, and the school administrators were contacted by phone and given preliminary information about the scale. Finally, the online link was shared and the data were collected.

Data Analysis

Among the independent variables of the study are the managerial position, the years of service in the management, the level, of school, the number of transport vehicles, the settlement, and the years of experience of the administrators in bussing. The collected data were analyzed via the SPSS 22 program. Percentages and frequencies were calculated to determine information about the participants. To achieve the first sub-goal of the research, descriptive analyzes were made for each item in the measurement tool. Percentages, frequency values, arithmetic mean, and standard deviation scores were evaluated. In the second stage, an examination was made into whether there was a significant difference in the level of transport-related problems based on the independent variables using the t-Test and ANOVA difference tests. To find out whether the parametric assumptions were met in the application of the difference tests, the normality and homogeneity of the distribution were taken as the basis. It was observed that the distribution was homogeneous, but two different situations related to its normality emerged. Considering the skewness and kurtosis values, the majority of the items ranged between +1 and -1. Items 3, 5, and 19 ranged between +2 and +2. In total, skewness and kurtosis values were found to be in the tolerance range. According to Tabachnick and Fidell (2013), a normal distribution is the case if skewness and kurtosis values range between -1.5 +1.5 while George and Mallery (2010) believe that they should range between +2.0 and -2.0 and Groeneveld and Meeden (1984) believe that they should range between +3.0 and -3.0. The Kolmogorov-Smirnov Test revealed that there was no normal distribution. In addition, the result did not change much when both parametric and nonparametric tests were applied. In this case, taking into account the central limit theorem and based on the fact that the skewness and kurtosis value

is in the normal distribution range, parametric tests were used. According to the central limit theorem, regardless of the distribution of the actual masses, the distribution will resemble normal in a randomly selected sampling, and therefore the characteristics of the normal distribution can be accepted (Ghasemi and Zahediasl, 2012; Pallant, 2007; Ho and Behrens, 1995; Weisstein, 2014). In this case, the findings were interpreted with the independent t-test and one-way analysis of variance (ANOVA). LSD test, one of the Post Hoc tests, was used to reveal the significant difference in the ANOVA test. The significance of the obtained data was searched according to the p<.05 value (Altunışık, Coşkun, Yıldırım, & Bayraktaroğlu, 2001).

Findings

This section includes the findings obtained as a result of the ' Transport-Related Bussing Problems Scale' applied to the administrators of the schools carrying out education activities within the scope of bussing in the province of Siirt in the 2019-2020 academic year and relevant interpretations. Each sub-goal is given in tables.

Opinions of School Administrators on Problems Related to Transport

The arithmetic means and standard deviation values of the responses given by the administrators to the items to determine transport-related problems in bussing are presented in Table 4. In this section, the item score averages are given as they are, and the reverse items are arranged in the comparisons made over the total score.

Table 4.
Arithmetic Mean and Standard Deviation Values of School Administrators for Transport-Related Problems

Items	N	$\overline{X}$	SD
Transport drivers have knowledge about first aid responses in possible accidents.	317	2.25	1.04
Transport drivers make sure that children wear seat belts during transport.	317	2.16	1.24
Transport drivers pick up passengers other than students on transport vehicles.	317	3.32	1.46
Transport drivers have the maturity to transport children.	317	2.98	1.27
Parking spaces for transport vehicles are convenient.	317	3.08	1.45
The safety measures of the transport vehicles are sufficient.	317	2.52	1.19
Transport drivers are kind to students.	317	2.98	1.14
Transport drivers are sensitive to the timetable.	317	3.21	1.19
Transport drivers consider the developmental stages of students.	317	2.53	1.13
Transport drivers are aware of the service they provide.	317	2.68	1.18
Persons other than the drivers determined by the national education also use the transport vehicle.	317	3.34	1.36
The control of the transport drivers works well.	317	2.61	1.25
During the journey, students transported remain standing.	317	3.95	1.11
Transport drivers pay attention to the cleanliness of transport vehicles.	317	2.83	1.17
Transport drivers take into account seasonal conditions in the vehicle.	317	2.96	1.11
Transport vehicles have sufficient comfort for bussing	317	2.64	1.13
Transport drivers use proper language around students.	317	2.55	1.24
School administrators appreciate transport drivers in their work.	317	3.04	1.16
Transport drivers have problems with on-duty teachers.	317	3.15	1.13
Transport drivers communicate well with parents.	317	2.80	1.13
General	317	2.87	.85

Table 4 highlights that the highest problem perception average of the school administrators working in the schools offering to buss occurred in the item stating that "During the journey, students transported remain standing" ($\overline{x}$ = 3.95) followed by the item stating that "Persons other than the drivers determined by the national education also use the transport vehicle" ($\overline{x}$ = 3.34) and "Transport drivers pick up passengers other than students on transport vehicles" ($\overline{x}$ = 3.32). The lowest perception average was available in the item stating that "Transport drivers make sure that children wear seat belts during transport" ($\overline{x}$ = 2.16) followed by the item stating that "Transport drivers have knowledge about first aid responses in possible accidents" ($\overline{x}$ = 2.25) and "The safety measures of the transport vehicles are

sufficient" ($\bar{x}$ = 2.52). The overall problem perception average of school administrators of transport-related bussing problems is at a moderate level with ($\bar{x}$ = 2.87).

Comparison of Bussing Problems Regarding the Managerial Position Variable

The t-test was applied to determine whether there was a statistical difference in the scores of the school administrators based on the managerial position variable regarding transport-related problems in bussing. The results are presented in Table 5.

Table 5.
Findings Regarding Whether Transport-Related Problems Differentiate Based on the Managerial Position Variable

Dimensions	Managerial Position	N	$\bar{X}$	SD	sd	t	p
General	School Administrator	157	2.74	.78	310	-2.64	.009
	Deputy Principal	160	2.99	.89			

Table 5 highlights that a statistically significant difference was found in the opinions of school administrators regarding transport-related problems in bussing ($t_{(2.64)}$= p<.05) based on the managerial position variable. The average opinion of the deputy principals ($\bar{x}$ = 2.99) regarding transport-related problems was higher than the average of the school administrators ($\bar{x}$ = 2.74). Therefore, deputy principals had a higher level of perception of transport-related problems in bussing.

Comparison of Bussing Problems Regarding the Variable of Years of Service in Management

One-way analysis of variance (One-Way ANOVA) was conducted to determine whether the perceptions of the school administrators regarding transport-related problems in bussing differed based on the variable of years of service in management (between one and three years, between four and six years, and over seven years). The results are presented in Table 6.

Table 6.
Findings Regarding Whether Transport-related Problems Differ Based on the Variable of Years of Service in Management

Dimension	Years of Service in Management	N	$\bar{X}$	SD	Source of variance	Sum of Squares	Sd	Sum of Squares	F	p	Difference
General	A 1-3 years	163	2.99	.83	Intergroup	5.485	2	2.742	3.847	.02	A-B A-C
	B 4-6 years	73	2.71	.90	In-group	223.841	314	0.713			B-A
	C 7 years and over	81	2.76	.81	Total	229.326	316				C-A
	Total	317	2.87	.85							

Table 6 reveals that a statistically significant difference was found in the opinions of school administrators regarding transport-related problems in bussing (F(3.85)=, p<.05) based on the variable of years of service in management. The LSD test from Post Hoc tests revealed that the difference was significant between the managers with one to three years of service and the managers with four to six years and seven years and more of service. The managers with one to three years of experience perceive bussing problems higher than the managers with four to six and more than seven years of service.

Comparison of Bussing Problems Regarding the Total Experience Variable

One-way analysis of variance (One-Way ANOVA) was conducted to determine whether the perceptions of the school administrators regarding transport-related problems in bussing differed based on the total experience in management variable (between one and three years, between four and six years, and over seven years). The results are presented in Table 7.

Table 7.
Findings Related to Whether Transport-related Problems Differentiate Based on the Total Experience in Management Variable

Dimension	Total Experience in Bussing	N	$\overline{X}$	SD	Source of variance	Sum of Squares	Sd	Sum of Squares	F	p	Difference
General	A 1-3 years	140	3.02	.83	Intergroup	5.812	2	2.906	4.08	.018	A-B A-C
	B 4-6 years	102	2.77	.85	In-group	223.51	314	.712			B-A
	C 7 years and over	75	2.71	.83	Total	229.33	316				C-A
	Total	317	2.87	.85							

Table 7 reveals that a statistically significant difference was found in the opinions of school administrators regarding transport-related problems in bussing ($F_{(4.08)}$=, p<.05) based on the total experience variable. The LSD test from Post Hoc tests revealed that the difference was significant between the managers with a total experience of one to three years and those with a total experience of four to six years and seven years or more. A significant difference was found between the managers with an experience of four to six years and those with an experience of one to three years. A significant difference was found between the managers with an experience of seven years or more and those with an experience of one to three years. In addition, managers with an experience of one to three years ($\overline{x}$ = 3.02), managers with an experience of four to six years ($\overline{x}$ = 2.77), and managers with an experience of more than seven years ($\overline{x}$ = 2.71) had higher levels of perception of transport-related problems in bussing.

Comparison of Bussing Problems Regarding the Variable of Level of the School

A t-test was conducted to determine whether the perceptions of the school administrators regarding transport-related problems in bussing differed based on the level of the school variable. The results are presented in Table 8.

Table 8.
Findings on Whether Transportation-related Problems Differentiate based on the Level of the School Variable

Dimensions	Level of the school	N	$\overline{X}$	SD	sd	t	p
General	Primary School	201	2.91	.85	315	1.299	.195
	Secondary School	116	2.79	.83			

Table 8 reveals that no statistically significant difference was found in the opinions of school administrators regarding transport problems in bussing ($t_{(1.3)}$=, p>.05) based on the level of the school variable.

Comparison of Bussing Problems Regarding the Variable of Number of Transport Vehicles

One-way analysis of variance (One-Way ANOVA) was conducted to determine whether the perceptions of the school administrators regarding transport-related problems in bussing differed based on the variable of the number of transport vehicles (between one and five, between six and ten, and eleven and more). The results are presented in Table 9.

Table 9.
Findings on Whether Transport-related Problems Differentiate based on the Variable of the Number of Transport Vehicles

Dimension	Number of Transport Vehicles in Schools	N	X̄	SD	Source of variance	Sum of squares	Sd	Sum of Squares	F	p
General	A 1-5	149	2.93	.85	Intergroup	1.445	2	.722	.995	.371
	B 6-10	65	2.86	.74	In-group	227.881	314	.726		
	C 11 and over	103	2.78	.90	Total	229.326	316			
	Total	317	2.87	.85						

Table 9 reveals that no statistically significant difference was found in the opinions of school administrators regarding transport-related problems in bussing ($F_{(1)}=$, $p>.05$) based on the variable of the number of transport vehicles.

Comparison of Bussing Problems Regarding the Settlement Variable

One-way analysis of variance (One-Way ANOVA) was conducted to determine whether the perceptions of the school administrators regarding transport-related problems in bussing differed based on the settlement variable (Village center, District center, and City center). The results are presented in Table 10.

Table 10.
Findings on Whether Transport-related Problems Differentiate based on the Variable of Settlement

Dimension	Settlement of Schools	N	X̄	SD	Source of Variance	Sum of Squares	Sd	Sum of Squares	F	p	Difference
General	A Village	159	3.03	.89	Intergroup	13.950	2	6.975	10.169	.000	A-B
	B District	102	2.57	.71	In-group	215.376	314	.686			B-A
	C City	56	2.96	.79	Total	229.326	316				C-B
	Total	317	2.87	.85							

Table 10 reveals that no statistically significant difference was found in the opinions of school administrators regarding transport-related problems in bussing ($F_{(10.17)}=$, $p<.05$) based on the variable of settlement. The LSD test from Post Hoc tests revealed that the difference was significant between the school administrators working in villages and district centers. A significant difference was found between the opinions of the administrators working in the city center and those working in the district center. In addition, the level of perception of problems arising from transport in bussing was higher among the administrators working in the city center ($\bar{x} = 2.96$) and those working in the district center ($\bar{x} = 2.57$).

Discussion and Conclusion

Conducted to examine transport-related problems in bussing in the context of the opinions of school administrators, the present study is quantitative and patterned with a descriptive survey model. The 'Transport-Related Bussing Problems Scale' developed by the researchers was applied to the school administrators participating in the research. Expert opinions were taken to ensure the validity of the measurement tool and the validity of the measurement tool was strengthened by performing an EFA (Exploratory Factor Analysis). The CFA (Confirmatory Factor Analysis) was not required because the results were within the desired value range and all participants in the population covering the study were reached. In addition, a CFA (Confirmatory Factor Analysis) is recommended for the measurement tool used in the research. If a relationship between the scale items is unknown and the scale is newly

developed, an EFA is recommended if while a CFA is recommended if there is a tested relationship and determined factors and items collected under them are identified (Guvendir & Özkan, 2015; Orçan, 2018).

Transport-related problems in bussing showed a significant difference based on the managerial position of the administrators in the school. It was observed that the arithmetic mean of the opinions of the deputy principals was higher than the arithmetic mean of the school administrators. This result suggests that deputy principals have a higher level of perception of transport-related problems. It is believed that the relevant result occurs as deputy principals working as deputy principals on duty are the first responders in a problem that occurs and follow the operation of the actions.

Studies in the literature contradict the relevant findings. For example, in a study focusing on the general situation of bussing in primary schools, no significant difference was found among the administrators based on the title variable (Ülker, 2009). Along the same lines, in a study on the problems faced by teachers and administrators working in primary schools within the scope of the bussing system, no significant difference was found based on the variable of duty at school (Küçük, 2010). Besides, Memek (2014) conducted a study on the difficulties faced by teachers and administrators working in schools where students are transported, concluding that a significant difference was found based on the variable of service scores and duty at school.

A significant difference was observed in the opinions of the administrators in terms of their years of service in the management of transport-related problems in bussing. It was observed that the level of problem perception of the administrators with one to three years of service in management was higher than the administrators with four to six years and more than seven years of service in management. It was also observed that the groups with fewer years of service in management had higher levels of perception of transport-related problems. This is possible because a new manager behaves sensitively with more idealistic behaviors in their job. And those with more experience in managerial positions act more sensitively in their job as they are aware of the risks of the job and therefore, the level of problem perception is likely to decrease.

The general situation of bussing in primary schools was discussed and evaluated in a study and no significant difference was found between the opinions of the administrators based on the year of seniority variable. All of the administrators in the seniority groups reported that the transport was partially sufficient (Ülker, 2009). Besides, in a study focusing on the problems of primary school students in bussing, it was found that as the years of service in the profession increased, the opinions of teachers and school administrators against bussing turned out to be unfavorable. It was reported that the reason for this is that a manager with a higher number of years of service in management knows the previous situation of bussing and realizes the recent changes in bussing and thus his/her thoughts towards bussing are likely to change (Şan, 2012).

A significant difference was found in the opinions of the administrators regarding transport-related problems in bussing based on their total experience in schools where students are transported as part of the bussing system. It was observed that administrators with 1-3 years of experience in such schools had a higher level of perception of transport-related problems than managers with 4-6 years and more than 7 years of experience. The administrators with 4-6 years of experience had a higher level of perception of transport-related problems than the administrators with more than 7 years of experience. The level of perception of transport-related problems decreases as the experience of the administrators increases. This is possible because administrators become more practical in solving problems and specialize in problem-solving with more experience. In a study focusing on the problems of primary school students who are transported, teachers and school administrators are observed to have a positive attitude towards bussing as the working time in schools serving as transport centers increase (Şan, 2012).

No significant difference was found in the opinions of the administrators based on the variable of the level of the school in terms of transport-related problems. The results revealed that transport-related problems do not differ depending on the thoughts of the administrators working at different school levels.

No significant difference was found in the opinions of the administrators based on the variable of the number of vehicles in terms of transport-related problems. The results revealed that transport-related problems do not differ depending on the thoughts of the administrators based on the number of vehicles.

A significant difference was observed in the opinions of the administrators regarding transport-related problems in bussing based on the variable of the settlement where the school is located. It was observed that the administrators working in the village had a higher perception level of transport-related problems than the administrators working in the districts and cities. Accordingly, the managers working in the city center had a higher perception level of transport-related problems than the managers working in the district. It is believed that since the village is small, everyone knows each other, and thus school administrators are in a guiding position in all business and transactions, which in return helps create a sincere environment between school administrators and stakeholders. As stakeholders gradually have more personal wishes as part of the sincere environment, their perception level of problems increases. Unlike the villages, in the city centers stakeholders have a higher level of perception as they attempt to follow the liabilities specified in regulations and articles of the law. However, some other studies show that no significant difference occurs between settlements and transport problems. For example, in a study focusing on the general situation of bussing in primary schools, no significant difference was found based on the settlement variable (Ülker, 2009). In another study on the problems faced by the teachers and administrators working in primary schools as part of bussing, the problems arising from the settlement showed a significant difference and the order is given as follows: village, district center, town, and city center (Küçük, 2010). In a study dealing with the difficulties faced by teachers and administrators working in schools to which students are transported, the average service score did not show a significant difference based on the settlement (Memek, 2014).

Based on the data obtained, in-service training seminars are recommended to be organized by the Ministry or the National Education Directorates on the functioning of bussing for the administrators that are assigned to take charge in the management of education institutions covering bussing for the first time. This study took into account the opinions of school administrators and deputy principals. Futures studies are recommended to include teachers, students, parents, and transport drivers or the opinions of the administrators working in schools in the bussing system in different provinces. Most of the studies in this sense are based on quantitative methods and thus qualitative studies are also recommended. Transport-related problems can be examined in terms of dimensions. Since a single-factor structure emerged in this study, the study was limited to a single factor. However, security, finance, management, comfort, and communication dimensions can be studied under separate headings.

Acknowledgment

References

Ağırkaya, A. (2010). *Taşımalı eğitim uygulamasında öğretmenler ve öğrencilerin karşılaştıkları güçlükler.* [Unpublished master's thesis]. Selçuk Univ./ Educational Sciences Institute, Konya.

Altunışık, R., Coşkun, R., Yıldırım, E. & Bayraktaroğlu, S. (2001). *Sosyal Bilimlerde Araştırma Yöntemleri.* Adapazarı: Sakarya.

Altunsaray, A. (1996), *Taşımalı ilköğretim uygulamasının değerlendirilmesi.* [Unpublished master's thesis]. Balıkesir Univ./ Social Sciences Institute, Balıkesir.

Arı, A. (2000). *İlköğretim uygulamalarının değerlendirilmesi.* [Unpublished master's thesis]. Afyon Kocatepe Univ./ Social Sciences Institute, Afyon.

Arı, A. (2003). Taşımalı ilköğretim uygulaması (Uşak örneği). *Gazi Eğitim Fakültesi*, 23,1.

Bilek, E., & Kale, M. (2012). Taşıma merkezi okullarda görev yapan öğretmenlerin görüşlerine göre taşımalı eğitim uygulaması. *Gazi Eğitim Fakültesi*, (GUJGEF), 32, 3.

Büyükkaragöz, S. & Hasan S. (1995). Taşımalı ilköğretim uygulamaları. *Eğitim ve Bilim*, 19, 96.

Büyüköztürk, Ş., Kılıç Çakmak, E., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2018). *Eğitimde Bilimsel Araştırma Yöntemleri*. Ankara: Pegem.

Can, A. (2017). *Spss İle Bilimsel Araştırma Sürecinde Nicel Veri Analizi* (5th Edition). Ankara: Pegem.

Cinoğlu, M., Öztürk, M. ve Demir, H. (2014). Birecik'te taşımalı eğitim uygulamalarının incelenmesi. *Dicle Üniversitesi Sosyal Bilimler Enstitüsü*, 11, 211-229.

Comfrey, A. L., & Lee, H. B. (1992). *A first course in factor analysis.* (2th ed) Lawrence Erlbaum Associates, Publishers, Hillsdale, New Jersey. doi:10.4324/9781315827506

George, D. & Mallery, M. (2010). *SPSS for Windows step by step: A simple guide and reference, 17.0 update.* Boston: Pearson.

Ghasemi, A. & Zahediasl, S. (2012). Normality tests for statistical analysis: A Guide for Non-Statisticions. *İnternational Journal of Endocrinology and Metololism*. Doi: 10.5812/ijem.3505.

Groeneveld, R.A. & Meeden, G. (1984). Measuring skewness and kurtosis. *The Statistician*, (33), 391-399.

Güvendir, M. A. & Özkan, Y. Ö. (2015). Türkiye'deki eğitim alanında yayımlanan bilimsel dergilerde ölçek geliştirme ve uyarlama konulu makalelerin incelenmesi. *Elektronik Sosyal Bilimler Dergisi*, 14(52), 23- 33

Işık, H. & Şentürk, İ. (2003). Taşımalı ilköğretim uygulaması ve bu uygulamaya son verilmesiyle ilgili veli görüşleri. *Kastamonu Eğitim*, ll(2), 285-296.

Karasar, N. (2009). *Bilimsel Araştırma Yöntemi.* (20th Edition). Ankara: Nobel.

Kavak, Y. (1997). *Dünya'da ve Türkiye' de İlköğretim.* Ankara: Pegem.

Kaya, A. & Aksu, M. (2009). Fırsat ve olanak eşitliğinin sağlanmasında bir adım olarak taşımalı eğitim. *Elektronik Sosyal Bilimler*, 8(27), 178-179.

Kayhan, M. (2014). *Öğretmen ve öğrencilerin taşımalı eğitim uygulamasına ilişkin metaforlarının incelenmesi.* [Unpublished master's thesis]. Cumhuriyet Univ./ Educational Sciences Institute, Sivas.

Kefeli, S. (2005). *İlköğretim uygulamalarının değerlendirilmesi, normal, yatılı ve taşımalı ilköğretim okullarının karşılaştırılması.* [Unpublished master's thesis]. Abant İzzet Baysal Univ./ Social Sciences Institute, Bolu.

Küçük, A. (2010). *Taşımalı ilköğretim okullarında görev yapan yönetici ve öğretmenlerin karşılaştıkları sorunlar (Aksaray ili örneği).* [Unpublished doctoral thesis]. Selçuk Univ./ Educational Sciences Institute, Konya.

Küçükoğlu, A. & Küçükoğlu, K. (2006). Taşımalı ilköğretim uygulaması üzerine bir araştırma. *Atatürk Üniversitesi Kazım Karabekir Eğitim Fakültesi,* 13, 11-18.

Küçüksüleymanoğlu, R. (2006). Taşımalı eğitim (Bursa ili örneği). *İlköğretim Online*, 5(2), 16-24.

MEB İstatistikleri, (2020). http://sgb.meb.gov.tr/www/resmi-istatistikler/icerik/64. (Date of access 03.03.2020.)

Memek, A. (2014). *Taşımalı eğitim yapılan okullardaki yönetici ve öğretmenlerin taşımalı eğitim sürecinde karşılaştıkları sorunlara ilişkin görüşleri (Şanlıurfa ili örneği).* [Unpublished master's thesis]. Zirve Univ./ Social Sciences Institute, Gaziantep.

Milli Eğitim Bakanlığı Taşıma Yoluyla Eğitime Erişim Yönetmeliği (2014). *T. C. Resmi Gazete*, 29116, 11 Eylül 2014.

Orçan, F. (2018). Açımlayıcı ve doğrulayıcı faktör analizi: İlk hangisi kullanılmalı. *Eğitimde ve Psikolojide Ölçme ve Değerlendirme Dergisi*, *9*(4), 413-421.

Osborne, J. W. & Costello, A. B. (2004). Sample size and subject to item ratio in principal components analysis. *Practical Assessment, Research & Evaluation*, 9(11).

Özgün, A. (2007). *İstanbul'da taşımalı eğitimin okul-veli-öğrenci açısından olumlu ve olumsuz etkileri.* [Unpublished master's thesis]. Yeditepe Üniversitesi/Sosyal Bilimler Enstitüsü, İstanbul.

Recepoğlu, E. (2006). *Taşımalı ilköğretim uygulamasında taşıma merkezi olan ilköğretim okullarının sorunları: Çankırı, Karabük ve Kastamonu ili örneği.* [Unpublished master's thesis]. Gazi Univ./ Social Sciences Institute, Ankara.

Recepoğlu, E. (2009). Taşımalı ilköğretim uygulaması ve karşılaşılan sorunlar: kastamonu ili örneği. *Kastamonu Eğitim*, 17(2), 427-444.

Resmi Gazete. (2012). İlköğretim ve eğitim kanunu ile bazı kanunlarda değişiklik yapılmasına dair kanun 11.04.2012 tarih ve 28261 Sayılı Resmi Gazete https://www.resmigazete.gov.tr/eskiler/2012/04/20120411-8.htm (Date of access 02.03.2020)

Seçer, M. & Yanpar Yelken T. (2009). İlköğretim 6. -7. -8. sınıf öğrencilerinin taşımalı eğitimde karşılaştığı sorunlar (Gülnar örneği) . *İlköğretim Online*, 8 (1), 24- 35.

Şan, A. (2012). *İlköğretimde taşımalı eğitim öğrencilerinin sorunları*. [Unpublished master's thesis]. Dokuz Eylül Uni./ Educational Sciences Institute, İzmir.

Tabachnick, B. G. and Fidell, L. S. (2013). *Using multivariate statistics*. Boston: Pearson.

Ülker, Y. (2009). *Taşımalı ilköğretim uygulamasının genel durumu ve değerlendirilmesi (Muğla ili örneği)*. [Yayımlanmış yüksek lisans tezi]. Muğla Üniversitesi/Sosyal Bilimler Enstitüsü, Muğla.

Yalçın, K. Y. (2006). *Yerleşik ve taşımalı eğitim yapan ilköğretim okullarındaki öğrencilerin toplumsallaşmasında beden eğitimi ve sporun önemi: Kütahya ili örneği.* [Unpublished master's thesis]. Dumlupınar Univ./ Social Sciences Institute, Kütahya.

Yangın, A. E. (1991). Taşımalı ilköğretim uygulaması. *Milli Eğitim,* 107(41).

Yeşilyurt, M., Orak, S., Tozlu, N., Uçak, A. & Sezer, D. (2007).İlköğretimde taşımalı eğitim araştırması van il merkezi örneği. *Elektronik Sosyal Bilimler,* 6(19), 197-213.

Yurdabakan, İ., & Tektaş, M. (2013). Taşımalı ilköğretim öğrencilerinin taşımalı eğitime ilişkin görüşleri. *Dokuz Eylül Üniversitesi Sosyal Bilimler Enstitüsü*, 15(3), 511-527.

Yurdugül, H. (2005). Davranış bilimlerinde ölçek geliştirme çalışmaları için bazı ayrıntılar. http://hacettepe.edu.tr/~yurdugul/3/indir/FA_OrneklemGenislikleri.pdf (Date of access 11.12.2020)

Navigating the Environmental Education and Climate Change Curriculum in Türkiye through the Prism of Climate Change Literate Citizenship

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Abstract

In the present study a theoretical framework (i.e., Climate Change Literate Citizenship) that combines climate change literacy and climate citizenship was developed first. Then, criteria that correspond to each of the components of the proposed theoretical framework were developed and used to analyze the learning objectives in the "Environmental Education and Climate Change" curriculum. Data analyses utilized in the study presented a snapshot of the descriptive landscape of the curriculum in terms of the distribution of the objectives within the curriculum. Manifest and latent analyses realized through MAXQDA 2022 software were used to illustrate world cloud and word trends and alignment of the curriculum objectives with respect to the criteria developed for the Climate Change Literate Citizenship framework. Findings showed that there was an uneven distribution of the learning objectives within the Climate Change Literate Citizenship framework. Most of the learning objectives aimed to support climate change literacy, where objectives pertaining to the promotion of climate citizenship were relatively less in number. A similar uneven distribution was observed within the components of climate change literacy (i.e., functional, cultural, critical) and climate citizenship (i.e., personally responsible, participatory, justice oriented) as well. That is, there were not any objectives related to the cultural component of climate change literacy; most of the objectives aimed to develop functional component followed by the critical component. Among the components of climate citizenship, personal responsibility component and participatory component were addressed equally but there was only one learning objective that is in line with justice-oriented climate citizenship. Thus, our findings as a whole suggest that the curriculum adopts a fragmented rather than a holistic approach to climate change education. Nonetheless, further studies are required to make more robust conclusions about the curriculum and its practice.

Keywords: climate change education, climate change literate citizenship framework, climate change literacy, climate citizenship, environmental education and climate change curriculum

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Introduction

Climate change education is emphasized as a crucial need of todays' society to create a sustainable future (UNESCO, 2014; IPCC, 2021). Climate change education requires a commitment to the wellbeing of all living things and the earth as a whole (Ferguson, 2019). It covers a range of topics, including familiarity with and comprehension of climate change challenges, their interdisciplinary and complexity nature, a sense of responsibility to address this issue, the competence to offer solutions related to adaptation and mitigation strategies, and responsible behavior when handling with this issue (Dillon, 2022; Ferguson, 2019). In this sense, it is proposed that cognitive domain of climate change education must focus on the causes and effects of climate change (Mochizuki & Bryan, 2015; Shwom et al., 2017). Human actions such as the usage of fossil fuels and deforestation contribute to climate change and thus, it is necessary to understand these causes and impacts in order to fight against climate change. With this understanding, individuals can make well-informed decisions about their behaviors and propose solutions to solve these problems. Nonetheless, efforts to develop knowledge and awareness are insufficient for climate change education (Hung, 2014).

In addition to cognitive skills, values and emotions have crucial roles in climate change and climate change education because they can influence individuals' behaviors and drive their actions towards lowering carbon footprints (Cantell et al., 2019; Hargis & McKenzie, 2020; Kristen & Marcia, 2020; McKenzie, 2021; Monroe et al., 2019). To demonstrate that climate change education is more than knowledge, Cantell et al. (2019) offered a bicycle model on climate change education. This model is a metaphorical representation of the causes, effects, and solutions of climate change, which consists of four parts: the pedals (representing the causes of climate change), the wheels (representing the effects of climate change), the frame (representing the systems that perpetuate climate change), and the handlebars (representing the actions we can take to mitigate and adapt to climate change). The authors found that the model was well-received by both teachers and students, and that it helped them to understand the complex issues surrounding climate change in a more concrete and accessible way (Cantell et al., 2019). Similarly, Monreo et al. (2019) argued that climate change education combining emotional appeals, such as fear, hope, and empathy, is particularly effective in driving behavior change.

Parallel to educational efforts around the world, there have been efforts to integrate climate change education in Türkiye's school curricula as well. Integration of climate change and related issues in the learning objectives of middle school science curricula, which was revised in 2018 (Ministry of National Education [MoNE], 2018) was among these attempts. In addition to this, in 2022, Ministry of National Education revised elective course "Environmental education" and change the name as "Environmental Education and Climate Change". The course includes six units (i.e., "human and nature", "cyclical nature", "environmental problems", "global climate change", "climate change and Türkiye", "sustainable development and environmentally friendly technologies"), three of which are directly related to climate change (MoNE, 2022a). In fact, the course is designed to provide students with a comprehensive understanding of the impact of climate change on the environment and human society. Additionally, it emphasizes the importance of adopting sustainable practices to mitigate the effects of climate change (MoNE, 2022). Starting from the 2022-2023 academic year, this course has been offered as an elective course to middle school students (6th to 8th graders) for a total of 72 hours (two hours per week) in a semester (MoNE, 2022b).

In this study, as we scrutinize the newly introduced "Environmental Education and Climate Change" course, we shall unravel its comprehensive structure and objectives, which aim to equip the future generation with the tools they need to comprehend, mitigate, and adapt to the impacts of climate change. To this end, a theoretical framework which combines climate change literacy and climate citizenship was used. This framework was adapted from Ayar and Ozalp's (2021) environmental literate citizenship framework. In the subsequent sections, we delve deeper into the core concepts that shape our understanding of climate change education and its transformative potential.

Climate Change Literate Citizenship

In today's world, climate change literacy has become a critical component of education. A well-rounded climate literacy goes beyond just knowing the basics - it involves having functional knowledge that empowers students to identify and implement practical solutions for mitigating the impacts of climate change (Corner et al., 2015). In other words, climate change literacy is a multidimensional construct

that encompasses the knowledge, skills, and attitudes necessary to comprehend and respond to the impacts of climate change (Kuthe et al., 2020). It includes functional, cultural, and critical literacy and involves values and attitudes that motivate responsible and engaged climate citizenship (Stables, 2006). By promoting climate change literacy, individuals and communities may take action on climate change, become responsible and active climate citizens, and contribute toward creating a sustainable future for ourselves and future generations (Aruta, 2022; Radzi et al., 2022; Shwom et al., 2017).

Before moving to the details of the theoretical framework utilized in the present study, the rationale for handling climate change literacy and citizenship together and working on climate change literacy citizenship will be explained first. As put forth by research, climate change should not be introduced as a separate, stand-alone subject area; instead, it should be integrated across existing subject areas such as science, citizenship education, geography, social studies, history, language, drama, and the arts (Anderson, 2012; Jabareen, 2012; McNichol, Davis, & O'Brien, 2011; Shwom et al., 2017). In addition to this, there seems to be a common emphasis on the need for handling climate change literacy and citizenship together and including them in climate change education programs as a whole (Kranz et al., 2022).

Climate change literacy and climate citizenship are both essential components of climate change education. Climate change literacy provides students with the scientific knowledge and understanding of climate change, while climate citizenship cultivates the skills, attitudes, and values necessary to engage in effective climate action (Hallar et al., 2011; Johnston, 2020). Both climate change literacy and climate citizenship education require individuals to participate in learning and activities related to civic life (Dawson et al., 2022; Plutzer & Hannah, 2018). Developing climate change literacy and citizenship in earlier years is especially crucial for preparing the younger generation to become responsible global citizens who will take actions to mitigate the impacts of climate change (Choi et al., 2021; Karakuş et al., 2019; Monte & Reis, 2021).

Some researchers propose that middle school years are essential times for students to develop climate change literacy and citizenship so as to become responsible global citizens who can effectively take action to mitigate the impacts of climate change (Cunnion et al., 2022). Therefore, integration of climate change literacy and citizenship education into middle school curriculum is accepted to be vital so that younger generations can understand the challenges and opportunities presented by climate change and are equipped with the knowledge, skills, attitudes, and values to engage in effective climate action (Cunnion et al., 2022; Ho & Chuah, 2017; Osiadacz, 2018). Research also show that incorporating climate literacy and citizenship education into middle school curricula can helpstudents develop critical thinking skills, scientific inquiry abilities and problem-solving capabilities that are indispensable for succeeding in various fields including environmental science and sustainability (Bolstad, 2020; Cunnion et al., 2022; Japanwala, 2021). Therefore, utilization of climate change literacy citizenship in education will contribute both to the future of our planet Earth and the future of students who will be global citizens on it (Alexandru et al., 2013; Bolstad, 2020; Cunnion,et al., 2022).

Theoretical Framework and Its Components
In the literature, there are studies which focus on the definition of climate change literacy and citizenship as well as the need to consider these two constructs (i.e., climate change literacy, citizenship) together. For instance, in her study Johnston (2020) focuses on components of climate change literacy and its importance by making references to climate change literate citizenship. Similarly, Cantell et al.'s (2019) bicycle model and Hung's (2014) study can be regarded as research efforts that demonstrate the need of combining climate change literacy and citizenship. Nonetheless, to the best of our knowledge, there is not any research that combine climate change literacy and citizenship in a theoretical framework.
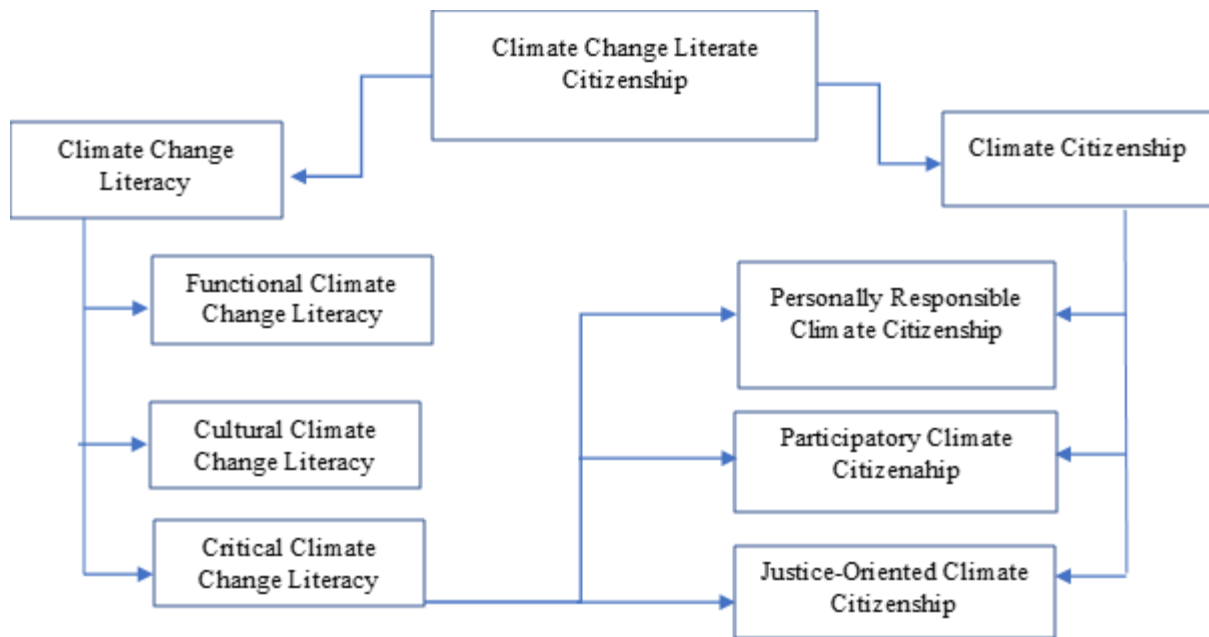
Figure 1. Theoretical framework of the study.

Based on this gap in the current literature, in the present study, we adopted the theoretical framework of Ayar and Özalp (2021), which was originally developed for environmental literate citizenship, to climate change context (i.e., climate change literate citizenship). Ayar and Ozalp (2021) utilized environmental literacy framework of Stables (1998) and environmental citizenship framework of Westheimer and Kahne (2004) to create the Environmental Literate Citizenship framework to analyze the "Human and Environment" unit in science curriculum of Türkiye. Figure 1 represents the climate change literate citizenship framework proposed in the present study. In the following sections, climate change literacy and climate citizenship, as the two components of the climate change literate citizenship framework will be explained.

Climate Change Literacy

Climate change literacy component is based on Stables's (1998) environmental literacy framework, which acknowledges that environmental education needs to go beyond simply conveying information and aim to develop skills, values, and attitudes that are essential for tackling environmental challenges. In line with his argument, we adapted Stables's framework and proposed functional climate change literacy, cultural climate change literacy, and critical climate change literacy as the three main components of climate change literacy.

Functional Climate Change Literacy: This component of climate change literacy indicates having a fundamental grasp of the scientific concepts underpinning climate change and its effects. It involves comprehending how the Earth's natural systems function (e.g., carbon cycle) and how human actions impact these systems and climate, in turn. Students who possess functional climate literacy are able to comprehend the causes and effects of climate change (IPCC, 2014; U.S. Global Change Research Program, 2009).

Cultural Climate Change Literacy: This component of climate change literacy indicates understanding of how climate change affects different communities and cultures. It requires examining the historical, cultural, and institutional factors that contribute to climate change and how these factors can be addressed. Students who possess cultural climate literacy can analyze the social, cultural, and political factors that impact climate change and develop solutions that are sensitive to different cultural contexts (Adger, Barnett, Brown, Marshall, & O'Brien, 2013; Aikenhead & Ogawa, 2007).

Critical Climate Change Literacy: This component of climate change literacy indicates the ability to analyze and evaluate information related to climate change. It involves the ability to analyze and interpret data, evaluate scientific evidence, and assess the effectiveness of different solutions, policies and interventions. Students who possess critical climate change literacy have the ability to critically

evaluate sources of information about climate change, differentiate facts from opinions, and develop informed opinions about potential solutions to climate change (Feinstein & Kirchgasler, 2015; Wibeck, 2014).

Climate Citizenship

Climate citizenship is a critical aspect that aims to stimulate civic engagement in efforts related to climate change mitigation and adaptation. This multifaceted concept entails not only recognizing the global consequences of our individual actions but also actively working towards reducing greenhouse gas emissions, conserving natural resources, promoting sustainable living practices, and advocating for policies that prioritize environmental protection (Dobson, 2007; Kranz et al., 2022; PytlikZillig et al., 2013). It requires individuals to be informed about current scientific knowledge on climate change and its impacts while also considering social equity issues surrounding the unequal distribution of risks associated with this phenomenon. Climate citizenship goes beyond being environmentally conscious or eco-friendly; it involves taking collective responsibility as global citizens in creating a more sustainable future for ourselves and generations yet unborn (Dobson, 2007; Vihersalo, 2017). In addition, climate citizenship seeks to promote civic action toward climate change mitigation and adaptation (Kranz et al., 2022; PytlikZilliget al., 2013). Furthermore, understanding the interconnectedness of social, economic, and environmental systems and accepting responsibility for one's impact on the environment are accepted as components of climate citizenship (Kim, 2003; Vihersalo, 2017).

Westheimer and Kahne's (2004) explanations about the features of a "good citizen" and its three conceptions (i.e., personally responsible, participatory, justice oriented) adapted by Ayar and Ozalp (2021) and used to study environmental literate citizenship are also valid within the context of climate citizenship. That is to say, in this framework multiple levels of engagement are highlighted. These levels start from taking personal responsibility for their actions that affect the environment to advocating for equitable access to resources concerning climate action. Components of climate citizenship as utilized in the present study are as in the following:

Personally Responsible Climate Citizenship: This component of climate citizenship indicates taking individual accountability for mitigating climate change through sustainable behaviors. Such practices may include waste reduction, energy conservation, adherence to environmental legislation, recycling, and minimizing one's carbon footprint. In addition to these efforts, the Personally Responsible Climate Citizen proactively participates in eco-friendly initiatives such as volunteering for environmental projects like tree planting or beach cleanups. Educational programs that aim to foster this type of citizenship strive to cultivate an ecological mindset by highlighting values such as responsible consumption, sustainability and environmental stewardship.

Participatory Climate Citizenship: This component of climate citizenship indicates actively engaging in community groups and activities that address climate change concerns. For instance, climate strikes, marches, and protests have gained momentum in recent years as ways for individuals to express their concerns and urge policy changes to mitigate climate change (Grewal et al., 2022). Participating in such events can demonstrate decision-makers the depth of public concern about climate change and create a sense of urgency for policymakers to take action (Adger et al., 2011). In addition to this, individuals can engage in other forms of advocacy, such as contacting elected officials to express their concerns and support policies that mitigate climate change. Writing letters, sending emails, or making calls to representatives at the local, state, and federal levels can be an effective way for individuals to influence policy decisions (Corner et al., 2014). Individuals can also contribute to mitigating the impact of climate change by volunteering for projects that raise awareness about the issue and encourage others to take action. Such projects can include organizing events, such as community workshops and educational sessions on climate change or participating in local initiatives to promote sustainable practices (Hadjichambis, 2022; Hadjichambis & Reis, 2020). By volunteering, individuals can help build a sense of community and encourage others to engage in climate action. In summary, participatory climate change citizenship component of the present study involves actively engaging in community groups and activities that address concerns about climate change.

Justice-Oriented Climate Citizenship: This component of climate citizenship indicates the realization that democratic citizens must possess opportunities to scrutinize and comprehend the interplay between

social, economic, and political forces in regard to climate change and its repercussions. This component puts emphasis on explicit attention towards issues surrounding climate injustice and prioritization of pursuing climate justice through rhetoric and analysis. Similar to the previous component of the climate citizenship proposed in the present study (i.e., Participatory Climate Citizenship), this component underscores collective efforts concerning community-related concerns. Nevertheless, unique to this component is its particular focus on justice issues (e.g., eco-justice, intergenerational justice, etc.). Therefore, educational programs prioritize Justice-Oriented Climate Citizenship aim to equip students with the critical tools needed to identify and combat environmental issues and inequalities (Chatterton, 2016; Aikenhead, 2010). Rather than placing emphasis on charity or volunteering as an end in itself, these programs focus on instilling a deeper understanding of climate change and promoting systemic change within a democratic society (Corner et al., 2015).

Purpose of the Study

This study began with establishing a theoretical framework (i.e., Climate Change Literate Citizenship) that combines climate change literacy and climate citizenship. The framework was developed by adapting Ayar and Ozalp's (2021) environmental literate citizenship framework and the criteria they used to assess "Human and Environment" unit in the country's science curriculum. Then, the learning objectives of the "Environmental Education and Climate Change" curriculum (MoNE, 2022a) were examined with respect to the criteria within the developed framework. Research question that guided the study is: To what extent do the learning objectives of the "Environmental Education and Climate Change" curriculum support students' climate change literate citizenship?

Method

In this study a qualitative research design was employed to analyze the learning objectives of the "Environmental Education and Climate Change" curriculum in Türkiye within the context of climate change literate citizenship. A content analysis approach was utilized to systematically evaluate the curriculum objectives against predetermined criteria derived from the existing literature. Content analysis is used for analyzing any written contents like textbooks, newspapers, articles and so on (Fraenkel & Wallen, 2018). The steps determined by Fraenkel and Wallen (2018) was utilized in content analysis. These steps were:

1. Determining Objectives: The objective of the study was determined as examining newly developed Environmental Education and Climate Change curriculum (MoNE, 2022a) to figure how the components of the climate change literacy and climate citizenship in the Climate Change Literate Citizenship framework were addressed.

2. Defining Terms: Definitions of the climate change literacy and climate citizenship were decided based on the literature review.

3. Locating Relevant Data: Since the Environmental Education and Climate Change curriculum was newly developed in 2022, there were not any other curriculum materials (textbooks, practice books etc.) available to the researchers yet. Therefore, only the curriculum objectives written in the curriculum document was used as the study data. There was a total of 34 main learning objectives and 38 sub-learning objectives (makes 72 objectives in total) included in the curriculum; however, five objectives which do not have any direct or indirect relationship with climate change were not included in the data analysis (e.g. CEID.3.3. Recognizes that waste and garbage cause air, water, soil pollution, and radioactive pollution.) All objectives and sub-objectives were considered as separate data and coded separately.

4. Formulating Coding Categories: In order to analyze the objectives, a framework and criteria pertaining to different components included in the framework were formed. For developing the framework, Ayar and Ozalp's (2021) Environmental Literate Citizenship was adapted to Climate Change Literate Citizenship. Then, the criteria of each component included in Ayar and Ozalp's (2021) study was adapted. Furthermore, based on the literature review, additional important characteristics of climate change literate citizens were defined and included as the criteria in the framework. The developed framework and criteria were reviewed by two science

education researchers who were actively conducting national and international projects and who have research outputs about climate change education. The developed framework have three dimensions and 35 criteria under climate change literacy which are: functional climate change literacy (13 criteria), cultural climate change literacy (6 criteria), and critical climate change literacy (16 criteria). The framework also has three components and 25 criteria under climate citizenship which are personally responsible citizens (4 criteria), participatory citizens (10 criteria), and justice-oriented citizens (11 criteria). Criteria under the components of the climate change literate citizenship framework and the objectives associated with each are provided in Appendix.

5. Analyzing Data: For the analysis of the data, MAXQDA 2022 software was utilized. Both manifest and latent analysis were conducted. For manifest analysis, the word frequency analysis was performed. Based on this analysis, word cloud and word trends were illustrated. Then, latent analysis was performed to figure out how the curriculum objectives were aligned with the defined criteria. After a thorough analysis of the objectives, code matrix browser property of MAXQDA was used to visualize frequency of objectives per components of the framework.

6. Reliability and Validity: In order to ensure the trustworthiness of the analysis, an inter-rater reliability assessment was conducted for both manifest and latent content analysis components. A subset of curriculum objectives was randomly selected, and two independent researchers performed keyword searches and content evaluations. Inter-rater agreement was measured using established coefficients and was calculated as 92%. All disparities were resolved through consensus until 100% inter-rater agreement was reached.

Findings

The findings of this study illuminate a comprehensive analysis of the Environmental Education and Climate Change course curriculum in Turkey, delving into its alignment with the principles of climate change literacy and citizenship. Through a meticulous blend of manifest and latent content analysis, this section presents a detailed exploration of the curriculum's objectives, uncovering not only the overt presence of keywords but also the underlying meanings and intentions embedded within the stated objectives. Table 1 presents a snapshot of the descriptive landscape of the Environmental Education and Climate Change curriculum including the units and the numbers of objectives, and allocated time concerning each unit.

Table 1.
Number of Objectives and Allocated Time for the Environmental Education and Climate Change Curriculum

Name of the Unit	Number of Objectives	Allocated Time	
		Course Hours	%
1. Human and Nature	6	10	14
2. Cyclical Nature	4	10	14
3. Environmental Problems	6	12	17
4. Global Climate Change	5	12	17
5. Climate Change and Turkiye	5	12	17
6. Sustainable Development and Environmentally Friendly Technologies	8	16	21
Total	34	72	100

To provide a visual representation of the curriculum's thematic emphasis, a word cloud generated from the curriculum's objectives through MAXQDA 2022 software is presented (Figure 2). This word cloud presents the recurring concepts and focal points that emerged from the analysis, offering a bird's-eye view of the curriculum's priorities. The word cloud showcases the prominence of certain themes,

highlighting the curriculum's commitment to fostering climate change literate citizenship. As it can be seen, climate change keywords are the most prominent ones and the keywords like natural, global, water, energy, resources and sustainable development follows these.

Figure 2. Word cloud representation of the curriculum objectives

In addition to the visual representation provided by the word cloud, the graph of the word trends analysis to ascertain the distribution and prominence of key terms throughout different sections of the curriculum is provided (Figure 3). The word trends graph below presents a breakdown of the most prominent words observed across the ten distinct sections of curriculum. Each section is represented on the x-axis, while the y-axis denotes the frequency of occurrence for the corresponding terms.

Figure 3. Word trends in the curriculum

As the graph depicts, one notable observation arising from the word trends analysis is the uneven distribution of key terms related to climate change throughout the various sections of the curriculum. While it might be anticipated that terms central to climate change would feature prominently across all units, our analysis reveals a nuanced pattern that suggests varying degrees of emphasis on these concepts. This finding underscores the need for a more comprehensive and cohesive approach to infusing climate change concepts throughout the entirety of the curriculum.

In the subsequent sections, results of the in-depth exploration of the curriculum's objectives and their alignment with climate change literate citizenship are provided. For the ease of following and allowing for making more nuanced comparisons, findings are provided separately for the two main components (i.e., climate change literacy, climate citizenship) of the framework. Results of the data analyses

regarding the framework's sub-components are given under the headings of the components to which they belong.

Climate Change Literacy

We analyzed the environmental education and climate change curriculum to figure out how climate change literacy is included regarding the aforementioned theoretical framework. We examined the curriculum objectives corresponding to the three components of climate change literacy (CCL): "Functional CCL," "Cultural CCL," and "Critical CCL." We aimed to determine the extent to which these aspects are involved in the curriculum regarding the criteria that we developed to analyze the curriculum (see Appendix). The findings are summarized in Table 2. According to the findings, the curriculum demonstrates distinct patterns of climate change literacy (CCL) across six units. Among these three components of CCL, we found objectives that are aligned with functional and critical CCL components. On the other hand, there was not any learning objectives related to cultural component of CCL.

Table 2.
Number of Related Curriculum Objectives about the Components of Climate Change Literacy

Name of the Unit	Functional CCL	Cultural CCL	Critical CCL	Total
1. Human and Nature	5	0	0	5
2. Cyclical Nature	7	0	0	4
3. Environmental Problems	2	0	6	6
4. Global Climate Change	11	0	3	11
5. Climate Change and Türkiye	0	0	5	5
6. Sustainable Development and Environmentally Friendly Technologies	2	0	10	7
Total	27	0	24	51

In terms of functional CCL, we found that out of 13 criteria, nine criteria were addressed in the curriculum. Among these criteria, F13 criterion "Involves understanding ecosystem components, their interrelationships, and their importance in terms of sustainability" was involved in 11 objectives with the highest frequency. The criterion labelled F6 "Involves understanding key concepts and phenomena related to climate change (e.g., weather, weather events, climate, humidity, global warming, carbon cycle, water cycle)." was addressed in four objectives. Criterion F7 "Involves understanding the relationship between the greenhouse effect, global warming, and climate change." was addressed in three objectives but the relationships of the greenhouse effect and global warming concepts with climate change were ignored in these objectives. This finding shows a significant gap existing in addressing the interconnectedness among greenhouse effect, global warming and climate change. Furthermore, ecological footprint was involved in environmental problems unit but its relationship with climate change was not involved in the units of global climate change or climate change and Türkiye. This finding also provides additional evidence for the lack of a holistic approach in the curriculum.

Another criterion which was addressed multiple times is the F12 criterion "Involves understanding the global impacts of climate change on the environment, society, and economy". We found three objectives are aligned with this criterion. However, these objectives are mainly related to impacts of climate change on environment. Its impact on society and economy was not addressed specifically. The other criteria involved in the curriculum are; F1 "Involves identifying what greenhouse gases are", F2 "Involves defining the greenhouse effect", F4 "Involves defining global warming", F5 "Involves defining climate change", F8 "Involves explaining the main causes of climate change" and F10 "Involves understanding the impacts of human activities (e.g., deforestation, agriculture, transportation, energy consumption) on climate change."

The criteria which were not addressed in the curriculum objectives are; F3 "Involves distinguishing between natural and anthropogenic (human-made) greenhouse effects", F9 "Involves distinguishing human-induced climate change from natural climate variability", and F11 "Involves understanding the local impacts of climate change on the environment, society, and economy." This result shows that the

difference between anthropogenic and natural climate variability, the local impacts of climate change on environment, society and economy were not adressed in the curriculum.

In terms of cultural CCL, there were not any objectives that addressed any of the criteria categories under CCL. While the impact of climate change on the natural environment is addressed in the objectives, its impact on cultural heritage, such as historical structures, appears to be underrepresented. This omission includes failing to emphasize how cultural narratives, traditions, and beliefs shape perceptions of, and responses to, climate change. Similarly, the rich experience of indigenous people and the diverse cultural interpretations of climate change are missing in the curriculum, which may deprive students of a comprehensive understanding of the local perspectives on this issue. The curriculum also misses an opportunity to teach students the value of respecting diverse cultural narratives about climate change, as well as the enormous potential of cross-cultural collaborations in addressing climate-related challenges. In its current form, the curriculum appears to ignore the deep links between culture and climate change, potentially leaving learners without a comprehensive understanding of this critical issue.

In terms of critical CCL, out of 16 criteria, 9 criteria were involved in the curriculum. Among them, some criteria were addressed in more than one objective. The most addressed criterion was CR4 "Involves recognizing different strategies in combating climate change (mitigating the effects of climate change and adapting to climate change)." CR4 was addressed in seven objectives which are in Global Climate Change and Sustainable Development and Environmentally Friendly Behavior units. However, while these objectives cover disaster preparedness and examples of sustainable development, they partially cover mitigation and adaptation strategies without a holistic approach. The second criterion which was addressed more was CR16, "Involves understanding how the ecological footprints of products, individuals, and countries impact the environment and climate change". CR16 matched with five objectives, which are all in the third unit. These objectives are related to the life cycle of products and analyzing ecological footprints. However, these objectives are not related to climate change in the curriculum. It is important to explore ways to integrate this crucial aspect into the curriculum to provide a comprehensive understanding of the impact of ecological footprints on climate change. With respect to CR11 "Involves evaluating the advantages and disadvantages of sustainability strategies (e.g., renewable energy, sustainable agriculture, and green infrastructure) in mitigating the effects of climate change and adapting to it", there were three learning objectives which place emphasis on recycling, recovery, and waste management. While these strategies are undoubtedly crucial for sustainability efforts, it is worth considering broadening the scope of this criterion to incorporate other important sustainable practices as well.

Furthermore, the analysis revealed significant gaps within the curriculum. There were not any objectives that aligns with the criteria CR7, which explores potential outcomes of different policy approaches; CR8, which evaluates media content on climate change; CR9, emphasizing the analysis of scientific data; and CR13, which addresses cultural heritage preservation in relation to climate change. It was also found that vital aspects like CR12 - highlighting the effectiveness of climate change strategies in reducing health risks - and CR14 - discussing technological limitations in combating climate change - were not adequately addressed within the curriculum. These areas require enhancement to provide students with a more well-rounded climate change education.

One notable area where the curriculum could benefit from improvement is in connecting CR1 "Involves questioning the relationship between the concepts of ecological footprint and biocapacity with climate change", which cover ecological footprint with its implications for climate change. It seems concerning that there is a lack of explicit linkage between these two topics within the curriculum. This may suggest a fragmented approach to climate change education rather than a holistic one. Additionally, it would be advantageous for the curriculum to acknowledge and address international perspectives on climate change. By doing so, students can gain a broader understanding of how this global issue affects various regions around the world.

Climate Citizenship

Analysis of the Environmental Education and Climate Change curriculum objectives with respect to the Climate Citizenship component of the Climate Change Literate Citizenship framework indicated distinct patterns across the six units of the curriculum. The findings are summarized in Table 3.

Table 3.
Number of Related Curriculum Objectives about the components of Climate Citizenship

Name of the Unit	Personally responsible citizens	Participatory citizens	Justice oriented citizens	Total
1. Human and Nature	1	0	1	2
2. Cyclical Nature	0	0	0	0
3. Environmental Problems	1	0	0	1
4. Global Climate Change	0	0	0	0
5. Climate Change and Türkiye	2	4	0	6
6. Sustainable Development and Environmentally Friendly Technologies	1	1	0	2
Total	5	5	1	11

Results reveal that "Personally Responsible Citizens" and "Participatory Citizens" emerge as recurrent themes, encompassing five objectives distributed across three and two units, respectively. "Justice Oriented Citizens" receives attention only in one unit with one objective. Criteria for each component and related curriculum objectives are given in the Appendix.

In terms of personally responsible citizenship, we found five objectives related to two out of four criteria, which are "PR1. Encompasses recognizing and adopting individual responsibilities regarding sustainable practices (e.g., reducing energy consumption, conserving water, using public transportation, and minimizing waste)."and "PR4. Encompasses following climate change-related policies and practices (e.g., policies and initiatives of NGOs and government agencies)." The five objectives of the curriculum have potential to develop personally responsible citizens by addressing utilizing waste materials to design an upcycled product, referencing international agreements combating global climate change and institutions engaged in national-level efforts, conducting research and delivering presentations on current environmental issues, and developing attitudes and behaviors towards preserving the natural balance.

While the objectives presented do address certain aspects of personally responsible citizenship, a critical examination reveals a notable absence of objectives aligned with two of the criteria: "PR2. Involves supporting policies and initiatives that promote renewable energy, preservation of ecosystem components, and sustainable development" and "PR3. Includes willingness to engage in educational opportunities to enhance awareness about climate change." In that manner, it can be argued that the curriculum needs improvement to incorporate objectives related to supporting policies, initiatives, and educational awareness so that it may accomplish a more holistic understanding of climate responsibility.

In terms of participatory citizenship, we found objectives related to three out of ten criteria, which are "P1. Involves raising awareness among fellow citizens about the effects of climate change.", "P2. Encompasses expressing opinions on climate change through various channels, both written and verbal, in an effective manner.", and "P4. Involves generating and participating in projects related to climate change." There are three related objectives which stress raising awareness among fellow citizens, expressing opinions through effective communication, supporting and collaborating with mitigation efforts, and generating and participating in climate change projects. However, the other citizenship criteria which includes a range of activities, from using scientific approaches to communicate about climate change to leveraging technology for effective outreach, instilling hope, motivating action, engaging with policymakers, creating digital content, joining relevant NGOs, and contributing insights to conferences on climate change was not addressed in the curriculum.

Lastly, in terms of justice-oriented citizenship, we found only one objective related to the one criterion which is "JO5. Encompasses advocating for climate justice for all components of the ecosystem." Only in human and nature unit, the students are expected to be involved in the discussions of dilemmas in terms of ethical issues.

When we examine the distribution of the citizenship-related objectives throughout the curriculum, we realized an uneven distribution among the units. Notably, the unit "Cyclical Nature" appears to be devoid of explicit curriculum objectives linked to climate citizenship components. Additionally, the unit "Global Climate Change" does not feature objectives aligned with these components, potentially warranting further exploration and consideration in future curriculum development.

Discussion, Conclusion, and Suggestions

Environmental Education and Climate Change Curriculum and Climate Change Literate Citizenship

Data analyses of our study presented an overview of the "Environmental education and Climate Change" curriculum (MoNE, 2022a) in terms of the Climate Change Literate Citizenship framework developed throughout the study. For instance, the word cloud analysis of learning objectives revealed that keywords of climate and change are the most prominent in the curriculum, reflecting a deliberate effort to prioritize this topic and ensure that students have a comprehensive understanding of its causes, impacts, and possible solutions. However, the analysis of the word trends indicates that climate change is currently treated as a separate issue within the curriculum. This finding emphasizes the necessity for a more thorough and unified approach to incorporate climate change concepts across all subjects in the curriculum. Addressing this imbalance in the curriculum and its practice could contribute to a more well-rounded educational experience that nurtures informed and engaged citizens capable of grappling with the multifaceted challenges posed by climate change. It is widely accepted in the literature that there is a strong need for a comprehensive and unified approach in integrating climate change concepts across all subjects in the curriculum (Hung, 2014; Tasquier et al., 2016). Passarella (2021) suggests incorporating a holistic systemic approach into climate change education to enhance students' understanding of transformative solutions.

In the word cloud we obtained based on our analyses, prominent keywords other than climate and change were water, energy, resources and sustainable. Given the water and energy challenges faced by Türkiye, the inclusion of a prominent emphasis on these issues in the curriculum serves as an effective and timely strategy. The emphasis on 'sustainable development' reflects a proactive approach within the curriculum that encourages solution-oriented learning. Based on this result, this curriculum aims to empower students to become environmentally conscious citizens who are well-prepared to tackle the complex challenges of tomorrow. The integration of education for sustainable development into the curriculum has been successful in various countries, including Southeast Asian countries and Australia (Lee et al., 2016). These countries have integrated Education for Sustainable Development (ESD) into relevant subjects such as Social Studies, Arts, and Science, and have established good practices and capacity-building training for teachers and curriculum developers (Lee et al., 2016).

The examination of environmental education and climate change curriculum provides valuable insights into Türkiye's educational priorities regarding Climate Change Literacy (CCL). In our Climate Change Literate Citizenship framework, CCL involves three components: functional, cultural, and critical. Each component plays a vital role in fostering a comprehensive understanding of climate change. From a functional CCL standpoint, the curriculum encompasses several aspects. Notably, it places importance on the interconnectedness of ecosystem components. However, there are noticeable discrepancies concerning the relationship between the greenhouse effect, global warming, and climate change. Yakar and Karakuş (2019) investigated the Social Studies curricula in Türkiye from 1968 to 2018 regarding the climate literacy. The study found that there were noticeable discrepancies in the curriculum regarding the relationship between the greenhouse effect, global warming, and climate change (Yakar & Karakuş, 2019). Another finding in our study about functional CCL was the absence of differentiation between natural and human-induced climate effects, along with insufficient emphasis on local impacts of climate change. According to Dalagnol et al. (2021) neglecting to distinguish between natural and

anthropogenic factors in educational curricula when discussing climate effects could result in overlooking the role of human activities in exacerbating climate change and its resulting impacts.

In terms of cultural CCL component, our analysis revealed the absence of the cultural component in the learning objectives of the Environmental Education and Climate Change curriculum. Climate change goes beyond being solely a scientific phenomenon and has deep connections with human cultures, histories, and stories. A narrative inquiry approach offers researchers a valuable framework to examine how individuals perceive and interpret their experiences, as demonstrated by Sherpa (2021). Using narratives enables exploration of indigenous knowledge and local practices within climate change education. By incorporating narratives into climate change education, the divide between scientific understanding of climate change and cultural perspectives can be bridged, leading to a more comprehensive comprehension of the issue (Sherpa, 2021). By failing to address cultural heritages, beliefs, and narratives related to climate change, students may lack a comprehensive understanding of the subject matter which could potentially result in a biased or restricted perspective (Acharibasam, 2022). Therefore, in the long run, it can be suggested to revise the curriculum so as to include the cultural aspect of climate change. In the shorter run, it can be suggested to teachers who implement the curriculum to create opportunities to teach and discuss the cultural aspects of climate change in their teaching. In relation to the Critical CCL, certain aspects are adequately covered, such as evaluating strategies to combat climate change. However, there are still significant gaps that need to be addressed. For example, the curriculum lacks a focus on evaluating various policy outcomes, analyzing media content on climate change, and critically examining scientific data - all essential skills for developing a generation capable of critically assessing and taking action based on information about climate change. According to Hung (2014), the majority of students mentioned media as a knowledge source for climate change. Analyzing media content in terms of whether the knowledge source reflect accurate scientific information about climate change is essential for promoting media literacy among students (Colston & Thomas, 2019). Additionally, although the curriculum partially covers important topics, it appears fragmented and disjointed which may result in students having fragmented knowledge rather than a comprehensive understanding of climate change. The compartmentalized approach towards ecological footprints and their implications for climate change suggests that students may not be fully equipped to handle the interconnected complexities of real-world challenges.

Climate change literacy entails knowledge and comprehension about the scientific aspects of climate change as well as its environmental consequences resulting from human activities. However, it is through active climate citizenship that this knowledge translates into meaningful action (Manuvie, 2023; Vihersalo, 2017). Effective climate citizenship entails not only possessing a deep understanding of relevant facts and figures but also engaging in constructive dialogue, advocating for sustainable practices, and recognizing the social implications of climate change. As we delve into the topic at hand, it becomes evident that developing strong foundations in climate change literacy is essential for individuals to become actively engaged global citizens who can contribute effectively towards combating climate change on both local and international scales. To cultivate such globally conscious citizens, an inclusive curriculum should aim not just to inform young learners but also empower them with the skills needed to actively participate in efforts against climatic challenges while considering intersections between environment preservation, social equity, and justice (Park & Kim, 2020; Vihersalo, 2017). Although learning objectives are intended to promote a comprehensive understanding of climate issues and encourage citizen engagement in solutions for mitigating its impact, the curriculum needs to incorporate other important components of participatory citizenship. These include utilizing scientific arguments for climate change communication, effectively utilizing technology in climate outreach efforts, instilling hope and motivating proactive measures, engaging with policymakers directly, creating digital content related to climate issues and collaborating with climate-focused NGOs. By incorporating these elements into the curriculum, we can ensure a more comprehensive approach to promoting participatory climate citizenship. By effectively utilizing technology, students can engage with climate-related content, collaborate with climate-focused NGOs, and create digital content related to climate issues (Bickham et al., 2021).

A curriculum that aims to develop justice-oriented citizens need to underscore the importance of recognizing the interconnectedness of environmental challenges and social equity, to cultivate a sense

of empathy, responsibility, and advocacy towards addressing climate change in a manner that is equitable, inclusive, and to help students understand the needs of all components of the ecosystem. The emphasis on understanding climate justice is a noteworthy starting point which is evidently lack in the current curriculum of "Environmental education and Climate Change" course. The absence of objectives that delve into the complexities of justice-oriented citizenship raises concerns about the comprehensiveness of the curriculum in addressing this critical component. Hallar et al. (2011) argue that it is crucial for students to learn about the impact of climate change on their community and the world. By focusing on specific ecological changes resulting from climate change, students can develop a deeper understanding of the need for justice-oriented citizenship (Hallar et al., 2011). Educational programs that prioritize climate justice aim to equip students with the critical tools needed to identify and combat environmental issues and inequalities (Aikenhead, 2010; Chatterton, 2016). The research conducted by Kozłowska (2021) revealed inadequacies in the climate change content and citizenship objectives within both the Polish and UK national curriculum. In contrast, the elective course Environmental Education and Climate Change of Türkiye incorporates elements of climate change literacy and climate citizenship. However, there is room for improvement to include cultural climate change literacy, justice-oriented climate citizenship, as well as enhancing critical climate literacy and participatory citizenship components.

Although these finding gave us some insight about the potential of Environmental Education and Climate Change curriculum, it is essential to acknowledge the primary limitation of this study to be considered while interpreting the results. The interpretations drawn from the curriculum heavily rely on its stated objectives, potentially leaving certain aspects open to subjective interpretation. The lack of standardized coursebooks or instructional resources specific to this curriculum may introduce variability in the ways educators approach content delivery, assessment, and student engagement. While the study leverages the curriculum's explicit objectives as a foundation for analysis, the absence of detailed content within dedicated coursebooks limits the depth of insights that can be gleaned regarding the practical implementation of the framework.

Potential Contributions of Theoretical Framework and Related Criteria

Climate change is a complex issue since it involves various interconnected social, economic and environmental factors (Hung, 2014). In line with this point of view, based on Ayar and Özalp's (2021) study, we developed Climate Change Literate Citizenship framework. This framework provides a comprehensive approach to climate change education and addresses the need for individuals to have both knowledge and skills to become informed, engaged, and active citizens in the face of climate change. By integrating the domains of cognitive understanding, emotional engagement, and active citizenship, the framework recognizes that climate change education goes beyond simply acquiring knowledge. It acknowledges the importance of transforming values, creating emotional resonance, and mobilizing behavioral change. This framework emphasizes the necessity of a deep understanding of the complexities of climate change and its implications. The framework also underlines the need for a sense of responsibility and agency to take action and contribute to meaningful change.

The framework we proposed is believed to bridge the gap between climate literacy and citizenship education, highlighting their shared goals. In fact, climate change literacy and climate citizenship are two key components of climate change education (Kranz et al., 2022). The causes and consequences of climate change are multifaceted and require a comprehensive understanding in order to develop effective mitigation and adaptation strategies (Clemens et al., 2020; Johnston, 2020). Climate citizenship encompasses the active involvement, participation, and advocacy for climate justice in tackling climate change challenges and working towards sustainable solutions (Vihersolo, 2017). As seen, by their very nature, it is not possible to think climate change literacy and climate citizenship independent of each other. In this manner, the Climate Change Literate Citizenship Framework also offers a roadmap for educators, policymakers, and researchers to cultivate a generation of environmentally conscious citizens.

Similar to the framework we proposed, criteria developed to evaluate the learning objectives of the "Environmental education and Climate Change" course are believed to contribute to the literature as well as educational researchers, practitioners, and policy makers. The criteria cover scientific, cultural, and critical aspects of climate change literacy in a thorough manner. It includes essential knowledge

about greenhouse effects and their global consequences, as well as highlighting the human-centered impacts of climate change and exploring how cultural beliefs shape our perspectives on it. Furthermore, it categorizes climate citizenship into three dimensions: personal responsibility, participatory action, and justice-oriented approaches—encouraging individual actions while advocating for collective advocacy efforts and promoting social justice considerations. Therefore, researchers who are interested in examining curricula of various courses, teaching materials related to these course or practices of the courses in formal, informal or non-formal learning environments may utilize the framework and related criteria. Educational policy makers may consider including the criteria proposed in the present study in the curricula of environmental education and climate change education courses. Similarly, teachers may benefit from the criteria in designing teaching activities in their courses.

Acknowledgment

References

Acharibasam, J. B. (2022). Decolonizing climate change education: evidence from an empirical study in ghana. *Journal of Education and Practice, 13*(32), 54-63. https://doi.org/10.7176/jep/13-32-06

Adger, W. N., Barnett, J., Brown, K., Marshall, N., & O'Brien, K. (2013). Cultural dimensions of climate change impacts and adaptation. *Nature Climate Change*, *3*(2), 112–117. https://doi.org/10.1038/nclimate1666

Aikenhead, G. S., & Ogawa, M. (2007). Indigenous knowledge and science revisited. *Cultural Studies of Science Education*, *2*(3), 539–620. https://doi.org/10.1007/s11422-007-9067-8

Alexandru, A., Ianculescu, M., Tudora, E., & Bica, O. (2013). ICT challenges and issues in climate change education. *Studies in Informatics and Control*, *22*(4), 349–358. https://doi.org/10.24846/v22i4y201310

Anderson, A. (2012). Climate Change Education for Mitigation and Adaptation. *Journal of Education for Sustainable Development*, *6*(2), 191–206. https://doi.org/10.1177/0973408212475199

Aruta, J. J. B. R. (2022). Science literacy promotes energy conservation behaviors in Filipino youth via climate change knowledge efficacy: Evidence from PISA 2018. *Australian Journal of Environmental Education*, 55–66. doi:10.1017/aee.2022.10

Ayar, M. C., & Özalp, D. (2021). Analyzing a human and environment unit at the 5th grade science curriculum within the environmentally literate citizenship context *Academy Journal of Educational Sciences, 5*(1), 1-14. http://dx.doi.org/10.31805/acjes.839228.

Bickham, D. S., Moukalled, S., Inyart, H. K., & Zlokower, R. (2021). Evaluating a middle-school digital citizenship curriculum (screenshots): quasi-experimental study. *JMIR Mental Health, 8*(9), e26197. https://doi.org/10.2196/26197

Bolstad, R. (2020). How can New Zealand schools respond to climate change? *Set: Research Information for Teachers*, (3), 30–39. https://doi.org/10.18296/set.0184

Boyes, E., Chuckran, D., & Stanisstreet, M. (1993). How do high school students perceive global climate change: What are its manifestations? What are its origins? What corrective action can be taken? Journal of Science Education and Technology, 2, 541–557.

Cantell, H., Tolppanen, S., & Aarnio-linnanvuori, E. (2019). Bicycle model on climate change education : presenting and evaluating a model. *Environmental Education Research*, *25*(5), 717–731. doi:10.1080/13504622.2019.1570487

Chawla, L., & Cushing, D. F. (2007). Education for strategic environmental behavior. *Environmental Education Research*, *13*(4), 437–452. https://doi.org/10.1080/13504620701581539

Choi, S. Y., Won, A. R., Chu, H. E., Cha, H. J., Shin, H., & Kim, C. J. (2021). The impacts of a climate change SSI-STEAM program on junior high school students' climate literacy. *Asia-Pacific Science Education*, *7*(1), 96-133.

Clemens, V., Hirschhausen, E. v., & Fegert, J. M. (2020). Report of the intergovernmental panel on climate change: implications for the mental health policy of children and adolescents in europe—a scoping review. European Child &Amp; *Adolescent Psychiatry, 31*(5), 701-713. https://doi.org/10.1007/s00787-020-01615-3

Colston, N. M. and Thomas, J. (2019). Climate change skeptics teach climate literacy? a critical discourse analysis of children's books. *Journal of Science Communication, 18*(04), A02. doi:10.22323/2.18040202

Corner, A., Roberts, O., Chiari, S., Völler, S., Mayrhuber, E. S., Mandl, S., & Monson, K. (2015). How do young people engage with climate change? The role of knowledge, values, message framing, and trusted communicators. *Wiley Interdisciplinary Reviews: Climate Change*, *6*(5), 523–534. doi:10.1002/wcc.353

Corner, A., Markowitz, E., & Pidgeon, N. (2014). Public engagement with climate change: the role of human values. *Wiley Interdisciplinary Reviews: Climate Change*, *5*(3), 411-422.

Cunnion, J., Hua, F., McNicholl, M., & Ospina, S. (2022). Middle School Climate Change Mitigation and Adaptation Curriculum in the United States: Peers Lead Peers Through Change and Action. In *Education to Build Back Better: What Can We Learn from Education Reform for a Post-pandemic World* (pp. 145-167). Cham: Springer International Publishing.

Dalagnol, R., Gramcianinov, C., Crespo, N., Luiz, R., Chiquetto, J., Marques, M., … & Sparrow, S. (2021). Extreme rainfall and its impacts in the brazilian minas gerais state in january 2020: can we blame climate change?. *Climate Resilience and Sustainability, 1*(1). doi:10.1002/cli2.15

Dawson, V., Eilam, E., Tolppanen, S., Ben, O., Assaraf, Z., Goldman, D., Agung, G., Eka, P., Wijaya, A., White, P., & Quinton, H. W. (2022). A cross-country comparison of climate change in middle school science and geography curricula. *International Journal of Science Education, 44*(9), 1379-1398. doi:10.1080/09500693.2022.2078011

Dillon, J. (2022). Climate change education. *Debates in Science Education: Second Edition*, 59–72. doi:10.4324/9781003137894-6

Dobson, A. (2007). Environmental citizenship: Towards sustainable development. *Sustainable Development*, *15*(5), 276–285. doi:10.1002/sd.344

Dupigny-Giroux, L. A. L. (2010). Exploring the challenges of climate science literacy: Lessons from students, teachers and lifelong learners. Geography Compass, 4(9), 1203–1217.

Feinstein, N. W., & Kirchgasler, K. L. (2015). Sustainability in Science Education? How the Next Generation Science Standards Approach Sustainability, and Why It Matters. *Science Education*, *99*(1), 121–144. doi:10.1002/sce.21137

Ferguson, T. (2019). Climate Change Education for Sustainable Development. *Encyclopedia of Sustainability in Higher Education*, 1–8. https://doi.org/10.1007/978-3-319-63951-2_372-1

Fraenkel, J., Wallen, N., & Hyun, H. (2018). *How to design and evaluate research in education (10th) ed.)*. McGraw-Hill.

Grewal, R. K., Field, E., & Berger, P. (2022). Bringing Climate Injustices to the Forefront: Learning from the Youth Climate Justice Movement. In *Justice and Equity in Climate Change Education* (pp. 41-70). Routledge.

Hadjichambis, A. C., & Reis, P. (2020). Introduction to the conceptualisation of environmental citizenship for twenty-first-century education. *Conceptualizing environmental citizenship for 21st century education*, *4*, 1-14.

Hadjichambis, A. C. (2022). European Green Deal and Environmental Citizenship: Two Interrelated Concepts. *Environmental Sciences Proceedings*, *14*(1), 3.

Hallar, A. G., McCubbin, I. B., & Wright, J. M. (2011). Change: A place-based curriculum for understanding climate change at Storm Peak Laboratory, Colorado. *Bulletin of the American Meteorological Society*, *92*(7), 909–918. https://doi.org/10.1175/2011BAMS3026.1

Hansen, P. J. K. (2010). Knowledge about the greenhouse effect and the effects of the ozone layer among Norwegian pupils finishing compulsory education in 1989, 1993, and 2005— What now? *International Journal of Science Education, 32,* 891–908.

Hargis, K., and McKenzie, M. (2020). Responding to Climate Change Education: A Primer for K-12 Education. *The Sustainability and Education Policy Network*, Saskatoon, Canada. https://sepn.ca/resources/report-respondin g-to-climate-change-education-a-primer-for-k-12-education

Harrington, J. (2008). Misconceptions: Barriers to improved climate literacy. *Physical Geography*, *29*(6), 575–584.

Hestness, E., Randy McGinnis, J., & Breslyn, W. (2019). Examining the relationship between middle school students' sociocultural participation and their ideas about climate change. *Environmental Education Research, 25*(6), 912–924. https://doi.org/10.1080/13504622.2016.1266303

Ho, S. S., & Chuah, A. S. (2017). Climate change communication in Singapore. In *Oxford Research Encyclopedia of Climate Science*.

Hung, C.C. (2014). *Climate change education: Knowing, doing and being*. New York, NY: Routledge.

IPCC. (2021) Summary for Policymakers. In: Climate Change 2021: *The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, pp. 3−32. https://doi.org/10.1017/9781009157896.001

Jabareen, Y. (2012). Towards a sustainability education framework: Challenges, concepts and strategies-the contribution from urban planning perspectives. *Sustainability*, *4*(9), 2247–2269. doi:10.3390/su4092247.

Japanwala, N. (2021). Adaptation, Migration, Advocacy. A Climate Change Curriculum for Out- of- School Children in Badin, Sindh. In F. M. Reimers (Edt), *Education and Climate Change* (pp. 137-152). Springer. doi:10.1007/978-3-030-57927-2_5

Johnson, E. W., Coma, A., & Castonguay, S. (2023). Characteristics of large environmental nonprofits that identify climate change and social justice as focal concerns. *Nonprofit and Voluntary Sector Quarterly*, 52(4), 952-978. doi:10.1177/08997640221138264

Johnston, J. D. (2020). Climate change literacy to combat climate change and its impacts. In: Filho WL, Azul AM, Brandli L, Özuyar PG, Wall T (eds) *Climate action. Encyclopedia of the UN sustainable development goals.* Springer, pp. 200–212. https://doi.org/10.1007/978-3-319-95885-9_31.

Kim, K. O. (2003). An inventory for assessing environmental education curricula. *Journal of Environmental Education*, *34*(2), 12–18. https://doi.org/10.1080/00958960309603495

Kranz, J., Schwichow, M., Breitenmoser, P., & Niebert, K. (2022). The (Un)political Perspective on Climate Change in Education—A Systematic Review. *Sustainability, 14*(7). doi:10.3390/su14074194

Kristen, H., & Marcia, M. (2020). Responding to climate change: a primer for K-12 education. *The Sustainability and Education Policy Network*. Retrieved from https://sepn.ca/resources/report-responding-to-climate-change-education-a-primer-for-k-12-education/

Kuthe A, Körfgen A, Stötter J, et al. (2020) Strengthening their climate change literacy: A case study addressing the weaknesses in young people's climate change awareness. *Applied Environmental Education and Communication 19*(4). Routledge: 375–388. doi:10.1080/1533015X.2019.1597661.

Manuvie, R. (2023). Negotiating Climate, Citizenship, and Belonging. In R. Manuvie (Edt), *Climate Migration Governance and the Discourse of Citizenship in India* (pp. 93-121). The Hague: TMC Asser Press.

Mcgregor, C. and Christie, B. (2021). Towards climate justice education: views from activists and educators in scotland. *Environmental Education Research, 27*(5), 652-668. doi:10.1080/13504622.2020.1865881

McKenzie, M. (2021). Climate change education and communication in global review: tracking progress through national submissions to the UNFCCC Secretariat. *Environmental Education Research*, *27*(5), 631–651. doi:10.1080/13504622.2021.1903838

McNichol, H., Davis, J. M., & O'Brien, K. R. (2011). An ecological footprint for an early learning centre: Identifying opportunities for early childhood sustainability education through interdisciplinary research. *Environmental Education Research*, *17*(5), 689–704. doi:10.1080/13504622.2011.572161

Ministry of National Education. (2022a).Fen bilimleri dersi öğretim programı (İlkokul ve ortaokul 3,4, 5, 6, 7 ve 8. Sınıflar) [Science curriculum (Elementary and middle schools (3,4, 5, 6, 7, and 8th grades)]. Ankara, Turkey: Board of Education. http://mufredat.meb.gov.tr/Dosyalar/201812312311937-FEN%20B%C4%B0L%C4%B0MLER%C4%B0%20%C3%96%C4%9ERET%C4%B0M%20PROGRAMI2018.pdf

Ministry of National Education. (2022b). "Çevre eğitimi ve iklim değişikliği" dersinin müfredatı tamamlandı [The curriculum of the "environmental education and climate change" course has been completed]. https://www.meb.gov.tr/cevre-egitimi-ve-iklim-degisikligi-dersinin-mufredati-tamamlandi/haber/25946/tr

Mochizuki, Y., & Bryan, A. (2015). Climate Change Education in the Context of Education for Sustainable Development: Rationale and Principles. *Journal of Education for Sustainable Development*, *9*(1), 4–26. doi:10.1177/0973408215569109

Monroe, M. C., Plate, R. R., Oxarart, A., Bowers, A., & Chaves, W. A. (2019). Identifying effective climate change education strategies: a systematic review of the research. *Environmental Education Research*, *25*(6), 791–812. doi:10.1080/13504622.2017.1360842

Monte, T., & Reis, P. (2021). Design of a pedagogical model of education for environmental citizenship in primary education. *Sustainability*, *13*(11), 6000.

Nations, U. (2015). *World Trends in Education for Sustainable Development. World Trends in Education for Sustainable Development*. doi:10.3726/978-3-653-04538-3

Osiadacz, E. (2018). Global citizenship. *Brock Education Journal, 27*(2), 44-47. https://doi.org/10.26522/brocked.v27i2.575

Park, W. H. and Kim, C. Y. (2020). The impact of project activities on the cultivation of ecological citizenship in a high school climate change club. Asia-Pacific Science Education, 6(1), 41-69. https://doi.org/10.1163/23641177-bja00005

Passarella, M. (2021). The need of a systemic approach in climate change education: the example of the eit climate-kic journey summer school. *BHM Berg- Und Hüttenmännische Monatshefte, 166*(10), 505-509. https://doi.org/10.1007/s00501-021-01155-6

Plutzer, E., & Hannah, A. L. (2018). Teaching climate change in middle schools and high schools: investigating STEM education's deficit model. *Climatic Change, 149*(3–4), 305–317. https://doi.org/10.1007/s10584-018-2253-8

Pytlikzillig, L.M., Steffensmeier, T., Hibbs, A.C., Champion, B.L., Hunt, E., Harrington Jr., J., Spears, J.D., Umphlett, N., Abdel-Monem, T., Bruning, R., & Kahl, D.W. (2013). Fostering climate change education in the Central Great Plains: A public engagement approach. *The International Journal of Sustainability Education, 8*(1), 161-177.

Radzi, S. N. F., Osman, K., & Said, M. N. M. (2022). Progressing towards Global Citizenship and a Sustainable Nation: Pillars of Climate Change Education and Actions. *Sustainability, 14*(9). doi:10.3390/su14095163.

Sherpa, P. (2021). Climate change education through narrative inquiry. Journal of Transformative Praxis, 2(1), 46-53. https://doi.org/10.51474/jrtp.v2i1.523

Shwom, R., Isenhour, C., Jordan, R. C., McCright, A. M., & Robinson, J. M. (2017). Integrating the social sciences to enhance climate literacy. *Frontiers in Ecology and the Environment, 15*(7), 377–384. https://doi.org/10.1002/fee.1519

Stables, A. (1998). Environmental literacy: functional, cultural, critical. The case of the scaa guidelines. *Environmental Education Research*, 4(2), 155-164.doi:10.1080/1350462980040203

Tasquier, G., Levrini, O., & Dillon, J. (2016). Exploring students' epistemological knowledge of models and modelling in science: results from a teaching/learning experience on climate change. *International Journal of Science Education, 38*(4), 539-563. doi:10.1080/09500693.2016.1148828

UNESCO. (2014). *Shaping the future we want. UN decade education for sustainable development (2005– 2014)*. Final Report. UNESCO.

Vihersalo, M. (2017). Climate citizenship in the European union: environmental citizenship as an analytical concept. *Environmental Politics, 26*(2), 343–360. doi:10.1080/09644016.2014.1000640

Wibeck, V. (2014). Enhancing learning, communication and public engagement about climate change - some lessons from recent literature. *Environmental Education Research, 20*(3), 387–411. doi:10.1080/13504622.2013.812720

Appendices

Potential Objectives Associated with Climate Change Literate Citizenship

Potential Objectives Associated with Climate Change Literacy

A. Functional Environmental Literacy Criteria	Objectives
F1. Involves identifying what greenhouse gases are.	CEID.* 4.1.a) Identifies the greenhouse gases that cause environmental problems.
F2. Involves defining the greenhouse effect.	CEID.4.1.b) States that a certain level of greenhouse gas is necessary for maintaining the temperature in the atmosphere.
F3. Involves distinguishing between natural and anthropogenic (human-made) greenhouse effects.	
F4. Involves defining global warming.	CEID.4.2. Recognizes that global warming emerges as a result of the greenhouse effect.
F5. Involves defining climate change.	CEID.3.5. Explains local and global environmental issues with examples. CEID.4.3.b) Addresses the concept of climate crisis.
F6. Involves understanding key concepts and phenomena related to climate change (e.g., weather, weather events, climate, humidity, global warming, carbon cycle, water cycle).	CEID.2.3.a) Recognizes that natural resources such as plants, air, water, soil, etc., are sustainable under natural conditions through the material cycle. CEID.2.3.b) Recognizes material cycles through the example of the water cycle, CEID.2.3.c) The sun is emphasized as the primary energy source in nature. CEID.2.3.d) Without delving into the details of topics such as photosynthesis, power plants, and ecological pyramids, recognizes their roles in material cycles and energy flow.
F7. Involves understanding the relationship between the greenhouse effect, global warming, and climate change.	CEID.4.2. Recognizes that global warming emerges as a result of the greenhouse effect. CEID.4.3. Explains the relationship between global climate change and global warming. CEID.4.3.a) It is emphasized that global climate change and global warming are distinct concepts.
F8. Involves explaining the main causes of climate change.	CEID.4.1.c) Addresses examples of factors contributing to the increase of greenhouse gases can include the use of fossil fuels, deforestation, excessive use of fertilizers, waste from industrially raised animals, crop residue burning, burying or burning waste, volcanic eruptions, supersonic airplanes, excessive

	evaporation, exhaust fumes, sprays, refrigerant gases, Styrofoam, fire extinguishers, and etc.
F9. Involves distinguishing human-induced climate change from natural climate variability.	
F10. Involves understanding the impacts of human activities (e.g., deforestation, agriculture, transportation, energy consumption) on climate change.	CEID.1.2.b) Addresses the positive and negative impacts of unplanned settlements, industrialization, transportation, etc., on nature CEID.3.6.a) Addresses the impact of population growth, uncontrolled urbanization, industrialization, and changing consumption habits on environmental issues.
F11. Involves understanding the local impacts of climate change on the environment, society, and economy.	
F12. Involves understanding the global impacts of climate change on the environment, society, and economy.	CEID.4.4.a) Issues such as the decline in biodiversity, melting glaciers, rising sea levels, changes in coastal ecosystems, drying up of lakes, alterations in the chemical composition of aquatic environments, reduction in fresh water sources, and shifts in migration and breeding times of animals are impressed upon students through case studies. CEID.4.5. Explains disasters, either directly or indirectly caused by global climate change, along with their effects CEID.4.5.a) Addresses disasters such as floods, inundation, landslides, mucilage, fires, deforestation, drought, coastal erosion, desertification, hurricanes, tornadoes, global hunger, and epidemic diseases
F13. Involves understanding ecosystem components, their interrelationships, and their importance in terms of sustainability.	CEID.1.1. Recognizes that they are a part of the environment in which they live based on their observations. CEID.1.2.a) Adresses the natural and artificial environments when addressing the interaction between humans and nature. CEID.1.3.a) Places emphasis on the interactions between living beings and between living and non-living entities. CEID.1.3.b) By visiting out-of-school learning environments (such as national parks, botanical gardens, natural monuments, etc.), students give examples of these interactions. CEID.1.4. Infers that nature possesses a delicate balance. CEID.2.1. Provides examples of local natural resources based on observational findings.

	CEID.2.2. Categorizes the natural resources on Earth based on the results of his/her research.
	CEID.2.4. Draws inferences regarding the impact on natural life due to disruptions in the material cycle and energy flow.
	CEID.6.2. Recognizes the importance of sustainable water resource usage.
	CEID.6.2.a) Emphasizing the significance of water for living organisms, the concept of water literacy is touched upon.
	CEID.6.2.b) Water literacy briefly addresses dimensions such as water conservation, water management, keeping water resources clean, and agricultural irrigation.

B. Cultural Climate Change Literacy Criteria	**Objectives**
C1. Involves understanding the impacts of climate change on cultural practices and values (e.g., its effects on traditional farming practices, the cultural significance of certain species, etc.).	
C2. Involves understanding the impact of climate change on cultural heritage (e.g., historic structures).	
C3. Involves understanding how cultural factors (values, beliefs, traditions, etc.) influence attitudes and behaviors towards climate change.	
C4. Involves recognizing different cultural perspectives on climate change (e.g., knowledge and teachings of indigenous peoples).	
C5. Involves respecting different cultural viewpoints on climate change.	
C6. Involves understanding opportunities for collaboration and learning between different cultures in combating climate change.	

C. Critical Climate Change Literacy Criteria	**Objectives**
CR1. Involves questioning the relationship between the concepts of ecological footprint and biocapacity with climate change.	
CR2. Encompasses questioning the local and global effects of climate change on the environment, society, and economy (issues of food security, problems accessing water resources, loss of biodiversity, increased energy needs, etc.).	CEID.4.4.b) Draws attention to the interrelationships between events caused by global climate change. CEID.5.1.b) Discusses on the impacts of climate change on areas such as agriculture, livestock, biodiversity, tourism, and the economy in Türkiye.

CR3. Involves evaluating the role of stakeholders (e.g., civil society organizations, municipalities) in combating climate change.	CEID.5.2.b) Addresses the activities of institutions and organizations working at the national level to prevent global climate change.
CR4. Involves recognizing different strategies in combating climate change (mitigating the effects of climate change and adapting to climate change).	CEID.4.5.b) Discusses the precautions that need to be taken prior to a disaster. CEID4.5.c) Explores the actions required during and after a specific disaster event. CEID.6.1. Recognizes the need to consider future generations' requirements while addressing desires and needs in daily life. CEID.6.6. Provides examples that support sustainable development in Turkey and around the world. CEID.6.6.a) Addresses eco-friendly technologie. CEID.6.6.b) Addresses concepts such as slow cities, ecological villages, and sustainable schools that support sustainability. CEID.6.6.c) Addresses examples from historically significant environmental conservation practices from the past to the present.
CR5. Involves understanding the role of public policy and governance in addressing climate change (for instance, policies and regulations that reduce emissions and promote sustainability).	CEID.6.6.b) Addresses concepts such as slow cities, ecological villages, and sustainable schools that support sustainability. CEID.6.6.c) Addresses examples from historically significant environmental conservation practices from the past to the present.
CR6. Involves understanding the importance of individual and collective actions (e.g., lifestyle changes, behavior modifications, and advocacy efforts) in mitigating the effects of climate change.	CEID.5.3. Provides examples of measures aimed at mitigating the effects of climate change in Turkey. CEID.5.4. Prepares presentations, posters, banners, brochures, etc., to inform their immediate surroundings. CEID.6.1. Recognizes the need to consider future generations' requirements while addressing desires and needs in daily life.
CR7. Involves the skill of analyzing potential outcomes of different policy approaches to climate change.	
CR8. Evaluates media content related to climate change (e.g., social media, blogs, forums, podcasts, news websites, etc.) and involves identifying misleading information (e.g., conspiracy theories) or biases.	
CR9. Involves analyzing scientific data related to climate change.	
CR10. Involves understanding the potential economic and societal benefits of transitioning to a low-carbon economy (e.g., job	CEID.6.8. Addresses examples of different career fields related to the environment, climate, and sustainable development. The discussion touches

creation, energy independence, and improvements in public health).	upon green employment sectors, delving into green professions. Student opinions are solicited on potential green jobs needed in the future.
CR11. Involves evaluating the advantages and disadvantages of sustainability strategies (e.g., renewable energy, sustainable agriculture, and green infrastructure) in mitigating the effects of climate change and adapting to it.	CEID.6.4. Explains the importance of recycling and recovery in terms of sustainable development. CEID.6.4.a) Mentions the differences between recycling and recovery. CEID.6.4.b) Mentions the "Zero Waste" initiative and projects related to waste assessment.
CR12. Involves the ability to evaluate the effectiveness of climate change mitigation and adaptation strategies in reducing health risks associated with climate change (e.g., creating more green spaces, promoting natural ventilation systems in buildings, and educating the public about heatwaves).	
CR13. Involves planning strategies to preserve cultural heritage in the context of climate change.	
CR14. Discusses the limitations of technology in preventing the effects of climate change.	
CR15. Critically evaluates international reports, agreements, and conferences related to climate change (like the Paris Climate Agreement, International Climate Panel reports, etc.).	CEID.3.6.b) Makes a presentation by utilizing national and/or international research findings on a current environmental issue. CEID.5.2.a) Addresses international agreements such as the Paris Agreement for combating global climate change.
CR16. Involves understanding how the ecological footprints of products, individuals, and countries impact the environment and climate change.	CEID.3.1.a) The concept of life cycle analysis is explained. CEID.3.1.b) Life cycle analyses of selected consumable items are conducted. Emphasis is placed on the natural resources (energy, water, minerals, etc.) used in the production stages of everyday items like paper, plastic bags, computers, and jeans, as well as the waste generated as a result of production. CEID.3.2. Distinguishes between the concepts of waste, garbage, and pollution. CEID.3.2.a) The relationship between consumption and waste, garbage, and pollution is addressed. CEID.3.2.b) The concept of wastage (water, bread, technology, electricity wastage, etc.) is touched upon. CEID.3.4. Describes the concept of ecological footprint with examples. The student is encouraged to calculate their ecological footprint based on their consumption habits in terms of air, water, food, energy, and wastes (organic

wastes, solid wastes, hazardous wastes, etc.). It is recommended to use reliable digital sources for ecological footprint calculations.

Potential Objectives Associated with Climate Citizenship	
A. Personally Responsible Citizens	**Objectives**
PR1. Encompasses recognizing and adopting individual responsibilities regarding sustainable practices (e.g., reducing energy consumption, conserving water, using public transportation, and minimizing waste).	CEID.1.6.b) Realize their responsibility in developing attitudes and behaviors towards preserving the natural balance. CEID.6.5. Designs an upcycled product by utilizing waste materials.
PR2. Involves supporting policies and initiatives that promote renewable energy, preservation of ecosystem components, and sustainable development.	
PR3. Includes willingness to engage in educational opportunities to enhance awareness about climate change.	
PR4. Encompasses following climate change-related policies and practices (e.g., policies and initiatives of NGOs and government agencies).	CEID.3.6.b) Makes a presentation by utilizing national and/or international research findings on a current environmental issue. CEID.5.2.a) Addresses international agreements such as the Paris Agreement for combating global climate change. CEID.5.2.b) Addresses the activities of institutions and organizations working at the national level to prevent global climate change.
B. Participatory Citizens	**Objectives**
P1. Involves raising awareness among fellow citizens about the effects of climate change.	CEID.5.4. Prepares presentations, posters, banners, brochures, etc., to inform their immediate surroundings. CEID.5.5. Designs project(s) that will create societal awareness about reducing the effects of climate change in Turkey.
P2. Encompasses expressing opinions on climate change through various channels, both written and verbal, in an effective manner.	CEID.5.4. Prepares presentations, posters, banners, brochures, etc., to inform their immediate surroundings. CEID.5.5. Designs project(s) that will create societal awareness about reducing the effects of climate change in Turkey.
P3. Includes supporting and collaborating with organizations and groups striving to mitigate the effects of climate change (e.g., environmental groups and climate advocates).	
P4. Involves generating and participating in projects related to climate change.	CEID.6.7. Designs a project that offers a sustainable development-based solution for a real-life issue.

P5. Encompasses communicating about climate change with individuals and stakeholders using scientific approaches.

P6. Encompasses communicating about climate change with individuals and stakeholders through technology (e.g., social media, podcasts, forums, blogs, etc.).

P7. Involves promoting a sense of hope about climate change among peers and other community members climate change.

P8. Encompasses inspiring, motivating, and persuading peers and community members to take action for climate initiatives.

P9. Involves engaging in communication with the public and policymakers about climate adaptation and mitigation.

P10. Includes joining an NGO that plays a significant role in combating climate change.

C. Justice-Oriented Citizens	Objectives
JO1. Encompasses understanding the concept of climate justice.	
JO2. Involves developing empathy towards species, communities, and habitats disproportionately affected by climate change.	
JO3. Encompasses considering the experiences and perspectives of individuals with diverse social, economic, and cultural backgrounds in climate change discussions.	
JO4. Involves seeking solutions that benefit not only humans but also all components of the ecosystem in combating climate change, rather than solely human-centric approaches.	
JO5. Encompasses advocating for climate justice for all components of the ecosystem.	CEID.1.6.a) Examines behaviors that may negatively impact the natural balance through ethical dilemmas from an environmental ethics perspective.
JO6. Includes understanding the vulnerabilities of certain species, habitats, and communities that make them more susceptible to climate change.	
JO7. Encompasses the ability to communicate and write about protecting all species, habitats, and communities from climate threats.	
JO8. Involves collaborating to advocate for the rights of all components of the ecosystem against climate change.	

JO9. Encompasses considering what is fair for both humans and other ecosystem components when making decisions about climate change actions.

JO10. Includes understanding how climate change exacerbates existing social and economic inequalities (e.g., access to healthcare, clean water, quality education).

JO11. Encompasses comprehending the challenges climate refugees might face in migration movements caused by climate change.

* CEID refers to the objective code originally defined at the curriculum. First number after CEID refers to the number of units, while the following number refers to the objective number pertaining to that unit.

High School Administrators' Views about Work-Private Life Balance[1]

Sevim Gülseven[2]   Fatma Uslu Gülşen[3]

Abstract

Working life is as essential and indispensable as private life for people. Paying equal attention to work and private life is the way to balance these living spaces. Work-private life balance is essential both for the uninterrupted functioning of organizations and for the employees to continue their private lives healthily. This study aims to reveal school administrators' views on work-private life balance. Of qualitative research methods, a phenomenological research design was used to examine the subject in-depth, obtain rich findings, and understand the phenomenon better. The study participants comprised 50 school administrators, 19 females, and 31 males, selected using purposeful and snowball sampling methods from 275 public high school administrators working in four central districts of Mersin in the 2021-2022 academic year. All the data were collected through face-to-face interviews and divided into codes, categories, and subcategories using content analysis. At the end of the analysis, the findings relating to five themes were created considering the literature. Although the work-private life balance was taken into account when asking questions to study participants, it was discovered that school administrators working in public high schools experienced a work-private life imbalance.

Keywords: work-private life balance, work-private life balance in school organizations, school administrators

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Introduction

In the current world, where working life holds an indispensable place in employees' lives as much as private life, the working lives of individuals have taken precedence over their private lives. Meanwhile, the boundaries between living spaces are nearly eliminated, and the living spaces have melded together. Work-private life balance can deteriorate when individuals experience challenges in finding themselves among the intermingling living spaces and cannot fulfill the expected duties. Work-private life balance is defined as individuals giving equal importance to both living spaces and protecting their physical and mental health (Byrne, 2005; Lockwood, 2003).

Work-private life balance, a concept that first appeared in 1930, is now described by time, commitment, and satisfaction. According to relevant literature, various theories address whether an employee's work and private life influence each other from their respective unique perspectives. These theories could be listed as role theory, spill-over theory, enrichment theory, segmentation theory, balance theory, instrumentality theory, internal-conflict theory, work-family boundary theory, and systems approach.

Various disciplines, including sociology and psychology, study the societal roles imposed on individuals today. According to Dinç Kahraman (2010), cultural and social values shape individuals from childhood based on their biological genders, perpetuating gender inequalities and discrimination primarily initiated and endorsed within the family. As individuals strive to fulfill societal gender roles learned from their upbringing and the responsibilities of their work-life roles, they encounter challenges and struggle to maintain a work-life balance. Positive experiences in the workplace can extend beyond the organization, affecting personal life, while negative events in personal life can hinder one's ability to perform effectively within the organization. Tuğsal (2017) discusses the spill-over theory, suggesting that work experiences continue to impact personal life. Conversely, Özaydın (2013) argues that achieving success and happiness in work life can positively influence personal life, referring to the enrichment theory. The enrichment theory differs from the spill-over theory in terms of emphasizing the impact of job satisfaction on other domains of life.

The segmentation theory posits that work and personal life events remain independent (Ballıca, 2010). Additionally, the balance theory explains how individuals may focus on other life domains to cope with challenges and negative emotions. According to Mutlu (2016), the balance theory explains that employees try to feel better by focusing on other life domains in response to negative emotions caused by failures, unhappiness, and similar situations in their personal or work lives.

According to the instrumentality theory, which considers the events in one life domain as indicators of the other life domain, it is argued that one life domain facilitates the other (Polat, 2019). However, when employees are caught between the responsibilities of different roles they need to fulfill in their life domains and are forced to make choices between these roles, they may experience internal conflicts that negatively impact work-life balance. Varol (2015) highlights the internal conflicts that arise when job expectations clash with individual traits, values, and opinions.

Clark (2000) presents a theory of work-family boundaries, suggesting that the relationship between work life and personal life is a complex system that extends beyond emotions. Küçükusta (2007) emphasizes the system approach, which considers work life, family life, and social life as separate yet interconnected systems, offering a comprehensive understanding of work-life balance. In this perspective, events or circumstances in an individual's personal life inevitably influence their work life to some extent.

Theories and approaches explaining the work-private life balance put forward two views: those that argue that there is an interaction between work and private lives and those that argue that these living spaces continue independently (Polat, 2019). Regardless of which theoretical perspective one considers the work-life balance, relevant research reports, and policies highlight the significance of the multidimensional aspect of work and private life balance. Governments, legislators, and employers have developed various policies to protect employees' work-private life balance. The employees' work-private life balance is a critical issue that could affect them, the organization where they work, their families, and their social environment in various ways.

Work-life balance is crucial because it helps people to prioritize their work and personal duties, which results in increased overall pleasure and well-being. A lack of balance, also referred as a work-life imbalance, can cause stress, and burnout, and have a negative impact on both mental and physical health. It might also result in decreased productivity and job dissatisfaction. In literature, the causes of work-private life imbalance are divided into organizational and personal factors (Akçil, 2019). Organizational factors that cause work-private life imbalance are classified as role ambiguity, role conflict, interpersonal conflict, responsibility, involvement in management, management style, job security, excessive workload, career barriers, physical spaces, and environmental conditions. In case employees are expected to fulfill several roles in an organization, the ambiguity of roles that they experience from time to time may lead to problems such as burnout, loss of motivation, and reluctance to go to work, causing work-private life imbalances (French & Caplan, 1973; Kanbur, et al., 2016). Similarly, Tabancalı and Su (2021) emphasize that school administrators cannot perceive job pessimism, low motivation, and tension because of the ambiguity of their roles. In some cases, the choices made by employees trying to fulfill their roles in the organization regarding role conflicts (Ertem Eray, 2017). For instance, school administrators, who previously worked as teachers in educational organizations, could not adapt to their new duties and responsibilities, missed their old ways of working, and failed to behave professionally about their decisions (Gökçe & Şahin, 2003). This situation may cause various role conflicts for them. While employees experience role conflicts among themselves, they may also experience conflicts with other employees, groups, or groups who do not share the same thoughts, beliefs, values, and views. The sources of interpersonal conflicts that negatively affect the work-life balance of the employee in an organization comprise interpersonal incompatibilities, intra-organizational hierarchy, goal differences, the size of the organization, and excess responsibilities (Aşan & Aydın, 2006; Gümüşeli, 1994; Karip, 2010). In addition, the excessive workload in the organization negatively affects the work-life balance of employees and administrators. Because of the excessive workload, employees feel inadequate, under pressure, and unwilling against the work to be done, whereby many works in the organization may get disrupted, and disruptions may happen in the organization's operation (Dağdeviren, Eraslan, & Kurt, 2005; Katz & Kahn, 1978; Thompson, et al., 2005). An increase in the responsibilities that employees should fulfill and their limited authority despite the responsibilities imposed on them may cause deterioration in their work-private life balance. Similarly, educational organizations' employees feel pressured and obliged to fulfill their responsibilities regardless of the increasing responsibilities (Ballıca, 2010; Tabancalı & Su, 2021).

As in all organizations, the managers' responsibilities can be more than those of other employees. However, it is argued that managers rarely want to share their authority and responsibilities. Therefore, they do not allow employees to participate in management, and the negative effects of this state on employees who cannot take part in management cause work-private life imbalance for themselves and managers (Akçil, 2019; Balcı, 2014; Uyar, 2007).

Personal factors that cause work-private life imbalance are classified as gender, education, and career planning. Various research findings about the significance of gender factors in work-private life balance may be found in the relevant literature. For instance, some studies show gender causes a significant difference in employees' work-private life balance (Alkan, 2019; Ballıca, 2010; Küçükşen & Kaya, 2016; Küçükusta, 2007; Lookwood, 2003; Polat, 2019). Some studies show that gender roles and gender stereotypes do not have any effect on the work-private life balance of employees (Akın, 2019; Altun Dilek, 2015; Çobanoğlu et al., 2019; Dilek & Yılmaz, 2016; İzki, 2019; Yılmaz & Altınkurt, 2015). Likewise, there are different opinions about the education of employees. It is indicated that as the adequacy of employees' education level increases concerning the work, the duties and responsibilities assigned to them in the organization increase accordingly (Ballıca, 2010). Career planning, another personal factor affecting the work-life balance, has an important place in many aspects of an employee's working life. Employees feel happy, motivated, and productive when the organization manager supports them in career planning. In contrast, they feel unhappy, abandoned, and unwilling when the organization manager does not support them with the courses they want to attend, the vocational training they want to take, and when they are not given the opportunity for career development (Öztürk, 2016).

Work-private life balance disruptions produced by personal and organizational matters cause some negativity in an employee's life. These negative emotions can cause psychological, psychosomatic, personal time dissatisfaction, family-related problems, and workplace problems. For instance, it is stated that work-life imbalances bring about psychological consequences such as anger, stress, tension, reluctance to work, burnout, and anxiety disorder in employees (Frone, 2000; Frone, Russell, & Cooper, 1992; Kossek & Ozeki, 1998; Perrewe, Hochwarter, & Kiewitz, 1999).

Although various theories defend different views on work-private life balance, recent studies show that the work-private life balance of individuals can affect themselves, their families, social environments, and the organizations where they work. Therefore, work-private life balance, a study topic that attracts the attention of different disciplines, has gained its place in research studies and educational organizations in recent years. Alkan (2019), the researcher who addresses the subject from a work-private life balance perspective in education organizations, argues that primary school teachers have less difficulty establishing a work-private life balance than other teachers. Similarly, Akın (2019), Dilek and Yılmaz (2016), and Yılmaz and Altınkurt (2015) state that high school teachers have more difficulty in establishing a work-private life balance than other teachers do. The work-life balance in educational organizations is associated with various variables and studied with samples involving teachers and academic staff. However, no qualitative study has explored the views of high school administrators about their problems in establishing a work-life balance, the reasons behind these problems, and methods of coping with them. Hence, this research may contribute to the literature. In addition, this research is believed to guide the Ministry of National Education (MoNE) officials, school administrators, teachers, parents, and students in maintaining the work-private life balance of school administrators. This study explores the views of high school administrators on work-private life balance. In line with this purpose, we addressed the following research and sub-research questions.

1. What are the views of high school administrators about work-private life balances?

1.1. What problems do high school administrators face balancing work and private lives?

1.2. What are the views of high school administrators about the reasons behind the problems they experience in balancing their work and private lives?

1.3. What are the high school administrators' methods of coping with the problems they experience balancing their work and private lives?

Method

Research Model

A phenomenological design, one of the qualitative research methods, was chosen in this study to thoroughly explore the work-private life balances from the perspectives of high school administrators. The phenomenological research design allows for collecting data from its natural environment from a deep perspective and enables the revealing the accurate information directly through individuals who have experienced the event (Creswell, 2017; Yıldırım & Şimşek, 2018). Therefore, a phenomenological research design was adopted in this study, as the work-private life balance can be explained well in line with the participants' views, and the findings obtained can be presented with impartiality.

Study Group

A study group of 50 school administrators, 19 women, and 31 men, was formed using the maximum variation sampling method from purposive sampling methods by considering the gender distribution of high school administrators; participants who volunteered for the study could meet with the researcher for an interview, worked in different school types, had unique characteristics in terms of age, marital status, number of children, working years, and time spent in administration. In purposive sampling methods, the aim is to include participants who can meet the predetermined criteria in the study group (Gliner, Morgan, & Leech, 2015). In addition, since the number of female school administrators was less than the number of male school administrators, the contact details of female school administrators were taken from other participants in the study group and those who became a reference to the study

and were included in the study, using the snowball sampling method. After specifying the study participants, codes were given to all participants using a randomized method.

Data Collection Tool and Technique

In order to collect the data, primarily, the relevant literature was examined by the researcher, the research question and sub-research questions were taken into account, and a draft form consisting of semi-structured interview questions was prepared. The draft form was submitted to six faculty members and two school administrators who were experts in educational administration to evaluate, and necessary revisions were made in line with the expert opinions. Before finalizing the interview form, pilot interviews were conducted to see whether the questions worked, and the views of school administrators were obtained about the interview questions. The interview form revised per these views, was given its final shape, and the data were collected through a face-to-face interview in this study. In the interview form, firstly, general information about participants' work and private lives was obtained, then whether the two areas of life reflect on each other was asked, and finally participants' views on balancing the two areas of lives were taken.

Data Collection Procedure and the Researcher's Role

After requesting permission to conduct the research, the participants' most convenient days and hours were determined, and appointments were made for the interviews. The interviews took place between 11.10.2021 and 10.12.2021. The interview dates and times were rearranged for the interviews that could not take place. Before conducting the interview, the participants were informed about the purpose of the research, assuring that the data would not be used beyond the research purpose and that the researcher would keep what they mentioned confidential. The importance of ethical values was reemphasized, and the participants were informed by defining the work-private life balance. The participants were informed about the approximate interview duration, and consent forms in which they declared that they voluntarily participated were obtained. In addition, permission was requested to record the interview using a voice recorder. Before proceeding to the interview questions, the participants were asked about daily life and warmed up for the interview. The interviews lasted 35 minutes on average.

Interviews were paused from time to time because of the sound of the school bell, the phone, and the teachers who came to ask questions. In such circumstances, the researcher tried to re-motivate the participant's attention to the interview by acting naturally and making binding sentences regarding the topic. Considering the validity and reliability of the data, the researcher avoided asking leading questions to the participants during the interview and was careful not to show any reaction, indicating that she approved or rejected the opinion, concealing her personal beliefs against the responses. In addition, the researcher recorded the entire data collection process by writing a research diary.

Data Analysis

In this study, the data were collected as audio recordings of 35 minutes on average and converted into written documents of 362 pages. The audio recordings and written documents were compared to increase the reliability of the data. The data in written documents were analyzed using the content analysis method. Berg and Lune, (2019) state that the content analysis method is employed to analyze, code, and organize the research data. As a result of the content analyses codes, categories, and sub-categories were created considering the relevant literature. In addition, four experts from the educational administration coded the interview documents of six randomly selected participants to ensure validity and reliability. The comparison of the coding results obtained separately in terms of similarities and differences with the researcher's codings was conducted. According to the reliability calculation formula suggested by Miles and Huberman (2015) for reliability, the minimum agreement rate should be 80% (Reliability= agreement/agreement+disagreement). In the analysis conducted, the intercoder reliability coefficient based on Miles and Huberman was calculated as .90. Then, the themes, categories, and sub-categories were created by classifying the codes with common features and were presented in tables.

Ethical Committee Approval

The Ethical Committee of Mersin University approved the study; No. 116 on September 07, 2021.

Results

Although the work-private life balance was emphasized in interview questions, it was determined that the work-private life imbalance was underlined by the participants. The views of participants were grouped into four themes, 13 categories, and 41 sub-categories and presented in tables.

Factors Affecting the Work-Private Life Balance of High School Administrators

The factors affecting the work-private life balance of high school administrators are addressed under two themes: organizational and personal factors. The organizational factors affecting high school administrators' work-private life balance are grouped under four categories and 12 sub-categories presented in Table 1.

Table 1.
Organizational Factors Affecting the Work-Private Life Balance of High School Administrators

Categories	Sub-categories
Excessive Workload	Workload in vocational high schools
	Workload in boarding schools
	Lack of staff
Role Ambiguity	Diversity and intensity of work
	Official paperwork
	Obligation to teach
	Working beyond working hours
Interpersonal conflict	Teacher-related problems
	Parent-related problems
	Student-related problems
Ignoring the views of teachers on the structuring of the MoNE	Changes being made without getting teachers' views on the work
	Need for a teacher professional law

Excessive Workload

Participants state that they are overwhelmed by excessive workloads because of the many duties and responsibilities they have to fulfill in their work. From the participants' remarks, the excessive workload differs per school type, and the workload in *vocational high schools* is higher than in other school types. The reference statement of a participant working in a vocational high school is:

"...You know, occupational health and safety in vocational high schools are more important than in other school types. We try to ensure that our students benefit from this occupational health and safety service in atelier and laboratory conditions, so we are very busy, and sometimes we have no time to eat" (P18).

In addition, using the following sentences, school administrators working in the boarding school explained that the workload is also more in *boarding schools*.

"There is a boardinghouse in our school. It becomes a problem on the weekend. I am responsible for the boarding house. Since you are responsible for that student, you follow him from the moment he leaves his house. That is why the excessive workload is in here" (P34).

Besides, one participant remarked that the *lack of staff* in schools causes excessive workload, is:

"This school is like this. I have to work with only one vice principal because of the number of students. When there is only one vice principal, half or more of the work falls to me, so I came here. I mean, I am doing the duties of a vice principal after 15 years." (P39).

Role Ambiguity

Participants emphasized that one of the organizational factors influencing their work-private life balance is the ambiguity of roles in their working lives. As in the following, one participant noted that the *diversity and intensity of work* are one causes of role ambiguities:

"We have a very busy working life. Paperwork, students, and daily work of the school. In this regard, it is really intense. So, we cannot finish the tasks on time. Work is always ahead, and we are running behind. I would say so." (P8).

Participants stated that *official paperwork* takes their time the most among their duties in administrative processes.

"Actually, the unnecessary paperwork of the Ministry of National Education has been the case in recent years. We have to respond to many things, no matter whether they are relevant or not to us" (P35).

One of the participants, who had to deal with both teaching and official paperwork, stated that having teaching obligations causes role ambiguities:

"We do not have a professional definition. I am currently working as the vice principal as a second duty. My main job is still teaching, and therefore I have to teach six hours a week" (P18).

In addition, the participants, who stated that they could not fulfill the duties and responsibilities of the role they had to carry out in their working life, expressed that their work and private lives were mixed because they had to *work beyond the working hours*.

"My school life somehow gets into our house… As things in our school inevitably steal time from home, I have to make explanations to my family. For example, I explain about coming to school on the weekend and doing something on the weekend" (P45).

Interpersonal Conflicts

Participants stated that their work-private life balance is negatively affected due to interpersonal conflicts that sometimes take place in organizations where they work. According to the participants, the problems causing interpersonal conflicts differ by school type. However, all participants stated that the *teacher-related problems* were mostly related to the curriculum.

"Teachers challenge us in terms of school timetable. According to their social life outside, teachers ask to have two hours free in her/his teaching schedule, one hour free, let me pick up the child at this hour, at that hour. They make us tired…. If the comfort in the workplace is disturbed, our comfort is also disturbed. The teacher's comfort is also disturbed (P21)."

Participants also remarked that *parent-related problems* challenged them more than teacher-related problems, as follows: *"...when students start high school, the interest of parents decreases. Let me put it this way, even students do not want their parents to come to school. Therefore, this disconnected relationship between students and parents and the indifference of parents to school is one of the most challenging factors for us."* (P14).

In addition to parent and teacher-related conflicts, *student-related problems* also appear to cause conflicts. *"...Teachers' criticisms generally regarding the fact that the kids have low academic achievement, have lots of behavioral disorders and don't even know how to ask for permission. There come complaints stating that students are in a much worse condition than the previous students"* (P22).

Ignoring the views of teachers on the structuring of the MoNE

Finally, the participants emphasized that ignoring the views of teachers on the structuring of the Ministry of National Education is one of the organizational factors affecting the work-private life balance, and one of the factors for this is *the change being made without getting teachers' views on work* as follows:

"The fact that they do anything without consulting us also makes us look worthless. I personally feel worthless. It doesn't matter, I do my own work. I'll come and go. I fulfill my duty. Whatever the instructions are, I'll follow them. I have no authority. I do what they say. Nobody is asking anything. I want to be consulted and valued" (P13).

The participants stated that the changes are made without taking their opinions seriously, and this negatively affects their work-private life balance. A reference statement stating that they *need a teacher profession law* protecting their personal rights to establish a work-private life balance is as follows:

"For example, when the director of a population registry office in a city in Turkey wants to be appointed to another city, he/she acts as the director of the population registry or the editor-in-chief. However, there is no such concept for school principals and administrators. When the school principal in province A wants to be appointed to province B, he goes there and starts working as a teacher. He loses all his personal rights. This makes you demoralized. It means, when we do not have professional law or professional rights, this reflects on everything, both in our working and private life" (P17).

Personal Factors Affecting the High School Administrators' Work-Private Life Balance

Personal factors affecting the high school administrators' work-private life balance are grouped and presented under three categories and 10 sub-categories in Table 2.

Table 2.

Personal Factors Affecting the High School Administrators' Work-private Life Balance

Categories	Sub-categories
Gender	Gender roles
	Gender stereotypes
Career planning	Lack of norm staffing
	Economic reasons
	Not desiring to work as a teacher
	Desire for promotion
	Desire for leading others
	Thinking that the current administrators are incompetent
Administration knowledge and skills	In-service training for administrators
	Lack of experience

The study participants noted that the personal factors affecting the work-private life balance are gender, career planning, and administration knowledge and skills.

Gender

Only female participants stated that gender is one of the personal factors affecting the work-private life balance. Several participants indicated that they experienced work-private life imbalance because of their gender roles, as follows:

"…I am a mother and also a housewife at home. I may have difficulties in following them, or perhaps I cannot spare enough time for them, or I may cause disruptions in my housework, or when it comes to social life, I cannot spare time for myself. This is our biggest problem as women. We spare it for work, for home, and for the children. Let's say when you have a family or there is a situation created for you. You wear that robe right now. You work, you are a mother, and you are a housewife" (P48).

In addition, female participants also described the work-private life imbalances they experience due to *gender stereotypes* as in the following:

"We feel that you are in a male-dominated society in one way or another here… Sometimes I feel that it is because I am a woman. I mean, they look at administration as if it is not a woman's job.

Administration is the man's job. For example, a colleague had said that when you first came here, I was not sure you could fulfill the responsibilities. It was a man who said this" (P34).

Career Planning

Some participants, who thought that the school administration job has no gender, stated that they made their career planning as school administrators because *lack of norm staffing* relating to their fields. A sample reference remark regarding the lack of norm staffing is as follows: *"I cry and think of resigning. Next day, I change my mind because there is no norm to go for now"* (P6).

On the other hand, the following statements indicate that many participants are forced to become school administrators due to *economic reasons*: *"Why do we continue working as administrators? Now, my wife is not working. While you are working as a school administrator, your additional classes are guaranteed. You get a full tuition fee. That is what concerns us. It is definitely a factor"* (K47).

Also, the participants pointed out that another factor in planning their careers as school administrators was that they did *not desire to work as a teacher.*

"I am a teacher of Religious Culture and Moral Knowledge. Once I start teaching, I have to teach for 30 hours. Because there is already a shortage of teachers. I can no longer find the capacity in myself to teach 30 hours of classes" (P39).

In addition, the participants who *desired promotion* in their organizations planned careers as school administrators.

"After nearly 20 years, I wanted to move to administration. When I first became a teacher, I had a dream for myself that I would retire as a branch manager" (P33).

Similarly, one participant, who had the *desire to manage others*, stated: *"I am happy with one-to-one communication with students when I enter the classes, but I do it to have an impact on more things. I do this to be of some benefit to many things"* (P29).

Finally, participants who believed that *current administrators were incompetent* planned careers as school administrators, although they believed it would result in a work-private life imbalance.

"Actually, the reason I became the administrator is that I worked with incompetent administrators. The inappropriate behaviors and attitudes of the person in the administrative position made me say why I should not lead him. The idea that I would lead him instead of he would lead me" (P21).

Administration knowledge and skills

Participants pointed out that one of the personal factors affecting the work-private life balance is administration knowledge and skills. As in the following, some participants emphasized that school management should not be perceived as a task alone and that all administrators should receive *in-service training*:

"I would say that is what I think. The administrators should receive at least one year of administration training. I mean, we need to receive it for one year. You somehow learn how to manage people, or to be exact, these works, and paperwork" (P36).

On the other hand, the participants, who have been school administrators for four years or less, never mentioned in-service training for administration. They claimed that their work-life imbalances were a result of a lack of management experience. A sample reference statement regarding the sub-category of lack of experience is as follows: *"It never finishes. It is always left for the evening. However, this could also be due to my lack of experience. I have been working as an administrator for one month"* (P15).

Views of High School Administrators on the Consequences of Work-Private Life Imbalance

The high school administrators' views about the consequences of work-private life imbalance are grouped under four categories and 12 sub-categories and presented in Table 3.

Table 3.
The Consequences of Work-Private LifeImbalance of High School Administrators

Categories	Sub-Categories
Psychological consequence	Depression
	Anxiety
	Introversion
Psychosomatic consequences	Blood pressure, diabetes, and heart disease
	Psychiatric drug use
Personal time dissatisfaction	Taking work to home
	Neglecting oneself
	Sleeplessness
	Irregular eating habit
Family-related problems	Family conflicts
	Neglecting partner and children
	Spending poor quality time at home

Psychological Consequences

Participants stated that they experienced various negativities both in their professional and private lives because of work-private life imbalances. They stated that work-private life imbalance had psychological consequences on them such as depression, anxiety, and introversion. The views of one of the participants concerning the sub-category of *depression* are as follows:

"I am very unhappy right now. Why? Because you cannot do things completely. So I cannot give myself entirely to my home and family. Although I try to do things exactly in my job, I am unhappy here. I feel depressed. There is no energy" (P23).

Another participant had the following views on anxiety: "*…but sometimes we cannot do duties such as paperwork, writing, and writing letters because of dealing with students' discipline problems and other problems. It also increases the work stress in my mind. It continues even when I go home. I mean, I am always concerned about finishing and completing them?"* (P15). Participants emphasized that besides having a feeling of depression and anxiety, they experienced introversion because of work-private life imbalances.

"I mean, if I have a bad time that day, if I am depressed, if I am bored, I go home as if the whole world is on me, and I cannot even talk. So I don't want to talk at all. I don't even want to open my mouth" (P34).

Psychosomatic Consequences

The participants, whose psychological moods deteriorated as a consequence of work-private life imbalances, seem to have suffered from some psychosomatic diseases known to be of psychological origin. Sample participant remarks regarding psychosomatic consequences such as *blood pressure, diabetes, and heart disease* are as follows.

"...How can you stay balanced at school? How do you not get on your nerves? How do you go home healthy? I don't know about that, but I am going through totally bad things. I get very tired. I also got diabetes because of this stress. I had a new diabetes and a blood pressure problem this year, related to each other. I have more headaches. I mean, I am burning out. Education should not be like this. It is very terrible" (P25). Similarly, the remarks of participants indicate that the participants who lost their physical health, as well as those who lost their mental health because of work-private life imbalances, needed to *use psychiatric drugs*.

"For example, I have ringworm right now. I mean, my body somehow reflects it externally. It kind of reflects as fatigue. It reflects physically. For example, I used to be very angry before. I could burst out immediately. For example, I started to take psychological medicine right now" (P49).

Personal Time Dissatisfaction

One of the participants, who stated that they experienced *personal time dissatisfaction* because of work-private life imbalance, expressed that they had *to take work home*: "*I have to do class schedule, additional class payments, and payment. Regarding the payments, since I play with numbers, there is a high chance of making mistakes when there is a lot of noise, and people entering and going out of the room. You can do it more peacefully and better at home*" (P21).

Another participant's expressions indicating that they experience personal time dissatisfaction in the sub-category of *neglecting oneself* are as follows: "*I guess I am doing the biggest injustice to myself. I cannot spare time for myself. My priorities are always others. When we are at school, our students and when we go home, our children are our priority*" (P11).

The reference remarks of participants, who cannot complete the tasks they need to fulfill in their working life and suffer *sleeplessness* problems because of having to work for a long time, are as follows;

"*...I try not to take time from home as much as possible. I work after 24.00 or after 01.00 at night. I work when everyone is asleep. I forfeit my sleep. I cannot print out the documents from home. I share them with teachers. They download and the download time takes to these colleagues' attention. Sir, you did it at 03.29 at night... I experience these 25-30 times a year without exaggeration*" (P45).

In addition to the participants who stated that they suffered from sleeplessness problems, some participants also stated that they experienced *irregular eating habits* as a consequence of work-private life imbalance. "*I cannot understand when the lunch break takes place. Because even at lunch break, people come and go. I try to eat if I have free time. I usually have a snack in my room*" (P9).

Family-Related Problems

Participants pointed out that work-private life imbalances were reflected not only in their work life but also in their private lives as family-related problems. Here is a reference statement of a participant on *family conflicts*:

"*When I go home, I feel that this tiredness and tension. My wife and child are negatively reflected in this situation. I feel guilty. I always try to control it, to stop it. This turns into another factor that makes me extra tired. I feel that the tolerance, patience, and understanding that I have to show to my kid or my wife run out at school.*" (P22).

The participants stated that *neglecting their partner and children* as a consequence of the work-private life imbalance caused them to feel unable to fulfill their duties.

"*I feel like I am in a vacuum. Because you are neither here nor there. I think we miss out on some things. There are things we fail to do in the family, at least in the context of the children, in the context of our partner, as a father, as a son. From this perspective, we have many responsibilities not fulfilled.*" (P41).

In addition, the participants, who spent most of their time on their work life, pointed out that *spending poor quality time at home* causes problems between them and their families.

"*We have no energy left when we go home. We do not have the energy to spare for our children. They actually need that. We have little tolerance towards them. I mean, when I go there, I react to the slightest noise. Low and poor quality time is spent*" (P30).

Views of School Administrators Who Think They Have Established a Work-Private Life Balance

The views of school administrators who think that they have established a work-private life balance are grouped under seven categories and four sub-categories and presented in Table 4. When the views of school administrators who think that they have established a work-private life balance are examined, it appears the participants actually establish a balance between their living spaces by prioritizing their work life over their other living spaces.

Table 4.
Views of School Administrators Who Think They Have Established a Work-Private Life Balance

Categories	Sub-categories
Methods followed by school administrators who think that they have established a work-private life balance	Postponing private life Regular and planned work Repressing thoughts Not sparing time for oneself
Suggestions of school administrators who think that they have established a work-private life balance	Behaving professionally Exhibiting emotional labor behavior Getting used to problems and gaining experience

Methods Followed by School Administrators Who Think They Have Established a Work-Private Life Balance

The participants who thought that they had established a work-private life balance, were asked about the method they followed, and they had remarks about prioritizing their work life and *postponing their private life*.

"I usually prioritize the working life. This is my main job. This is where I earn my living… Although some of my needs and desires are pushed aside, it is worth it. I should have an eye on it" (P1).

Similarly, the reference remarks of one of the participants, who thought that they had established a balance owing to *regular and planned work*, are as follows:

"There are priorities. We have regular and instant works at school. We put in order what should be done in time. I try to work regularly. I don't move on to another work without finishing one work" (P5).

However, participants thought that they established a work-private life balance by *repressing thoughts*. *"Regarding administration, I have grown up that it would be unethical, wrong, and immoral to offend, victimize, and cause difficulties for people because of one's private life. Our job is sacred and a top priority. In order to prevent this, I try to do my job at school by totally ignoring that part of my mind at home or any problems that arise in my private life"* (P22).

While attempting to meet their duties and responsibilities in their private lives by prioritizing their professional lives, the participants who felt a lack of time for themselves reported that they began the day early by forsaking sleep. *"Now, life begins at 7:00 a.m. for people. I get up at 5.30. I don't steal time from my family. I do my sports between 5.30 and 7.00 when the kids are sleeping. I ride my bicycle. For example, I swim between those hours. When they wake up, I have come home and finished my sport"* (P37).

Suggestions of School Administrators Who Think They Have Established a Work-Private Life Balance

When we asked the suggestions of school administrators who think they have established a work-private life balance to the school administrators who are unable to establish a work-private life balance or had difficulties in establishing a work-private life balance, they stated that they should *behave professionally* on duty. *"… I learned to put things aside and look at things professionally. Administration also had a very positive reflection on my normal life"* (P4).

The participants' remarks indicate that in addition to behaving professionally in school management, *exhibiting emotional labor behavior* is considered critical in establishing a work-private life balance.

"During my 30-year teaching career, I have always compared administration to a good theater actor. I mean, in five minutes, I have to be able to play five different roles. Why did a student come? S/he will ask something if you smile at that student. Your director calls. You get serious at that moment. Someone else has come. You may have a different facial expression or a sign of anger. So I would say, in that sense, a person who does not act well can never be a good administrator" (P14).

In addition, the reference remarks of the participants, who stated that a work-private life balance can be established by *getting used to problems and gaining experience* during the school administration process, are as follows: *"...Human learns some things. As the years pass and progress in administration, I do what should be done at work. I do home-related things at home. I don't take them here and there. When you don't take the two to one another, this time both those at work and home become a bit more peaceful. So in this sense, I try to do this"* (P4).

Discussion and Conclusion

This study investigated the views of high school administrators on work-private life balances. As a result, the findings emerged the following themes of organizational and personal factors affecting the work-private life balance of high school administrators, consequences of work-private life imbalance of high school administrators, and views of school administrators who think that they have established a work-private life balance.

School administrators' workload and work intensity differed according to school types. According to the findings, participants, particularly those working in vocational high schools, have difficulties understanding and completing the documentation required for students' internship applications, which includes financial calculations. As a result, administrators may feel as if they are merely doing clerical tasks rather than more meaningful educational activities. This could be due to a lack of training or experience in these areas, as well as a lack of unambiguous instructions for paperwork. It could also point to the need for more simplified and user-friendly documentation processes to help school administrators. This finding contradicts the research findings of Çobanoğlu et al. (2019), Gürbüzkol (2018), and İzki (2019), who argue that workloads are similar according to school types. We also found that the conflicts between school administrators and teachers, parents, and students differed according to school type. Supporting this finding, the research findings showed that the conflict matters between school administrators and other school stakeholders were different according to school types (Altun Dilek, 2015; Yıldızoğlu & Burgaz, 2014). While school administrators working in regions with low socio-economic status have conflict due to the indifference of families (Yücetaş Artan, 2019), school administrators working in schools that accept students without examination have problems with student discipline problems. It is important to note that different types of schools may have different demands, pressures, and working conditions, which can lead to different types of stressors for school administrators. These stressors can affect the work-private life balance of school administrators differently. Thus, this finding highlights the need to provide school administrators with specific and tailored support based on the types of schools they work in to promote their work-private life balance.

In addition, the findings of this study showed that the ambiguity of roles, such as workload, diversity, and intensity of work, causes school administrators to experience work-private life imbalance. The study's findings suggest that the ambiguity of school administrators' duties and responsibilities can lead to work-private life imbalance. In literature, similar findings showed that the ambiguity of roles in an organization causes work-private life imbalances (Alkan, 2019; Ünlü, 2013). This could be due to the lack of clear expectations for the workload, and intensity of their work, making it challenging for them to effectively manage and organize their time. Our finding could also indicate a need for clearer job descriptions and the allocation of necessary tools to aid school administrators in efficiently managing their workloads and maintaining work-life balance.

We found that school administrators complained about the top-down changes made in the structuring of the MoNE without obtaining the views of school administrators and the need for a Teacher Professional Law to protect their rights. This was an organizational factor that caused the work-private life imbalance. The research findings reported by Başdemir (2012) and Can and Çelikten (2000) support this research finding. They state that because of the organizational structure of MoNE, the participation of subordinates in the decision is very limited. It might result in a work-private life imbalance for school administrators, who may be pressured to work longer hours or complete additional responsibilities without adequate support or resources. A Teacher Professional Law would define school administrators' rights and responsibilities, as well as give a framework for solving any conflicts or difficulties that may occur.

While all female participants have stated that their gender is one of the personal reasons affecting their work-private life balance, male participants have not mentioned anything about gender. Our study

discovered that female school administrators had difficulty establishing a work-private life balance due to gender roles and gender stereotypes. Therefore, they experienced personal time dissatisfaction in that they left their personal lives aside. It is necessary to carefully interpret the finding that female participants experienced work-private life imbalances due to their gender. Determining whether opinions on work-life balance vary by gender is beyond the scope of this study. Although female participants emphasized that gender is an important variable in work-private life balance, this finding does not mean that male participants do not experience work-private life imbalance. In literature the research results about the relationship between gender and work-private life balance are contradictory. While some findings argued that gender is not a determinant in employees' work-private life balance (Akın, 2019; Çobanoğlu et al., 2019; İzki, 2019), some others emphasized that gender is a vital variable in establishing a work-private life balance (Alkan, 2019; Polat, 2019).

School administrators have difficulty protecting their mental and physical health because of the work-private life imbalance. School administrators who cannot protect their mental and physical health experience psychological and psychosomatic disorders. The research results in the literature emphasize that psychological conditions such as nervousness, anxiety, and tension that cause poor performance, burnout, dissatisfaction, and alienation are important consequences of work-private life imbalance (Birkan, 2020; Esin, 2017; Mutlu, 2016). These findings reveal the importance of the existence of support services such as counseling and employee assistance programs and accessing these resources to maintain the mental and physical health of school administrators. Furthermore, creating an organizational climate that encourages work-life balance will help protect their mental and physical health.

In addition, the study concluded that as the time spent by school administrators in management increased, they realized their lack of management training and, therefore; they needed in-service training since they experienced work-private life imbalances. Similar to our findings, several researchers such as Cobanoglu et al. (2019), Esin (2017), and Sayın (2017) have stated that school administrators require in-service training in management. The school administration is a complex task that requires a wide range of abilities, including budgeting, human resource management, and communication. School administrators lacking the necessary training in these areas may struggle to effectively manage their schools and may experience work-private life imbalances. In-service training is a method of providing school administrators with ongoing professional development. It can assist them in developing the skills and information required to effectively manage their schools, while also assisting them in improving their work-private life balance.

One of the critical consequences of the school administrators' work-private life imbalance is family-related problems. Regardless of their marital status, school administrators cannot spare enough time for their partners, children, and relatives, whereby they experience family conflicts. The literature is also arguing that work-private life imbalances cause family problems (İzki, 2019; Küçükşen & Kaya, 2016). This finding highlights the importance of providing family-friendly policies that can help alleviate some of the pressures on school administrators and support them in balancing their work and private lives. Furthermore, school administrators must be conscious of the negative impact that work-life imbalance can have on their family relationships and try to find time for their families despite their heavy workload.

When examining the findings from the opinions of school administrators who believe they have established a balance between work and private life, it is understood that the participants are actually unable to create a balance between work and personal life, but rather consider their work lives as sacred and create a way of life by prioritizing them. It is noted that due to the intensity and diversity of their work lives, it is much more difficult for school administrators to allocate personal time for themselves compared to teachers working in the same organization (Altıok Gürel, 2018; Çobanoğlu et al., 2019). It has been determined that the participants try to establish a work-private life balance by sacrificing their natural needs such as sleep in the limited time, to release stress and recharge, relax, and break away from their work and personal life routines.

Participants who indicate that they have achieved a balance between work and private life have some recommendations for school administrators who cannot balance their work and private lives. They have stated that many negative situations can be overcome by behaving professionally in their work lives without adding emotions. Some of the participants have also stated that school administration should be seen as a separate role, just like a theater actor, and that the school administrator can balance

their work and private life by hiding their emotions, focusing on their role, and fulfilling their duties as school administrators. In light of these findings, it is understood that school administrators who think they have achieved a balance between work and private life actually cover up their real feelings by behaving emotionally. Among the recommendations of school administrators who think they have achieved a balance between work and private life, the last one is to adapt to problems and gain experience. Participants have stated that some things in school administration can be gained through experience over time and that problems can be adapted to as one gets older.

Implications

We can make some suggestions to researchers and practitioners to help school administrators establish a work-private life balance. Because of the work they must complete, most school administrators need more time to meet their basic needs. School administrators suggest reducing their workload and working hours so that they can have time for themselves during lunch breaks, which are their break times. Additionally, the reasons for teachers being forced into school administration roles by the MoNE should be investigated, solution-focused studies should be planned and opinions should be exchanged regarding the decisions to be taken in terms of implementation. School administration should be removed from being an additional duty to teaching and should be made into a professional profession through a professional law that protects their rights. Authorities should remove school management from being a duty in addition to teaching and turn it into a professional profession under a professional law that protects personal rights. They also should plan management training for school administrators before and after starting their duties.

Although this study showed no clear association between gender and work-private life balance, one should not ignore the views of female school administrators, and authorities should develop various policies to prevent their work-private life imbalance. Future research should investigate the types of support that help school administrators establish a work-private life balance and support their personal and work lives. Finally, at the data collection stage of the study, the participants stated that the interview questions of this study provided an opportunity to mirror themselves and that the MoNE employees, policymakers, and parents should read the study. These research findings are limited to the responses to the interview questions given by public high school administrators working in central districts of Mersin province between 2021 and 2022. Therefore, different findings could be obtained when the same topic is studied with larger samples using different research methods.

Acknowledgment

References

Akçil, Ç. (2019). *İş-yaşam dengesi ve iş tatmini: Bilişim sektöründe kadın çalışanlar üzerine bir araştırma* [Unpublished master's thesis]. Marmara Üniversitesi Sosyal Bilimler Enstitüsü, İstanbul.

Akın, E. (2019). *Meslek liselerinde çalışan öğretmenlerin iş yaşam dengesi sorunu: İzmit örneği* [Unpublished master's thesis]. Kocaeli Üniversitesi Sosyal Bilimler Enstitüsü, Kocaeli.

Alkan, U. (2019). *Okul yöneticilerinin çalışmaya tutkunluk ve iş- özel yaşam dengesi arasındaki ilişkisi (İstanbul ili Sancaktepe ilçesi örneği)* [Unpublished master's thesis]. Çanakkale Onsekiz Mart Üniversitesi, Eğitim Bilimleri Enstitüsü, Çanakkale.

Altıok Gürel, P. (2018). İş-yaşam dengesini sağlayan faktörlerin kadın akademisyenler için belirlenmesi: Lojistik regresyon analizi. *İstanbul Üniversitesi Kadın Araştırmaları Dergisi*, 1, 31- 44.

Altun Dilek, S. (2015). *Öğretmenlerin işkoliklik eğilimleri ile iş-yaşam dengeleri arasındaki ilişki* [Unpublished master's thesis]. Dumlupınar Üniversitesi, Eğitim Bilimleri Enstitüsü, Kütahya.

Aşan, Ö., & Aydın, E. M. (2006). *Örgütsel davranış*. Can, H. (Ed.). Ankara: Arıkan Basım Yayım Dağıtım.

Balcı, A. (2014). *Etkili okul: Okul geliştirme: Kuram, uygulama ve araştırma*. Ankara: Pegem Akademi.

Ballıca, S. (2010). *İşgörenlerin iş yaşam dengesi algılamaları ile cinsiyet rolleri ve bireysel özelliklerinin ilişkisi. Büyük ölçekli bir işletmede inceleme* [Unpublished master's thesis]. Çukurova Üniversite, Sosyal Bilimler Enstitüsü, Adana.

Başdemir, H. Y. (2012). Türk eğitim sisteminin yapısal sorunları ve bir öneri. *Liberal düşünce*, *17*(67), 35-53.

Berg, B. L., & Lune, H. (2019). *Sosyal bilimlerde nitel araştırma yöntemleri* (A. Arı, Trans. Ed.). Konya: Eğitim Yayınevi.

Birkan, R. (2020). *Öğretmenlerin tükenmişlik düzeylerinin iş-yaşam dengeleri üzerine etkisi* [Unpublished master's thesis]. İstanbul Sabahattin Zaim Üniversitesi Sosyal Bilimler Enstitüsü, İstanbul.

Byrne, U. (2005). Work-private life balance: Why are we talking about it at all? *Business Information Review, 22*(1), 53-59.

Can, N., & Çelikten, M. (2000). Türkiye'de eğitim yöneticilerinin yetiştirilmesi süreci. *Milli Eğitim Dergisi*, *148*(8), 43-50.

Creswell, J. W. (2017). *Araştırma deseni: Nitel, nicel ve karma yöntem yaklaşımları*. (Trans. Ed. Selçuk Beşir Demir). Ankara: Eğiten Kitap.

Çobanoğlu, F., Seven Şarkaya, S., & Sertel, G. (2019). İş-yaşam dengesi: Öğretmen ve yöneticiler üzerine bir çalışma. *Uluslararası Sosyal Araştırmalar Dergisi*, *12*(66), 783-795.

Dağdeviren, M., Eraslan, E., & Kurt, M. (2005). Çalışanların toplam iş yükü seviyelerinin belirlenmesine yönelik bir modeli ve uygulaması. *Gazi Üniversitesi Mimarlık ve Mühendislik Fakültesi Dergisi, 20*(4), 517-515.

Dilek, S. A., & Yılmaz, K. (2006). Öğretmenlerin işkoliklik eğilimleri ile iş-yaşam dengeleri. *e-Kafkas Eğitim Araştırmaları Dergisi, 3*(1), 37-55.

Ertem Eray, T. (2017). Rol çatışması, rollerin belirsizliği ve iş tatmini arasındaki ilişkiler: İletişim fakültesi dekanları üzerine bir uygulama. *Akdeniz Üniversitesi İletişim Fakültesi Dergisi, 27,* 201-213.

Esin, M. (2017). *Kadın öğretmenlerin iş aile yaşam dengeleri ile denetmenlik eğilimleri arasındaki ilişki* [Unpublished master's thesis]. Akdeniz Üniversitesi Eğitim Bilimleri Enstitüsü, Antalya.

French, J. R. P., & Caplan, R.D. (1973). Organizational stress and individual strain. In A. J. Marrow (Ed.). *The failure of success* (pp. 30-66). New York: Amacom.

Frone, M. R. (2000). Work-family conflict and employee psychiatric disorders: The national comorbidity survey. *Journal of Applied Psychology, 85*, 888- 895.

Frone, M. R., Russell, M., & Cooper, M. L. (1992). Antecedents and outcomes of workfamily conflict: Testing a model of the work- family interface. *Journal of Applied Psychology, 77*, 65-78.

Gliner, J. A., Morgan, G. A., & Leech, N. L. (2015). *Uygulamada araştırma yöntemleri: Desen ve analizi bütünleştiren yaklaşım*. (Selahattin Turan, Trans. Ed.). Ankara: Nobel Akademik Yayıncılık.

Gökçe, O., & Şahin, A. (2003). Yönetimde rol kavramı ve yönetsel roller. *Sosyal Ekonomik Araştırmalar Dergisi, 3*(6), 133-156.

Gümüşeli, A. (1994). *İzmir ortaöğretim okulları yöneticilerinin öğretmenler ile aralarındaki çatışmaları yönetme biçimi* [Unpublished master's thesis]. Ankara Üniversitesi Sosyal Bilimler Enstitüsü, Ankara.

Gürbüzkol, H. (2018). *Lise öğretmenlerinin mükemmeliyetçilik algıları ile iş yaşam dengesi arasındaki ilişki* [Unpublished master's thesis]. Van Yüzüncü Yıl Üniversitesi Eğitim Bilimleri Enstitüsü, Van.

İzki, Ö. (2019). *Öğretmenlerin iş-aile yaşam dengesinin performanslarına etkisi* [Unpublished master's thesis]. İstanbul Sabahattin Zaim Üniversitesi, Sosyal Bilimler Enstitüsü, İstanbul.

Kanbur, E., Canbek, M., & Özyer, K. (2016). Örgütlerde rol belirsizliği ve rol çatışmasının çalışanların öz-yeterlik algıları üzerindeki etkisi. *Örgütsel Davranış Araştırmaları Dergisi, 1*(1), 16-34.

Karip, E. (2010). *Çatışma Yönetimi.* Ankara: Pegem Akademi Yayıncılık.

Katz, D., & Kahn , R (1978). *The Social Psychology of Organizations*. New York: John Wiley.

Kossek, E. E., & Ozeki, C. (1998). Work family conflict, policies and the job life satisfaction relationship: A review and directions for organizational behaviour –human resources research. *Journal of Applied Psychology, 83(2),* 139-148.

Küçükşen, K., & Kaya, Ş. D. (2016). Yönetici pozisyonundaki akademisyen kadınlarda aile iş-özel yaşam dengesi. *Akademik Sosyal Araştırmalar Dergisi, 4*(37), 662-674.

Küçükusta, D. (2007). *Konaklama işletmelerinde iş-yaşam dengesinin çalışma yasamı kalitesi üzerine etkisi* [Unpublished doctoral dissertation]. Dokuz Eylül Üniversitesi Sosyal Bilimler Enstitüsü, İzmir.

Lockwood, N. R. (2003). Work/life balance: Challenges and Solutions, *SHRM Research, USA*.

Miles, M. B. ve Huberman, A. M. (2015). Nitel veri analizi (S. Akbaba-Altun, A. Ersoy, Çev.). Ankara: PegemA.

Mutlu, S. (2016). *Çalışanların iş yaşam dengesinin çalışan memnuniyetiyle ilişkisi kamu örgütlerine yönelik bir uygulama* [Unpublished master's thesis]. Türk Hava Kurumu Üniversitesi, Sosyal Bilimler Enstitüsü, Ankara.

Öztürk, C. (2016). Argyris'in olgunlaşma teorisine liderlikte durumsallık yaklaşımlarından çözüm arayışları. *İnsan ve Toplum Bilimleri Araştırmaları Dergisi, 5*(8), 3085-3098.

Perrewe, P.L., Hochwarter, W.A., & Kiewitz, C. (1999). Value attainment: An explanation of the negative effects of work family conflict on job and life satisfaction. *Journal of Occupational Health Psychology, 4*, 318-326.

Polat, K. (2019). *Türkiye'de iş-yaşam dengesi: Akademisyenler üzerine bir araştırma* [Unpublished master's thesis]. İstanbul Üniversitesi, Sosyal Bilimler Enstitüsü, İstanbul.

Sayın, M. (2017). *Serbest muhasebeci mali müşavirlerin iş–yasam dengesi üzerine bir araştırma: Diyarbakır örneği* [Unpublished master's thesis]. Hasan Kalyoncu Üniversitesi Sosyal Bilimler Enstitüsü, Gaziantep.

Tabancalı, E., & Su, Y. (2021). Okul müdürlerinin rol belirsizliği. *Journal of Qualitative Research in Education, 25,* 344-368.

Thompson, B. M., Kırk, A., & Brown, D. F. (2005). Work-based support, emotional exhaustion and spillover of work stress to the family environment: A study of policewomen. *Stress and Health, 21*, 199-207.

Uyar, Ş. (2007). *Öğretmen ve yöneticilerin görüşlerine göre öğretmenlerin okul yönetimine katılmaları: düzce ili örneği* [Unpublished master's thesis]. Ankara Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara.

Ünlü, S. (2013). İş ve yaşamda motivasyon kuramları. In Y. Tuna. (Ed.). *İş yaşamında motivasyon* (pp. 2-19). Eskişehir: Anadolu Üniversitesi Yayını No: 3022 Açıköğretim Fakültesi Yayını No: 1974

Yıldırım, A., & Şimşek, H. (2018). *Sosyal bilimlerde nitel araştırma yöntemleri*. Ankara: Seçkin Yayıncılık.

Yıldızoğlu, H., & Burgaz, B. (2014). Okul yöneticilerinin beş faktör kişilik özellikleriyle çatışma yönetimi stili tercihleri arasındaki ilişki. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 29*(2), 295-310.

Yılmaz, K., & Altınkurt, Y. (2015). Öğretmenlerin mesleki profesyonellikleri ile iş-yaşam dengeleri arasındaki ilişki. *Eğitim Bilimleri ve Uygulama, 14*(28), 105-128.

Yücetaş Artan, G. (2019). Eğitimde veli katılımı: Doküman incelemesi, (Yayımlanmamış yüksek lisans tezi). Gaziantep Üniversitesi, Eğitim Bilimleri Enstitüsü, Gaziantep.

Investigation of Students' Personal Epistemologies in the Judgments of Truth about the Social and Physical World Considering Their Grade Level and Gender

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Abstract

Students' epistemological beliefs are important in science education as developed epistemological beliefs facilitate learning, reasoning skills, academic performance, and engagement in debates. This study specifically addresses two issues about personal epistemology: grade level and gender. As a theoretical framework, the developmental view was adopted in this study and the Epistemological Belief Instrument developed by Kuhn et al. (2000) was used to collect data. Therefore, personal epistemology was defined in three hierarchical categories: absolutism, multiplism, and evaluativism. Two domains of personal epistemology which are physical truth and social truth were studied in this study. A total of 430 students ranging from primary school to the university level participated in the study. The relationships between grade level, gender, and personal epistemology were analyzed by use of the chi-square test of independence. The findings showed a significant relationship between grade level and judgment of social truth with a small effect size. The same relation was also observed between gender and judgment of social truth. On the other hand, no significant relationship was observed between gender and the judgment of physical truth, and between grade level and the judgment of physical truth. We think that the findings contribute to understanding the nature of personal epistemology regarding developmental level and gender.

Keywords: Personal epistemology, epistemological beliefs, gender, grade level

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Introduction

Epistemological beliefs are the beliefs about the theory of knowledge (the direct translation of Greek words episteme and its derivation logos, epistemology, refers to the theory of knowledge according to Kitchener, 2011) and epistemic beliefs are the beliefs about knowledge. The students have epistemic beliefs rather than epistemological beliefs, but the term epistemological beliefs has been commonly used to refer to their epistemic beliefs (Greene et al., 2016).

Epistemological belief studies started with personal epistemology which deals with how people view knowledge and knowing (Elby et al., 2016). Personal epistemology has three waves which are the developmentalist view, cogntivist view, and contextualist view.

Developmentalist View

The first wave is the developmental perspective rooted in Perry's (1970) studies. According to Kuhn et al. (2000), people experience three hierarchical levels. People are absolutists in the early years of life and they believe that knowledge exists outside of the self and does not change. Then, they pass to the multiplist level believing that people construct knowledge, knowledge equals opinion, but there are no standards to evaluate them. In the end, people reach the evaluativist stance that they use criteria to decide which knowledge claim produced by different points of view is more valid than others (Kuhn et al., 2000). According to this view, a person has one of these three levels, therefore, epistemological belief is uni-dimensional for the developmental view. However, a person's epistemological belief can change from one judgment domain to another. According to Kuhn et al. (2000), there are five different judgment domains which are pleasingness (personal taste), beauty (aesthetic), good (value), truth about the social world, and truth about the physical world. While a person has an absolutist belief in one judgment domain (e.g., the physical world), the same person can have a multiplist belief in another (e.g., the social world). Specifically, personal taste deals with people's preferences based on personal characteristics and it is easy for people to have multiplist beliefs regarding personal taste (e.g. liking a specific food). The beauty domain is about a person's selection of whether something looks good or not. Similar to personal taste, it is easy to have multiplist beliefs in this domain (e.g. selecting the best painting among the alternatives). Value judgment, on the other hand, is about people's epistemological beliefs in the judgment of what is important in life (e.g., taking personal responsibilities). Although it is not as easy as the previous two domains, people can still reach the multiplist beliefs in the value judgment domain. The truth about the social world domain refers to people's epistemological beliefs in social life issues like the theories explaining children's language learning. Having the multiplist stance is difficult compared with the previous three judgment domains (e.g. personal taste). The last judgment domain is the truth about the physical world and it is about natural life issues (e.g. different theories explaining the structure of atoms).

Cognitivist View

The second wave is the cognitivist perspective stemming from Schommer's (1990) studies. While epistemological belief is seen as one holistic belief from the developmental perspective, it is seen as a set of constructs from the cognitivist perspective. According to Schommer (1990), epistemological beliefs are a set of independent and multidimensional beliefs. These beliefs are autonomous and there are five separate dimensions. The first one is certain knowledge which means the absolute knowledge is certain and it is reached at the end. The second one is simple knowledge which means knowledge includes different pieces. The third one is omniscient authority meaning that knowledge can only be accessed through an authority. The fourth one is quick learning which refers to whether learning occurs quickly or not. The last dimension is the innate ability which focuses on the belief that learning ability is gained through years or comes from birth. In later years, Schommer-Aikins (2002) explained that the last two dimensions which are quick learning and innate ability are about the beliefs about learning rather than epistemological beliefs. Therefore, Schommer's (1990) ideas about personal epistemology can be evaluated considering the first three dimensions which are certain knowledge, simple knowledge, and omniscient authority. By the way, all these three dimensions have negative meanings. For example, the ones who believe that knowledge is certain and simple, and knowledge comes from external authority have naïve epistemological beliefs.

Following Schommer's (1990) ideas; Hofer and Pintrich (1997) defined personal epistemology in four different dimensions. The first dimension is simplicity vs. complexity. The ones having naïve beliefs in this dimension believe that knowledge is a collection of bits (simplicity), but the ones having sophisticated beliefs believe that knowledge is an interconnection of ideas. The second dimension is certainty (naïve belief) vs. tentativeness (sophisticated belief). Accordingly, people with certainty believe that knowledge is fixed and absolute, but those who think that knowledge is tentative accept the idea that knowledge evolves. The third dimension is about the source of knowledge. Accordingly, the ones having naïve ideas for this dimension believe that the source of the knowledge is external, and produced outside of the person while others who have sophisticated beliefs in this dimension believe that knowledge is internal and originated inside the knower through their own meaning-making. The last dimension is multifaceted (sophisticated) vs. simplistic (naïve) justification for knowing. While people with multifaceted beliefs use multiple criteria (fitting with evidence, coherence with other knowledge, and credibility of experts) to justify and evaluate knowledge, people with simplistic justification for knowing beliefs evaluate the knowledge claims superficially (Hofer & Pintrich, 1997).

Contextualist View

The third wave of personal epistemology is the contextualist perspective. According to this perspective, our interactions in different contexts affect our epistemological beliefs; therefore, the context has a vital impact on epistemology. The context is defined as physical settings, but this physical setting can create different contexts if the material, social, and cultural spaces change in that setting. Another factor affecting context is time. Similar to the cognitivist view, the contextualist view claims that a person's epistemological belief changes from one context to another, epistemological beliefs are multiple-dimensional depending on the number of contexts that a person has interactions. As a result, we can claim time and physical settings including different spaces (e.g. social space) form context and this context shapes epistemological beliefs (Pintrich, 2002).

Background Variables

Background variables like gender, grade level, socio-economic status, and parental education affect epistemological beliefs (Paulsen & Wells, 1998). Previous research results on the relationship between gender, grade level, and epistemological beliefs yielded inconsistent results. For example; Orhan (2022) found no significant effect of gender on the epistemological beliefs of high-school students whereas Marzooghi et al. (2008) reported some significant differences between males and females in terms of speed of learning as part of epistemological beliefs. Likewise, the studies seeking the relationship between grade level and epistemological beliefs had inconsistent results. Theoretically, epistemological belief improves with increasing grade level and some studies supported this expectation (Kuhn et al., 2000). For example; Schiefer et al. (2022) reported that lower grade level students' epistemological belief profile included absolutistic, evidence-based, and multiplistic levels, but students at higher grade levels had more sophisticated epistemological beliefs. This means that students at lower grade levels either focused on only evidence and thought there was one correct knowledge ignoring the different perspectives. Therefore, such students hold absolutistic beliefs that solely depend on the evidence, so absolutist belief was also evidence-based. Likewise, some other students from the lower grade levels just focused on the different perspectives, but they did not concern evidence, so such students held the multiplist beliefs. To sum up, lower grade level students hold naïve epistemological beliefs (i.e., absolutist and multiplist beliefs) as they did not evaluate the evidence considering different views. On the other hand, the higher grade level students held the evaluativist beliefs which means they held sophisticated beliefs because these students considered both evidence and different views. In other words, they could coordinate the objective and subjective dimensions of knowing and knowledge. On the other hand, Kuhn et al. (2000) reported that even some of the fifth-grade level students held evaluativist beliefs (i.e., sophisticated beliefs) and some of the 12th-grade level students held absolutistic beliefs (i.e., naïve beliefs) which mean that epistemological beliefs might not improve with increasing grade level. Because of these inconsistent results for the effect of gender and grade level on epistemological beliefs, this study specifically addresses these two

background variables (e.g. gender and grade level) effect on epistemological beliefs to contribute to relevant literature.

Theoretical Relationship between Three Waves of Epistemological Beliefs and Background Variables

Three Waves of Epistemological Beliefs and Gender

According to Pintrich (2002), the gender and epistemological beliefs relationship differs in three waves. For example; the developmentalist view theoretically thinks that gender should not be separated from a person's views and they are not independent structures. In other words, the developmentalist view advises us to approach from a holistic perspective when we evaluate people's epistemological beliefs. Otherwise, people's epistemological beliefs are interpreted with a reductionist perspective (Pintrich, 2002). The contextualist view's approach to the background variables is similar to the developmentalist view. Accordingly, the relationship between background variables including gender and epistemological beliefs is susceptible to the context for the contextualist wave. Therefore, the relationship between gender and epistemological beliefs can not be generalized (Pintrich, 2002). The cognitivist view, on the other hand, is more open to seeking a relationship between separate variables like gender and independent epistemological beliefs (e.g. certainty belief). These explanations might stem from the different worldviews of these three waves. Accordingly, the developmentalist and contextualist views are in line with qualitative research and focus on a holistic perspective, but the cognitivist view is consistent with quantitative research, so it is open to seeking the relationship between separated variables and epistemological beliefs (Pintrich, 2002).

Three Waves of Epistemological Beliefs and Grade Level

Theoretically, all three waves agreed on the idea that epistemological beliefs improve over time (Pintrich, 2002). According to the developmentalist view, people have more sophisticated beliefs and the development is supported by this wave at most. Furthermore, there are some endpoints for the development stages in the developmentalist view like the absolutist level. On the other hand, different dimensions like certainty and simplicity develop for the cognitivist view, and the development of different dimensions is independent of each other. For example; while a person has more sophisticated beliefs in certainty, the same person might hold less sophisticated beliefs in simplicity. However, these different beliefs do not integrate and can not pass to the higher levels as opposed to the developmentalist wave (Pintrich, 2002). Although the development is not very clear for the contextualist wave, the development is still supported by contextualism. Accordingly, the context can change and it becomes more sophisticated and this makes the resources more sophisticated. Then, people use these resources and their epistemological beliefs improve. For example; the knowledge and sources are presented in a sophisticated way at the university. Therefore, theoretically, the students reaching more sophisticated sources in university have more sophisticated epistemological beliefs compared to the students from different grade levels (e.g. middle school, high school) that do not have sophisticated sources (Pintrich, 2002).

Literature Review

Gender and Personal Epistemology

Gender and personal epistemology relation has been examined many times but revealed inconsistent results. Furthermore, the cognitivist approach dominated the research where Schommer's ideas and epistemological beliefs components were used. We provide a summary of the research examining gender's relationship with personal epistemology at the domain-general level.

Researchers mainly used Schommer's five independent dimensions of epistemological belief which are the stability of knowledge (people see knowledge in a continuum from tentative to unchanging), the structure of knowledge (accepting knowledge from simple isolated pieces to complex and integrated concepts), source of knowledge (from accepting authority as the source of knowledge to the accepting observation and causation as the source of knowledge), speed of knowledge acquisition (quick learning to gradual learning), and control of knowledge acquisition (fixed at birth to lifelong

improvement) (Schommer, 1990; Schommer-Aikins, 2002). Some of these studies did not find a significant relationship between gender and epistemological beliefs (e.g., Yakışan & Karaşah, 2016). For example; Aslan and Şimşek (2021) found no significant relationship between gender and epistemological beliefs for 8th-grade students and claimed that epistemological beliefs are gender-neutral constructs. Likewise, Orhan (2022) reported no significant relationship between gender and high-school students' epistemological beliefs. In another study, Ren (2006) conducted a cross-cultural study among undergraduate students and reported no significant relationship between gender and epistemological beliefs. Although these studies reported no significant relationship between gender and epistemological beliefs, some other research pointed out some significant relationship between gender and epistemological beliefs. For example, Marzooghi et al. (2008) found female undergraduate students had more sophisticated epistemological beliefs than males, but their beliefs in the speed of learning and simplicity of knowledge are not different from males' beliefs. Next, Paulsen and Wells (1998) reported another difference by claiming undergraduate males' beliefs about the simplicity of knowledge are more sophisticated than females and females had more sophisticated beliefs about the nature of learning in terms of fixed ability and quick learning. In another study, Ismail et al. (2012) reported gender did not significantly relate to the combined epistemological beliefs, but undergraduate males had more sophisticated beliefs in the innate ability to learn. Other epistemological beliefs were not related to gender in their research. Although all these research adopted a cognitivist approach and used Schommer's independent and multiple beliefs for personal epistemology, Kuhn et al. (2000) followed the developmental approach which sees personal epistemology as a single and holistic belief having different stages (e.g. absolutist level, multiplist level, evaluativist level) and examined different groups' epistemological beliefs (e.g. 5th-grade level students, undergraduate level students, etc.), and reported no significant relationship between gender and the developmental level of epistemological beliefs. In another study, Baxter Magolda (1992) examined epistemological gender differences and she followed female and male undergraduate students throughout their university careers. Baxter Magolda (1992) reported males and females have the same development, but they have different development patterns. Accordingly, epistemological development includes four steps which are absolute knowing, transitional knowing, independent knowing, and contextual knowing. These four steps are in the hierarchy and the first two steps correspond to absolutism in the development wave, independent knowing is similar to multiplism in the development wave, and contextual knowing refers to evaluativism. Males' epistemological development included the following stages: They have *mastering patterns* at the absolute knowing level which means they take the knowledge from outside, focus on success, and interact with others. Then, they have the *impersonal pattern* in the transitional knowing which means they discuss with others without focusing on his ideas. Next, they are in the *individual pattern* during the independent knowing which means they focus on their own thinking when listening to the others. On the other hand, females' epistemological development includes the following patterns: First, they have *received a pattern* in absolute knowing. They either obtain knowledge themselves or receive it from the teacher. Second, they are in the *interpersonal pattern* in the transitional knowing. Females focus on the relationships and collect data in this pattern. At the independent knowing level, they have *interindividual patterns* and they use others' ideas to clarify their ideas. For the contextual knowing level, Baxter Magolda (1992) reported no different pattern was observed among male and female undergraduates because very few participants reached this level, but still, Baxter Magolda (1992) pointed out different genders converge to each other in the contextual knowing level because the development of epistemological beliefs in the previous levels for each gender facilitated this convergence in the most sophisticated level (i.e., contextual knowing). To sum up, it can be claimed that gender's relationship with epistemological belief is not well-known.

Grade Level and Personal Epistemology

Grade level is another background variable that is related to epistemological beliefs. Theoretically, researchers from different views (e.g. cognitivist, developmental) agreed that epistemological beliefs develop with age (Pintrich, 2002). Marzooghi et al. (2008) consistently reported that freshman undergraduates held more naïve beliefs in the innate ability and simplicity of knowledge than seniors. Likewise, Schiefer et al. (2022), in their meta-analysis, reported lower grade-level students' profiles were absolutistic, evidence-based, and multiplicity, but the elder students held more sophisticated epistemological beliefs. Similarly, Ismail et al. (2012) reported undergraduate students from different

grade levels have different epistemological beliefs in quick learning and innate ability of learning beliefs. In opposition to theoretical expectations, on the other hand, some research did not report such differences in epistemological beliefs depending on the grade level. For example; Yenice (2015) did not find any differences in epistemological beliefs caused by grade levels. Likewise, Peter et al. (2016) reported only people with advanced education should be at the evaluativist level (e.g. sophisticated beliefs), however, even young learners can be at the evaluativist level which is a shred of evidence that grade level may not affect the epistemological beliefs. Peter et al. (2016) also added that students from the same grade level may have different epistemological beliefs showing grade level may not relate to the epistemological beliefs. The same situation can be seen in Kuhn et al.'s (2000) study. Accordingly, Kuhn et al. reported 35 % of the 5th-grade students were at the evaluativist level (i.e., sophisticated beliefs) in the judgments of truth about the social world domain and 20 % of them were at the evaluativist level in the judgments of truth about the physical world domain whereas 14 % of the 12th-grade students were at the absolutist level (i.e., naïve beliefs) in the judgments of truth about the social world domain and 19 % of them were at the absolutist level in the judgments of truth about the physical world domain. This evidence shows that even if the grade level increases, the epistemological beliefs may not improve. Such reports also blur the relationship between the grade level and epistemological beliefs.

Significance of the Study
The study has four main significance. First, the previous personal epistemology studies mainly adopted Schommer's ideas, and the instruments used to assess personal epistemology mainly included a continuum from absolutism to multiplism. While absolutist view like "knowledge is certain" has been seen as naïve belief, the multiplist view like "knowledge is tentative" has been seen as a sophisticated belief. However, the evaluativist view that focuses on objective standards to assess multiple ideas is ignored in such instruments although the evaluativist view represents sophisticated epistemological beliefs (Peter et al., 2016). Furthermore, Peter et al. (2016) reported that multiplist ideas include naïve beliefs like absolutist views and do not refer to sophisticated beliefs. The absence of evaluativist ideas in previous personal epistemology instruments, therefore, shadows the capacity of measuring epistemology beliefs for these instruments. At this point, we thought that using Kuhn et al.'s (2000) personal epistemology instrument could be useful to assess personal epistemology correctly as this instrument focuses not only on absolutist and multiplist views but also evaluativist views. Therefore, the first significance of this research is to measure personal epistemology more accurately compared with previous research as this research deals with evaluativist views unlike most of the previous research.

The second significance is about the development aspect of personal epistemology. According to Pintrich (2002), all personal epistemology models (e.g. cognitivist, developmental) agreed on the idea that personal epistemology develops through time from naïve beliefs to sophisticated ones. However, how this development occurs is not well known and can not be explained by the models except the developmental model. The developmental model explains the development of personal epistemology with three stages having end-points. According to Kuhn and Weinstock (2002), we follow three stages starting from the absolutist stage which is followed by the multiplist stage, and the evaluativist stage at the end. The balance between objective and subjective dimensions of knowledge improves our epistemological beliefs when we reach the evaluativist stage. On the other hand, such an explanation is not available for cognitivist and contextualist views. For example, epistemological beliefs are multidimensional for cognitivist views and a person may have developed beliefs in the certainty aspect and naïve beliefs in the source aspect, but the cognitivist view cannot explain why we have conflicting epistemological beliefs (naïve belief for one belief and sophisticated belief for another). Likewise, contextualist belief cannot explain the development because we cannot observe the development of the beliefs when the context changes (Pintrich, 2002). Because of these reasons, the current study used the developmental view as the theoretical framework. In this way, we believe that this study fits with the developmental aspect of epistemological beliefs.

The study has another significance in the development aspect of epistemological beliefs. Yang and Tsai (2012) reported that personal epistemology studies should be carried out with young learners to understand epistemological beliefs' developmental nature. However, when we examine the previous

research examining the developmental nature of epistemological belief, we can see that previous research included grade levels that are very close to each other (e.g. Ismail et al., 2012; Marzooghi et al., 2008; Yenice et al., 2015) that impede us from understanding the developmental nature of epistemological beliefs and these studies mainly included undergraduate students and were not carried out with young students. On the other hand, the current study brings different grade levels (primary school, middle school, high school, and undergraduate) together. This wide range of grade levels lets us better understand the developmental nature of epistemological beliefs.

The last significance of this study is related to gender and epistemological beliefs' relationship. There are two views about the effect of gender on epistemological beliefs. According to the first view, gender does not affect epistemological beliefs and gender orientation (femininity vs. masculinity) is more important than gender in terms of epistemological beliefs. On the other hand, the second view claims that epistemological beliefs can change depending on gender. For example; males and females may not understand knowledge in the same way and their implicit theories about knowledge can be different from each other (Pintrich, 2002). Consistent with these two diverging ideas, the literature showed inconsistent results for the effect of gender on epistemological beliefs. Some of these studies found an effect of gender on epistemological beliefs (e.g., Ismail et al., 2012), and some of them did not (e.g., Ren, 2006). By studying the relationship between gender and epistemological beliefs, this study may add to the current literature.

Theoretical Framework

We used Kuhn et al.'s (2000) and Kuhn and Weinstock's (2000) ideas for personal epistemology and therefore, we adopted a developmental view in this study. According to Kuhn and Weinstock (2002), epistemological beliefs include three hierarchical stages which are absolutist, multiplist, and evaluativist levels. The lowest level is absolutist and absolutist people see knowledge objectively. Knowledge is located in the external world, and it is knowable with certainty. After the absolutist level, people reach to multiplist level. One important characteristic of this level is the source of knowledge is the knowing subject; therefore, knowledge is uncertain and subjective. However, there is no objective standard and conflicting claims are not evaluated at this level. The highest level is the evaluativist level where people see knowledge as uncertain and evaluated. Evidence and arguments are used to evaluate claims. In this development process from absolutism to evaluativism, the claims are seen as copies of reality (in absolutism) at the beginning, then they are accepted as opinions (in multiplism) and they are seen as judgment (in evaluativist) at the end. Kuhn and Weinstock (2002) also added that our epistemological beliefs change depending on the content domain. These content domains are personal preferences, aesthetics, value, the physical world, and the social world. As these five content domains are too broad, we believe that we might miss some important points if we study all these content domains. Therefore, we specifically focused on participants' epistemological beliefs in the judgments of truth about the social world and physical world. The judgments of truth about the social world domain include beliefs about social issues like "why criminals continue to crime" and the judgments of truth about the physical world domain are related to the beliefs about explanations of physical laws and theories like "the composition of atoms" (Kuhn et al., 2000). Similarly, Nussbaum et al. (2008) focused on only the judgments of truth about the physical world domain in their research which they focused on scientific argumentation and social interaction.

According to Kuhn and Weinstock (2002), passing from the absolutist belief to the multiplist belief is the most difficult for the judgments of truth about the physical world domain, and the judgments of truth about the social world domain follow the judgments of truth about the physical world domain. On the other hand, passing to multiplist beliefs for other content domains is easier compared with the judgments of truth about the social and physical world domain. When passing from the multiplist beliefs to the evaluativist beliefs is considered, this passing is easiest for the judgments of truth about the physical world domain and the judgments of truth about the social world domain follow the judgments of truth about the physical world domain. Passing from the multiplism to evaluativism is harder for other content domains including personal taste, aesthetics, and value judgment.

In this study, we specifically focus on the relationship between epistemological beliefs and background variables which are gender and grade level in the judgments of truth about the social and

physical world domain, and this study is not interested in the change of students' beliefs, and no treatment was implemented to change their beliefs. As this study focused on the relationship between gender, grade level, and epistemological beliefs, the study has two research questions:

1. What is the relationship between gender and epistemological beliefs regarding the judgments of truth about the social and physical world domains?

2. What is the relationship between grade level and epistemological beliefs regarding the judgments of truth about the social and physical world domains?

For these research questions, we hypothesize that gender is not significantly related to epistemological beliefs as epistemological beliefs are gender-neutral constructs, but we also hypothesize that epistemological beliefs improve when the participants' grade level increases because epistemological beliefs improve with maturity, education, and experience (Kuhn & Weinstock, 2002).

Method

Research Design

This quantitative research is an example of a correlational research design as it seeks the relationships between background factors (e.g. gender) and epistemological beliefs in the judgments of truth about the social and physical world domains. Kuhn et al. (2000) defined epistemological beliefs in three stages (e.g. absolutist), therefore the beliefs in the judgments of truth about the social and physical world domain are two categorical variables each of which has three levels. Likewise, gender and grade level are another two categorical variables in this study where gender has two levels (male, female) and grade level has four levels (primary school, middle school, high school, and undergraduate). As a result, this study has four variables and all of them are categorical.

Sample

A total of 430 students participated in the study and the participants were from different grade levels. Accordingly, 112 students were from primary school (58 females, 54 males), and the data was collected from grades 3-4 as younger students could not understand the instrument. In this process, we first met with the participants' teachers and asked them whether their students could understand and answer the questions because these teachers were experts and knew the students' cognitive capacity. Then, we selected students from different grade levels in K-4 and asked them to read the questions loudly and explain their understanding. Both students' explanations and teachers' advice led us to think that this instrument is useful for the students enrolled in the 3rd and 4th grade levels. Likewise, 105 students were enrolled in middle schools ranging from grades 5-8 (58 females, 47 males). A total of 120 high school students from grades 8-12 (70 females and 50 males) participated in the study and 93 undergraduate students from the primary school department (i.e., Elementary School Teacher Education Programme) (86 females, 7 males) of a private university located in Ankara. Therefore, the study's target population is students from different grade levels (primary school, middle school, etc.) in Ankara. The convenient sampling strategy was used to save time, energy, and cost and the data was collected from Çankaya and Yenimahalle districts; therefore, the accessible population is students from different grade levels in these two districts of Ankara. The study was conducted in the fall semester of 2022-2023 and the data collection process lasted two months.

Data Collection

Kuhn et al.'s (2000) Epistemological Belief Instrument was used to collect data. After we got permission from Kuhn to use the instrument, we translated it into Turkish. In the translation and adaptation process, we followed the PISA 2021 translation and adaptation guidelines (Organisation for Economic Co-operation and Development [OECD], 2022). First, the authors were the coordinators of the translation and adaptation process and we presented the guidelines used by PISA 2021 to the two translators. The translators were academicians from the English Language Education Department. These translators were trained for the guideline and personal epistemology. We asked them to follow the guidelines when they translated the epistemological belief questionnaire and reminded the general characteristics of the epistemological beliefs. For example, when they translated the alternative for the

absolutist level, they were asked to protect the structure of the sentence including the idea that only one of the presented views is correct. During translation, general themes remained the same in line with the guidelines. For example; if the theme is the theories of atoms, it was also the same with the Turkish translation. The translators also worked as adaptors in this process. For example, the translators changed people's names because of cultural differences. For example; the names Robin and Chris were replaced with Rafet and Caner in the Turkish version. After the translators completed the transition and adaptation process, we as coordinators reconciled the two independent translations. In reconciliation, we asked for assistance from an expert in Turkish Education who was also an academician. The expert checked the language, grammar, and content of the items for both translations. Then, we selected the items that better represent the original item considering the suggestions of the Turkish language expert, the content of the original questionnaire, and the characteristics of epistemological beliefs. Next, we consulted a domain expert from the Educational Science department who has expertise in epistemological beliefs and this expert checked the translated and adapted questionnaire with the original one in terms of personal epistemology. In this way, the final form of the Turkish version of the questionnaire was prepared. Then, we reached students from different grade levels including primary school, middle school, high school, and university, and asked them to read the questionnaire loudly and tell us what they understood from the items. Next, we interviewed these selected students by asking questions found in the questionnaire, and their answers to the interview questions were the same as their written responses. A similar process was also followed by Kuhn et al. (2000) when they followed the epistemological belief questionnaire. Accordingly, Kuhn et al. (2000) started their work with individual interviews and then they prepared this questionnaire using interview questions. Kuhn et al. (2000) reported that the results obtained from the questionnaires were similar to the interview results.

The instrument includes 15 items and 5 content domains, so each content domain includes three specific items to assess participants' epistemological beliefs. The Turkish form of the instrument is presented in the Appendix 1. After completing the formation of the epistemological belief instrument, ethical permissions were obtained from the institution's human research ethics committee.

Each item includes two sub-questions in the given content domain. Accordingly, the first question assesses whether participants hold absolutist epistemological beliefs or not. In this question, two ideas are presented in that domain, and whether only one of the ideas is correct or both can be correct is asked. If the participant selects the alternative that only one idea is correct, the participant's belief is coded as absolutist for that item because absolutist people believe that the knowledge is certain and there is always one correct answer. If the participant selects the "both ideas can be correct" alternative, the second sub-question is asked. The second sub-question assesses whether participants hold multiplist or evaluativist beliefs. If participants select the alternative that "one of these ideas cannot be more accurate than another", they are coded as multiplist because multiplist people believe that different ideas cannot be compared with each other. On the other hand, if participants select the alternative that "one of these ideas can be more correct than another", they are coded as evaluativist because evaluativist people believe that different ideas can be compared with each other considering some criteria and some ideas can be more correct than others as a result of such evaluation (Kuhn et al., 2000). According to Kuhn et al. (2000), evaluativist belief is hierarchically better than multiplist belief and absolutist belief is more naïve compared with the other two beliefs (e.g., multiplist belief).

As each content domain includes three items, participants' answers to these items determined participants' epistemological beliefs in that domain. If participants hold the same epistemological belief in all three items, they are coded in that belief (e.g. evaluativist). Likewise, if participants hold one epistemological belief in two items and they hold another epistemological belief in one item out of three, their epistemological beliefs were coded as the belief that is consistent with the two items. For example; if a participant holds the evaluativist belief in two items and holds the multiplist belief in one item, this participant was coded as evaluativist in that content domain. The same coding process was also done by Kuhn et al. (2000). Next, we observed that some participants held three different epistemological beliefs in one content domain because their answers to all three items were different from each other. In other words, some participants hold evaluativist beliefs in one item, multiplist beliefs in another item, and absolutist beliefs in another item when all these three items are part of the

same content domain (e.g. the judgments of truth about the social world domain). These participants were not coded in terms of epistemological beliefs (e.g. evaluativist) and they were removed from the coding process as participants did not have certain epistemological beliefs in that content domain.

Data Analysis

This study sought the relation between gender and beliefs in the judgments of truth about the social world domain, gender, and beliefs in the judgments of truth about the physical world domain, grade level, and beliefs in the judgments of truth about the social world domain, and grade level and beliefs in the judgments of truth about the physical world domain. As all these variables are categorical and we sought the relationship among them, four different chi-square tests of independence were conducted. A total of 430 students participated in the study; however, we could not detect 30 students' beliefs in the judgments of truth about the physical world domain as their answers to three items of this domain were different from each other. Therefore, chi-square tests were held considering other 400 students for the relation between beliefs in the judgments of truth about the physical world domain, gender, and grade level. Accordingly, we could not detect 10 primary school students' data (9 %), 12 middle school students' data (11 %), 2 high school students' data (2 %), and 6 undergraduate students' data (6 %) for grade levels. Moreover, 16 of these unidentified data belonged to the females (6 %) and 14 of them belonged to the males (9 %).

Likewise, we could not detect 51 participants' beliefs in the judgments of truth about the social world domain; therefore, chi-square tests assessing the relation between beliefs in the judgments of truth about the social world domain, grade level, and gender were carried out for 379 students. Accordingly, we could not detect 18 primary school students' data (16 %), 12 middle school students' data (11 %), 14 high school students' data (12 %), and 7 undergraduate students' data (8 %) for grade levels. While 26 of them were female (10 %), 25 of them were male (16 %) participants.

Limitations

The study has three limitations. First, a convenient sampling strategy was used to select the sample. If random sampling had been selected, the generalizability of the finding could have been better. Second, participants' epistemological beliefs were assessed by the use of only one data collection tool which was the Epistemological Belief Instrument (Kuhn et al., 2000). If various types of data collection tools like interviews, and class observations had been used, the data obtained from the questionnaire could have been triangulated and the trustworthiness of the study could have been better. Third, some participants' answers to different items of the same content domain varied. For example, they had an evaluativist view in one item, a multiplist view in another item, and an absolutist view in another item. For such cases, we could not determine the epistemological belief of that participant in the given content domain and we did not use their data in data analysis. Therefore, alternative data collection tools that accurately measure such participants' epistemological beliefs could be used to remedy this limitation.

We also have three assumptions in this study. Firstly, we assume that participants honestly and seriously answered the Epistemological Belief Instrument (Kuhn et al., 2000). Secondly, we assume that the developmental view, which was this study's theoretical framework, accurately reflects the personal epistemology. Finally, we assume that the Epistemological Belief Instrument (Kuhn et al., 2000) is an accurate measurement tool to assess participants' epistemological beliefs.

Findings

The study has two research questions. While the first research question examines the relationship between gender and epistemological beliefs in the judgments of truth about the social and physical world domain, the second research question investigates the relationship between grade level and epistemological beliefs in the judgments of truth about the social and physical world domain. Two chi-square tests of independence were carried out for each research question and the results are presented as follows:

Gender and Epistemological Beliefs

Gender and Beliefs in the Judgments of Truth about the Social World Domain

Table 1 presents the descriptive statistics regarding students' gender and their epistemological beliefs (e.g. evaluativist) in the judgments of truth about the social world domain.

Table 1.
Gender and Epistemological Beliefs in the Judgments of Truth about the Social World Domain

	Epistemological Beliefs in the Judgments of Truth about the Social World Domain			
Gender	Absolutist	Multiplist	Evaluativist	Total (n= 379)
Female	29 (11.8 %)	84 (34.1 %)	133 (54.1 %)	246
Male	34 (25.6 %)	35 (26.3 %)	64 (48.1 %)	133

According to descriptive statistics (Table 1), female students' epistemological beliefs seem to have more sophisticated beliefs than male students as the percentage of evaluativist belief is 54.1 % for females and 48.1 % for males. Likewise, the percentage of multiplist belief for females is higher than for males (34.1 % vs. 26.3 %). Next, males seem to have more absolutist beliefs than females (25.6 % vs. 11.8 %).

Then, the chi-square test for independence was conducted to see whether there is a significant relation between gender and epistemological beliefs in the judgments of truth about the social world domain. The test indicated a significant relationship between gender and epistemological beliefs in the judgments of truth about the social world domain, χ^2 (2, n = 379) = 12.128 p = .002, phi = .18, with small effect size (.18 < .30, Pallant, 2011, p. 220).

Gender and Beliefs in the Judgments of Truth about the Physical World Domain

Table 2 shows the percentages of students' epistemological beliefs in the judgments of truth about the physical world domain considering their gender.

Table 2.
Gender and Epistemological Beliefs in the Judgments of Truth about the Physical World Domain

	Epistemological Beliefs in the Judgments of Truth about the Physical World Domain			
Gender	Absolutist	Multiplist	Evaluativist	Total (n= 400)
Female	66 (25.8 %)	71 (27.8 %)	119 (46.4 %)	256
Male	36 (25.0 %)	34 (23.6 %)	74 (51.4 %)	144

According to descriptive statistics, the percentage of males was higher than that of females in terms of evaluativist beliefs in the judgments of truth about the physical world domain (% 51.4 vs. % 46.4). On the other hand, the percentage of female participants having multiplist beliefs was higher than males (% 27.8 vs. % 23.6). On the other hand, a quarter of both males and females held absolutist beliefs in the judgments of truth about the physical world domain. The chi-square test for independence was conducted to see whether there is a significant relationship between gender and epistemological beliefs in the judgments of truth about the physical world domain. According to test results, no significant relationship was revealed between gender and beliefs in the judgments of truth about the physical world domain χ^2 (2, n =400) = 1.078 p = .58, phi = .05.

Grade Level and Epistemological Beliefs

Grade Levels and Beliefs the Judgments of Truth about the Social World Domain

Table 3 provides information about the percentages of participants' epistemological beliefs in the judgments of truth about the social world domain considering the grade levels (e.g. primary school).

Table 3.
Grade Level and Epistemological Beliefs in the Judgments of Truth about the Social World Domain

Grade Level	Epistemological Beliefs in the Judgments of Truth about the Social World Domain			
	Absolutist	Multiplist	Evaluativist	Total (n= 379)
Primary School	23 (24.7 %)	24 (25.8 %)	46 (49.5 %)	93
Middle School	24 (25.8 %)	30 (32.3 %)	39 (41.9 %)	93
High School	13 (12.3 %)	27 (25.4 %)	66 (62.3 %)	106
Undergraduate	3 (3.4 %)	38 (43.7 %)	46 (52.9 %)	87

According to Table 3, the percentage of the evaluativist level was highest in favor of high school students (62.3 %) and undergraduate and primary school students followed them (52.9 % and 49.5 %). The percentage of middle school students having the evaluativist level was the lowest (41.9 %).

Undergraduate students held the multiplist belief at most with 43.7 % and one-third of middle school students held multiplist beliefs. On the other hand, a quarter of the participants from primary school and high school held multiplist beliefs.

A quarter of middle school and primary school students were at the absolutist level, and more than one-tenth of the high school students were in this stance. On the other hand, only three undergraduate students were at the absolutist level.

The chi-square test for independence was conducted to see whether there is a significant relationship between grade level and epistemological beliefs in the judgments of truth about the social world domain, and the results showed a significant relationship $\chi2$ (6, n =379) = 29.09 p = .00, Cramer's v = .20 with small effect size (.20 < .30, Pallant, 2011, p. 220).

Then, we conducted follow-up chi-square tests (2x2) to understand whether there is a significant relationship between grade levels and epistemological beliefs in the judgments of truth about the social world domain when we specifically focus on two groups (e.g. primary school vs. middle school). We found no significant relationship between grade level and epistemological beliefs when we just consider primary school and middle school $\chi2$ (2, n =186) = 1.264 p = .53, phi = .08. Likewise, no significant relationship was found when primary school and high school were considered $\chi2$ (2, n =199) = 5.701 p = .06, phi = .17. On the other hand, there was a significant relationship between grade level and epistemological beliefs for primary school and undergraduate level $\chi2$ (2, n =180) = 18.37 p = .00, phi = .32 with medium effect size (.30 <.32 <.50, Pallant, 2011, p. 220.) and for middle school and undergraduate level $\chi2$ (2, n =180) = 17.67 p = .00, phi = .31 with medium effect size (.30 <.31 <.50). Similarly, we found a significant relationship between grade level and epistemological beliefs when only middle school and high school were considered $\chi2$ (2, n =199) = 9.56 p = .008, phi = .22 with small effect size (.20 < .30, Pallant, 2011, p. 220). Lastly, a significant relationship between variables was observed when high school and undergraduate levels considered $\chi2$ (2, n =193) = 9.91 p = .007, phi = .23 with a small effect size (.20 < .30, Pallant, 2011, p. 220).

Grade Levels and Beliefs in the Judgments of Truth about the Physical World Domain

Descriptive statistics for different grade levels regarding epistemological beliefs and the judgments of truth about the physical world domain are presented in Table 4:

Table 4.
Grade Level and Epistemological Beliefs in the Judgments of Truth about the Physical World Domain

Grade Level	Epistemological Beliefs in the Judgments of Truth about the Physical World Domain			
	Absolutist	Multiplist	Evaluativist	Total (n= 400)
Primary School	23 (22.5 %)	23 (22.5 %)	56 (55.0 %)	102
Middle School	25 (26.9 %)	27 (29.0 %)	41 (44.1 %)	93
High School	39 (33.0 %)	25 (21.2 %)	54 (45.8 %)	118
Undergraduate	15 (17.2 %)	30 (34.5 %)	42 (48.3 %)	87

According to Table 4, percentages of the evaluativist beliefs were similar in different grade levels, and nearly half of the students from each grade level held evaluativist beliefs. Primary school students had

the highest percentage with 55 %. Similarly, different grade levels held a common percentage regarding the multiplist beliefs. Accordingly, a quarter of undergraduate students held multiplist beliefs in the judgments of truth about the physical world domain, and middle school students followed them. On the other hand, two-tenths of the high school and primary school students had the multiplist belief. Regarding the absolutist level, one-third of high school students and a quarter of middle school students had an absolutist view. Primary school students followed these two groups with 22.5 % and undergraduate students had the lowest percentage (17.2 %) in terms of absolutist belief in the judgments of truth about the physical world domain. The chi-square test for independence was carried out for the relationship between grade level and epistemological beliefs in the judgments of truth about the physical world domain and no significant relationship was found between grade level and epistemological beliefs in the judgments of truth about the physical world domain χ^2 (6, n =400) = 11.01 p = .088, Cramer's v = .12.

Discussion

This study examined the relationship between background variables (gender and grade level) and epistemological beliefs in the judgments of truth about the social and physical world domain. The study found no significant relationship between gender and epistemological beliefs consistent with the majority of the previous research (Aslan & Şimşek, 2021; Er, 2013; Kuhn et al., 2000; Orhan, 2022; Ren, 2006; Yakışan & Karaşah, 2016). On the other hand, few previous research results were inconsistent with the current study (Marzooghi et al., 2008; Paulsen & Wells, 1998; Ismail et al., 2012). Pintrich (2002) reported two ideas explaining the gender and epistemological beliefs relations and explained that gender either has no relation with epistemological beliefs and the more important thing can be gender orientation (femininity or masculinity) or gender can be related to epistemological beliefs as females and males understand the knowledge in different ways and their epistemological beliefs may diverge because of their gender differences. Our results supported the first explanation that gender has no relation to epistemological beliefs. Similarly, Baxter Magolda (1992) reported males and females have similar epistemological beliefs but they have different patterns when acquiring these beliefs.

The second topic of the study was the relationship between grade level and epistemological beliefs in the judgments of truth about the social and physical world domain. Prior to the study, we hypothesized that epistemological beliefs improve with increasing grade level which means that primary-level students would hold the absolutist beliefs and the number of evaluativist beliefs would increase with increasing grade level from primary school to the undergraduate level. This expectation was observed for the beliefs in the judgments of truth about the social world domain to some degree. For example, we found a medium effect size regarding the relationship between grade level and epistemological beliefs in the judgments of truth about the social world domain when primary school students and undergraduate students were considered. The same effect size was also observed when middle school students and undergraduate students were considered. In line with this, we observed a small effect size for the relationship between grade level and epistemological beliefs when high school students were taken into account with middle school students and undergraduate students. Using this information, we claim that students start changing their epistemological beliefs in the judgments of truth about the social world domain in high school. For example, high school students held evaluativist beliefs with the highest percentage (62.3 %) and they started losing the absolutist beliefs (12.3 %) which is the most naïve stage for epistemological beliefs. We claim that major change in the beliefs in the judgments of truth about the social world domain happens at the undergraduate level as medium effect size indicates. In this grade level, only 3 undergraduate students held absolutist beliefs in the judgments of truth about the social world domain. While 84 students out of 87 passed to the higher epistemological beliefs, 38 of them were in the multiplist beliefs and could not pass to the evaluativist beliefs whereas 46 students could pass to the evaluativist level. Losing the absolutist level is an achieving task for the judgments of truth about the social world domain because it is not easy to pass from the absolutist level to the multiplism in the judgments of truth about the social and physical world domain, unlike the other three content domains like the personal taste (Kuhn & Weinstock, 2002). At this level, students obviously consider alternative ideas and multiple perspectives on social issues like the human population and pass to the multiplist level. While some of the undergraduates just respect multiple perspectives on social issues and do not discuss the ideas further (i.e., the

multiplist), some undergraduates continue challenging different ideas to decide which perspective is more accurate (i.e., the evaluativist). Similarly, Schiefer et al. (2022) reported lower grade students hold absolutist beliefs more and students from higher grade levels hold more sophisticated beliefs. Schiefer et al. (2022) explain this situation as such: when grade level and academic level increase, the epistemic climate changes. For example; students make critical discussion and critical thinking, compare different approaches, and find their own solutions to the problems. As a result, these educational activities done in higher grade levels like high school and undergraduate might improve students' epistemological beliefs in the judgments of truth about the social world domain.

Although we found a statistically significant relationship between grade level and epistemological beliefs in the judgments of truth about the social world domain, we did not find any relationship between grade level and epistemological beliefs in the judgments of truth about the physical world domain. This result suggests that increasing grade level does not guarantee an increase in epistemological beliefs when the judgments of truth about the physical world domain are considered. In line with this, Kuhn and Weinstock (2002) found that older people may also have naïve epistemological beliefs, therefore, education and age do not bring evaluativist beliefs. On this point, Kuhn and Weinstock (2002) reported that the first rule to have evaluativist beliefs is to value reasoned argument, and to accept reasoned argument is the way reaching us to knowledge and informed understanding. Therefore, the classes starting from the early years of education should provide opportunities for students to engage in activities in which they produce and defend their claims. During this practice, students evaluate the claims and discuss different ideas in a social context (Kuhn & Weinstock, 2002). In other words, argumentation practice where students compete and construct ideas to reach a consensus is vital to improve epistemological beliefs (Ryu & Sandoval, 2012).

In this study, we also observed that primary school students held the evaluativist with the highest percentage (55 %) for the judgments of truth about the physical world domain. Similarly, Peter et al. (2016) reported that even young learners can have evaluativist beliefs, and students from the same grade levels can have different epistemological beliefs. This situation makes the relationship between grade level and epistemological beliefs questionable (Peter et al., 2016). There can be explanations for why young learners hold sophisticated epistemological beliefs. For example; Ozkal et al. (2010) reported that middle school students having working mothers, educated parents, a separate study room, and families possessing high socio-economic status generally have more sophisticated scientific epistemological beliefs compared to their counterparts. The same can also be true for our sample, but we do not have enough data to assert such claims. Kuhn and Weinstock's (2002) explanations about the development of epistemological belief can also support this finding. Accordingly, children start to think knowledge comes from external sources at the age of three and they become absolutists. When they are 4 years old, they start to think that knowledge is the construction of the human mind and it is subjective. They reach the multiplist level in 5 and 6 years when they accept the conflicting beliefs, but still, they do not think that the people are the source of knowing, so they are absolutist to some extent in these years. Then, they can pass to the multiplist and evaluativist levels (Kuhn & Weinstock, 2002). Our result for the percentage of evaluativist primary school students is consistent with this explanation because primary school students in this study might follow the same pathway until they were 6 years old and some of them may reach the evaluativist level in the following three or four years (Note: primary school participants were 10 or 11 years old in this study.)

Implications

This study provided evidence that gender is not related to epistemological beliefs (Kessel, 2013; Pintrich, 2002). Therefore, we advise teachers from different lessons (e.g. science, social science) to give gender bias in their thinking. For example, female students were not more absolutistic than males in this study. However, if teachers believe that girls can learn as passive listeners and boys can learn by doing, this class environment may lead girls to think that knowledge is certain and found outside of the self. Therefore, they could have absolutistic beliefs. On the other hand, boys who actively engage in the knowledge construction process might think that knowledge is constructed by human beings through inquiry and so they might hold higher epistemological beliefs like multiplism or evaluativism. In short, teachers' beliefs and their practice, not students' gender, may cause differences between girls

and boys in terms of their epistemological beliefs (Scantlebury & Baker, 2013). Fortunately, the students in this study did not differ in epistemological beliefs, so we infer that their teachers do not have a gender bias in their teaching.

We also found that students' grade level is related to their epistemological beliefs in the judgments of truth about the social world domain and students from high school and undergraduate level held more sophisticated beliefs. We thought that the changing epistemic climate might be a cause for change in epistemological beliefs in different grade levels (Schiefer et al., 2022). For example; students make more critical thinking in higher grade levels and this situation changes their epistemological beliefs in a desired way. On the other hand, students' maturity can also be responsible for the change in their epistemological beliefs (Kuhn & Weinstock, 2002). Therefore, we advise researchers to conduct experimental studies including the same grade level students with different teaching methods. In this way, we can understand better whether changing epistemic climate is the cause of change in epistemic beliefs because we control the maturity level of students.

Although we found a statistically significant relationship between grade level and epistemological beliefs in the judgments of truth about the social world domain, we did not find any relation for these variables in the judgments of truth about the physical world domain. We think that the lack of argumentation practice in science classes can be the cause of this situation (Ryu & Sandoval, 2012). Accordingly, there is a competition between ideas in argumentation and students use evidence to persuade others in favor of their claims (Sandoval & Millwood, 2008). When students engage in argumentation, they will notice that there can be other perspectives for the same problem, so they can pass from the absolutist level to the multiplist level. Likewise, when they evaluate the alternative ideas, they need to examine the coordination between the evidence and the ideas, so they will reach the evaluativist views (Kuhn & Weinstock, 2002). Therefore, we advise researchers to conduct experimental research including argumentation treatment, and use different content domains (the judgments of truth about the social and physical world domain) as dependent variables. Such research can inform us about the relative contribution of argumentation treatment on epistemological beliefs in different content domains.

Lastly, we focused on two content domains (beliefs in the judgments of truth about the social and physical world domain) to assess students' epistemological beliefs. However, Kuhn et al. (2000) reported there are three more content domains (personal taste, aesthetic, and value) in which people make judgments about epistemological beliefs. Future epistemological belief studies can also examine people's epistemological beliefs in these domains to more holistically understand the nature of epistemological beliefs.

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References

Aslan, S., & Şimşek, N. D. (2021). The relationship between secondary school students' epistemological beliefs and critical reading levels. *International Journal of Education and Literacy Studies*, *9*(4), 69-81. doi:10.7575/aiac.ijels.v.9n.4p.69

Elby, A., Macrander, C., & Hammer, D. (2016). Epistemic cognition in science. In J. A. Greene, W. A. Sandoval, & I. Braten (Eds), *Handbook of epistemic cognition* (pp. 113-127). Routledge.

Er, K. O. (2013). A study of the epistemological beliefs of teacher candidates in terms of various variables. *Eurasian Journal of Educational Research, 50*, 207-226.

Greene, J. A., Sandoval, W. A., & Bråten, I. (2016). An introduction to epistemic cognition. In J. A. Greene, W. A. Sandoval, & I. Braten (Eds), *Handbook of epistemic cognition* (pp. 1-16). Routledge.

Hofer, B. K. & Pintrich, P. R. (1997). The development of epistemological theories: Beliefs about knowledge and knowing and their relation to learning. *Review of Educational Research*, *67*(1), 88–140. doi:10.3102/00346543067001088

Ismail, W., Abedalaziz, N., Hussin, Z., Mohamed, M., & Md Saad, R. (2012). Epistemological beliefs of undergraduate students as function of gender and academic level. *OIDA International Journal of Sustainable Development*, *5*(2), 109-118.

Kessels, U. (2013). How epistemological beliefs relate to values and gender orientation. *Learning and Individual Differences*, *23*, 256-261. doi: 10.1016/j.lindif.2012.10.008

Kitchener, R. F. (2011). Personal epistemology and philosophical epistemology: The view of a philosopher. In J. Elen et al. (Eds.), *Links between beliefs and cognitive flexibility* (pp. 79–103). The Netherlands: Springer. doi: 10.1007/978-94-007-1793-0_5

Kuhn, D., Chaney, R., & Weinstock, M. (2000). The development of epistemological understanding. *Cognitive Development, 15,* 309-328. doi: 10.1016/S0885-2014(00)00030-7

Kuhn, D., & Weinstock, M. (2002). What Is Epistemological Thinking and Why Does It Matter? In B. Hofer, & P. Pintrich (Eds.), *Personal epistemology: The psychology of beliefs about knowledge and knowing* (pp. 121-144). Routledge.

Marzooghi, R., Fouladchan, M., & Shemshiri, B. (2008). Gender and grade level differences in epistemological beliefs of Iranian undergraduate students. *Journal of Applied Sciences*, *8*(24), 4698-4701. doi: 10.3923/jas.2008.4698.4701

Nussbaum, M., Sinatra, G. M., & Poliquin, A. (2008). Role of epistemic beliefs and scientific argumentation in science learning. *International Journal of Science Education, 30*(15),1977-1999. doi: 10.1080/09500690701545919

Organisation for Economic Co-operation and Development [OECD]. (2022). *PISA 2021 translation and adaptation guidelines*.

Orhan, A. (2022). "Do epistemological beliefs predict critical thinking dispositions?: A cross-sectional study with Turkish high school students." *Psycho-Educational Research Reviews* 11(2), 158-171. doi: 10.52963/PERR_Biruni_V11.N2.10

Ozkal, K., Tekkaya, C., Sungur, S., Cakiroglu, J., & Cakiroglu, E. (2010). Elementary students' scientific epistemological beliefs in relation to socio-economic status and gender. *Journal of Science Teacher Education*, *21*(7), 873-885. doi: 10.1007/s10972-009-9169-0

Paulsen, M. B., & Wells, C. T. (1998). Domain differences in the epistemological beliefs of college students. *Research in Higher Education*, 365-384. doi: 10.1023/A:1018785219220

Perry, W. G. (1970). *Forms of intellectual and ethical development in the college years*. New York: Holt, Rinehart, and Winston.

Peter, J., Rosman, T., Mayer, A. K., Leichner, N., & Krampen, G. (2016). Assessing epistemic sophistication by considering domain-specific absolute and multiplicistic beliefs separately. *British Journal of Educational Psychology*, *86*(2), 204-221. doi: 10.1111/bjep.12098

Pintrich, P. R. (2002). Future challenges and directions for theory and research on personal epistemology. In B. K. Hofer & P. R. Pintrich (Eds.), *Personal epistemology: The psychology of beliefs about knowledge and knowing* (p. 389-414). Routledge.

Ren, Zhongtang. (2006). *A cross-cultural study of epistemological beliefs and moral reasoning between American and Chinese college students*. Unpublished doctoral thesis (Ph.D.), Old Dominion University, USA.

Ryu, S. & Sandoval, W. A. (2012). Improvements to elementary children's epistemic understanding from sustained argumentation. *Science Education*, 96(3), 488–526. doi: doi.org/10.1002/sce.21006

Sandoval, W. A., & Millwood, K. A. (2008). What can argumentation tell us about epistemology? In S. Erduran, & M.P. Jimenez-Aleixandre (Eds.), *Argumentation in science education: Perspectives from classroom based research* (pp. 71-88). Dordrecht, the Netherlands: Springer. doi: 10.1007/978-1-4020-6670-2_4

Scantlebury, K., & Baker, D. (2013). Gender issues in science education research: Remembering where the difference lies. In *Handbook of research on science education* (pp. 257-285). Routledge.

Schiefer, J., Edelsbrunner, P. A., Bernholt, A., Kampa, N., & Nehring, A. (2022). Epistemic beliefs in science—a systematic integration of evidence from multiple studies. *Educational Psychology Review*, *34*(3), 1541-1575. doi: 10.1007/s10648-022-09661-w

Schommer, M. (1990). The effects of beliefs about the nature of knowledge in comprehension. *Journal of Educational Psychology*, *82*(3), 498–504. doi: 10.1037/0022-0663.82.3.498

Schommer-Aikins, M. (2002). Epistemological belief system. *Personal epistemology: The psychology of beliefs about knowledge and knowing*, 105-118.

Yakışan, M., & Karaşah, Ş. (2016). Examining of epistemological beliefs of students in science education, biology education, and biology-related pedagogical formation course according to some variables. *Participatory Educational Research*, *4*(1), 236-243. Retrieved from https://dergipark.org.tr/en/pub/per/issue/47525/600405

Yang, F. Y., & Tsai, C. C. (2012). Personal epistemology and science learning: A review on empirical studies. In B.J. Fraser E, K.G. Tobin & C.J. McRobbie (Eds.), *Second international handbook of science education* (pp. 259-280). Springer.

Yenice, N. (2015). An analysis of science student teachers' epistemological beliefs and metacognitive perceptions about the nature of science. *Educational Sciences: Theory & Practice*, *15*(6).1623-1636. doi: 10.12738/estp.2015.6.2613

Appendices

Appendix 1. Turkish form of Epistemological Belief Instrument

Değerli Katılımcılar;

Bu araştırma sizlerin epistemolojik inanışlarınızı yani bilgiye yönelik inanışlarınızı ölçmek için oluşturulmuştur. Ölçekte 15 adet çoktan seçmeli soru vardır ve bu sorulara yanıt vermeniz beklenmektedir. Çalışmaya katıldığınız için teşekkür ederiz.

Kişisel Bilgiler:

Okulunuz: İlkokul ☐ Ortaokul ☐ Lise ☐ Üniversite ☐

Sınıf Düzeyiniz: ………………………….

Cinsiyetiniz: Kadın ☐ Erkek ☐

Okulunuzun
Adı:……………………………………………………………………………………………

Eğer üniversite öğrencisi iseniz, Bölümünüz:…………………………………………...

Aşağıdaki koyu ile yazılmış görüşleri göz önünde bulundurarak sorulara yanıt veriniz:

• **Rafet sıcak yaz günlerinin en güzel günler olduğunu düşünüyor.**
 • **Caner serin sonbahar günlerinin en güzel günler olduğunu düşünüyor.**
 Bu 2 görüşü düşündüğümüzde, A veya B seçeneklerinden hangisi sizin düşüncenizi desteklemektedir?
   A) Bu 2 görüşten <u>sadece</u> biri doğrudur
   B) Her iki görüşün de doğruluk payı vardır.
	Eğer B seçeneğini işaretlediyseniz (Her iki görüşün de doğruluk payı vardır.), <u>Bu iki görüşten biri diğerinden daha doğru olabilir mi?</u> Uygun olduğunu düşündüğünüz C veya D seçeneğinden birini işaretleyiniz.
	   C) Bir görüş diğerinden daha doğru olabilir.
	   D) Bir görüş diğerinden daha doğru <u>olamaz.</u>

• **Rafet içine baharat konulan güvecin daha lezzetli olduğunu söylemektedir.**
 • **Caner içine baharat konmayan güvecin daha lezzetli olduğunu söylemektedir.**
 Bu 2 görüşü düşündüğümüzde, A veya B seçeneklerinden hangisi sizin düşüncenizi desteklemektedir?
   A) Bu 2 görüşten <u>sadece</u> biri doğrudur
   B) Her iki görüşün de doğruluk payı vardır.
	Eğer B seçeneğini işaretlediyseniz (Her iki görüşün de doğruluk payı vardır.), <u>Bu iki görüşten biri diğerinden daha doğru olabilir mi?</u> Uygun olduğunu düşündüğünüz C veya D seçeneğinden birini işaretleyiniz.
	   C) Bir görüş diğerinden daha doğru olabilir.
	   D) Bir görüş diğerinden daha doğru <u>olamaz.</u>

• **Rafet düğün töreninin gündüz yapılması gerektiğini düşünmektedir.**
 • **Caner düğün töreninin akşam yapılması gerektiğini düşünmektedir.**
 Bu 2 görüşü düşündüğümüzde, A veya B seçeneklerinden hangisi sizin düşüncenizi desteklemektedir?
   A) Bu 2 görüşten <u>sadece</u> biri doğrudur
   B) Her iki görüşün de doğruluk payı vardır.
	Eğer B seçeneğini işaretlediyseniz (Her iki görüşün de doğruluk payı vardır.), <u>Bu iki görüşten biri diğerinden daha doğru olabilir mi?</u> Uygun olduğunu düşündüğünüz C veya D seçeneğinden birini işaretleyiniz.
	   C) Bir görüş diğerinden daha doğru olabilir.
	   D) Bir görüş diğerinden daha doğru <u>olamaz.</u>

• **Rafet dinledikleri şarkılardan birincisinin daha güzel olduğunu düşünmektedir.**
• **Caner dinledikleri şarkılardan ikincisinin daha güzel olduğunu düşünmektedir.**
Bu 2 görüşü düşündüğümüzde, A veya B seçeneklerinden hangisi sizin düşüncenizi desteklemektedir?
  A) Bu 2 görüşten <u>sadece</u> biri doğrudur
  B) Her iki görüşün de doğruluk payı vardır.
	Eğer B seçeneğini işaretlediyseniz (Her iki görüşün de doğruluk payı vardır.), <u>Bu iki görüşten biri diğerinden daha doğru olabilir mi?</u> Uygun olduğunu düşündüğünüz C veya D seçeneğinden birini işaretleyiniz.
	  C) Bir görüş diğerinden daha doğru olabilir.
	  D) Bir görüş diğerinden daha doğru <u>olamaz.</u>

• **Rafet baktıkları ilk tablonun daha güzel olduğunu düşünmektedir.**
• **Caner baktıkları ikinci tablonun daha güzel olduğunu düşünmektedir.**
Bu 2 görüşü düşündüğümüzde, A veya B seçeneklerinden hangisi sizin düşüncenizi desteklemektedir?
  A) Bu 2 görüşten <u>sadece</u> biri doğrudur
  B) Her iki görüşün de doğruluk payı vardır.
	Eğer B seçeneğini işaretlediyseniz (Her iki görüşün de doğruluk payı vardır.), <u>Bu iki görüşten biri diğerinden daha doğru olabilir mi?</u> Uygun olduğunu düşündüğünüz C veya D seçeneğinden birini işaretleyiniz.
	  C) Bir görüş diğerinden daha doğru olabilir.
	  D) Bir görüş diğerinden daha doğru <u>olamaz.</u>

• **Rafet okudukları ilk kitabın daha iyi olduğunu düşünmektedir.**
• **Caner okudukları ikinci kitabın daha iyi olduğunu düşünmektedir.**
Bu 2 görüşü düşündüğümüzde, A veya B seçeneklerinden hangisi sizin düşüncenizi desteklemektedir?
  A) Bu 2 görüşten <u>sadece</u> biri doğrudur
  B) Her iki görüşün de doğruluk payı vardır.
	Eğer B seçeneğini işaretlediyseniz (Her iki görüşün de doğruluk payı vardır.), <u>Bu iki görüşten biri diğerinden daha doğru olabilir mi?</u> Uygun olduğunu düşündüğünüz C veya D seçeneğinden birini işaretleyiniz.
	  C) Bir görüş diğerinden daha doğru olabilir.
	  D) Bir görüş diğerinden daha doğru <u>olamaz.</u>

• **Rafet insanların kendileri için sorumluluk almaları gerektiğini düşünmektedir.**
• **Caner insanların birbirlerine yardımcı olmak için beraber çalışması gerektiğini düşünmektedir.**
Bu 2 görüşü düşündüğümüzde, A veya B seçeneklerinden hangisi sizin düşüncenizi desteklemektedir?
  A) Bu 2 görüşten <u>sadece</u> biri doğrudur
  B) Her iki görüşün de doğruluk payı vardır.
	Eğer B seçeneğini işaretlediyseniz (Her iki görüşün de doğruluk payı vardır.), <u>Bu iki görüşten biri diğerinden daha doğru olabilir mi?</u> Uygun olduğunu düşündüğünüz C veya D seçeneğinden birini işaretleyiniz.
	  C) Bir görüş diğerinden daha doğru olabilir.
	  D) Bir görüş diğerinden daha doğru <u>olamaz.</u>

• **Rafet yalan söylemenin yanlış olduğunu düşünmektedir.**
• **Caner bazı durumlarda yalan söylenebileceğini düşünmektedir.**
Bu 2 görüşü düşündüğümüzde, A veya B seçeneklerinden hangisi sizin düşüncenizi desteklemektedir?
  A) Bu 2 görüşten <u>sadece</u> biri doğrudur
  B) Her iki görüşün de doğruluk payı vardır.
	Eğer B seçeneğini işaretlediyseniz (Her iki görüşün de doğruluk payı vardır.), <u>Bu iki görüşten biri diğerinden daha doğru olabilir mi?</u> Uygun olduğunu düşündüğünüz C veya D seçeneğinden birini işaretleyiniz.
	  C) Bir görüş diğerinden daha doğru olabilir.
	  D) Bir görüş diğerinden daha doğru <u>olamaz.</u>

Rafet nüfusun aşırı artmaması için devletlerin ailelerin sahip olabileceği çocuk sayısını sınırlandırması gerektiğini düşünmektedir.   **Caner** ailelerin istediği kadar çocuk sahibi olabilmesi gerektiğini düşünmektedir.   **Bu 2 görüşü düşündüğümüzde,** A veya B seçeneklerinden hangisi sizin düşüncenizi desteklemektedir?
  A) Bu 2 görüşten <u>sadece</u> biri doğrudur
  B) Her iki görüşün de doğruluk payı vardır.
	Eğer B seçeneğini işaretlediyseniz (Her iki görüşün de doğruluk payı vardır.), <u>Bu iki görüşten biri diğerinden daha doğru olabilir mi?</u> Uygun olduğunu düşündüğünüz C veya D seçeneğinden birini işaretleyiniz.
	  C) Bir görüş diğerinden daha doğru olabilir.
	  D) Bir görüş diğerinden daha doğru <u>olamaz.</u>

Rafet'in suçluların neden suç işlemeye devam ettiği ile ilgili bir görüşü vardır.   **Caner'in** suçluların neden suç işlemeye devam ettiği ile ilgili farklı bir görüşü vardır.   **Bu 2 görüşü düşündüğümüzde,** A veya B seçeneklerinden hangisi sizin düşüncenizi desteklemektedir?
  A) Bu 2 görüşten <u>sadece</u> biri doğrudur
  B) Her iki görüşün de doğruluk payı vardır.
	Eğer B seçeneğini işaretlediyseniz (Her iki görüşün de doğruluk payı vardır.), <u>Bu iki görüşten biri diğerinden daha doğru olabilir mi?</u> Uygun olduğunu düşündüğünüz C veya D seçeneğinden birini işaretleyiniz.
	  C) Bir görüş diğerinden daha doğru olabilir.
	  D) Bir görüş diğerinden daha doğru <u>olamaz.</u>

Rafet Kırım savaşının başlangıç nedeni ile ilgili olarak bir kitabın açıklamasını doğru bulmaktadır.   **Caner** Kırım savaşının başlangıç nedeni ile ilgili olarak başka bir kitabın açıklamasını doğru bulmaktadır.   **Bu 2 görüşü düşündüğümüzde,** A veya B seçeneklerinden hangisi sizin düşüncenizi desteklemektedir?
  A) Bu 2 görüşten <u>sadece</u> biri doğrudur
  B) Her iki görüşün de doğruluk payı vardır.
	Eğer B seçeneğini işaretlediyseniz (Her iki görüşün de doğruluk payı vardır.), <u>Bu iki görüşten biri diğerinden daha doğru olabilir mi?</u> Uygun olduğunu düşündüğünüz C veya D seçeneğinden birini işaretleyiniz.
	  C) Bir görüş diğerinden daha doğru olabilir.
	  D) Bir görüş diğerinden daha doğru <u>olamaz.</u>

Rafet çocukların dili nasıl öğrendiğini açıklayan bir kitabın açıklamasını desteklemektedir.   **Caner** çocukların dili nasıl öğrendiğini açıklayan başka bir kitabın açıklamasını desteklemektedir.   **Bu 2 görüşü düşündüğümüzde,** A veya B seçeneklerinden hangisi sizin düşüncenizi desteklemektedir?
  A) Bu 2 görüşten <u>sadece</u> biri doğrudur
  B) Her iki görüşün de doğruluk payı vardır.
	Eğer B seçeneğini işaretlediyseniz (Her iki görüşün de doğruluk payı vardır.), <u>Bu iki görüşten biri diğerinden daha doğru olabilir mi?</u> Uygun olduğunu düşündüğünüz C veya D seçeneğinden birini işaretleyiniz.
	  C) Bir görüş diğerinden daha doğru olabilir.
	  D) Bir görüş diğerinden daha doğru <u>olamaz.</u>

Rafet atomların nelerden oluştuğunu açıklayan bir kitabın açıklamalarına inanmaktadır.   **Caner** atomların nelerden oluştuğunu açıklayan başka bir kitabın açıklamasına inanmaktadır.   **Bu 2 görüşü düşündüğümüzde,** A veya B seçeneklerinden hangisi sizin düşüncenizi desteklemektedir?
  A) Bu 2 görüşten <u>sadece</u> biri doğrudur
  B) Her iki görüşün de doğruluk payı vardır.
	Eğer B seçeneğini işaretlediyseniz (Her iki görüşün de doğruluk payı vardır.), <u>Bu iki görüşten biri diğerinden daha doğru olabilir mi?</u> Uygun olduğunu düşündüğünüz C veya D seçeneğinden birini işaretleyiniz.
	  C) Bir görüş diğerinden daha doğru olabilir.
	  D) Bir görüş diğerinden daha doğru <u>olamaz.</u>

• Rafet beynin nasıl çalıştığını açıklayan bir kitabın açıklamasına inanmaktadır. • Caner beynin nasıl çalıştığını açıklayan başka bir kitabın açıklamasına inanmaktadır. **Bu 2 görüşü düşündüğümüzde,** A veya B seçeneklerinden hangisi sizin düşüncenizi desteklemektedir? A) Bu 2 görüşten <u>sadece</u> biri doğrudur B) Her iki görüşün de doğruluk payı vardır	Eğer B seçeneğini işaretlediyseniz (Her iki görüşün de doğruluk payı vardır.), <u>Bu iki görüşten biri diğerinden daha doğru olabilir mi?</u> Uygun olduğunu düşündüğünüz C veya D seçeneğinden birini işaretleyiniz. C) Bir görüş diğerinden daha doğru olabilir. D) Bir görüş diğerinden daha doğru <u>olamaz.</u>

• Rafet bir matematik uzmanının bir matematik formülü ile ilgili kanıtlarının doğru olduğuna inanmaktadır. • Caner başka bir matematik uzmanının matematik formülü ile ilgili kanıtlarının doğru olduğuna inanmaktadır. **Bu 2 görüşü düşündüğümüzde,** A veya B seçeneklerinden hangisi sizin düşüncenizi desteklemektedir? A) Bu 2 görüşten <u>sadece</u> biri doğrudur B) Her iki görüşün de doğruluk payı vardır.	Eğer B seçeneğini işaretlediyseniz (Her iki görüşün de doğruluk payı vardır.), <u>Bu iki görüşten biri diğerinden daha doğru olabilir mi?</u> Uygun olduğunu düşündüğünüz C veya D seçeneğinden birini işaretleyiniz. C) Bir görüş diğerinden daha doğru olabilir. D) Bir görüş diğerinden daha doğru <u>olamaz.</u>

Katılımınız için Teşekkür ederiz ☺

Post-Pandemic Teacher Education: Opinions of English Teacher Educators on Hybrid System

Esin Dündar[1]   Ali Merç[2]

Abstract

The wave of change in the educational landscape started with Emergency Remote Teaching due to the pandemic and was followed by the hybrid system adopted in higher education institutions. The present study is an attempt to evaluate the effects of the hybrid system on English teacher education and get the reflections of English teacher educators regarding its post-effects on teacher candidates. To this end, 18 English teacher educators from 10 different state universities were reached to evaluate post-pandemic teacher education. Adopting a qualitative research design, the participants were asked to complete a survey that included nine questions about different learner types that emerged due to online instruction, the effects of the hybrid system on teacher educators and teacher candidates, and survival tips for teacher educators. The data were analyzed through thematic analysis and the findings were reported under the categories of "overall evaluation, post-effects of the hybrid system, crucial factors and survival tips, and learner types". The findings are discussed in line with the related literature and some implications for education faculties are presented.

Keywords: COVID-19, Hybrid system, Teacher educators, English teacher candidates.

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Introduction

Has COVID-19 irrevocably changed higher education? The experience of the educational world with Emergency Remote Teaching (ERT), followed by a hybrid system, has turned the attention of researchers to this question. The sudden shift of instruction in higher education as a result of COVID-19, which is called "The Great Online Transition (GOT)", is indeed a rare opportunity to observe the transition to online instruction to that extent and within GOT, the educational world not only experienced ERT but also adopted hybrid teaching, maybe to the widest extent in its history (Howard, et al., 2022, p. 930). As defined by Carrasco and Johnson (2015), hybrid teaching is a mode of delivery in which courses are divided into portions of face-to-face instructional activities within the classroom environment and instructional hours within online settings. The Hybrid system can be seen as a "best-of-both-worlds" that combines the efficacious features of traditional face-to-face instruction and online instruction (Snart, 2010, p. xi). From a different point of view, the hybrid system is a response to entirely online instruction that is deficient in student-teacher interaction (Carrasco & Johnson, 2015). Online teaching is not free of challenges. It requires funding for the start-up costs, institutional readiness, and learner readiness (Bartolic-Zlomislic & Bates, 1999). However, hybrid teaching still has significant benefits such as flexibility of time and space, utilizing mobile devices for academic purposes, technology-integrated instruction that appeals to different learner types, providing interaction through face-to-face courses, and allowing learners to progress at their own pace through online courses (Carrasco & Johnson, 2015). Additionally, hybrid courses can provide opportunities for learners to develop media information, and digital literacy (Linder, 2017). Yet, it should be noted that "thoughtless urgency and uninformed decision-making will push hybrid learning into perilously uncharted territory, where it will be susceptible to the worst fates of online and correspondence education" (Snart, 2010, p. xii). In other words, a hybrid system requires a planning and decision-making stage early before its application. Compared to a traditional course, an efficient hybrid course requires a larger amount of preparation, and every single instructional material should be prepared in advance "to ensure the alignment between in-class and out-of-class content delivery, activities, assignments, and assessments" (Linder, 2017, p. 16).

Hybrid learning as a delivery mode of instruction dates back to before the pandemic. Many higher education institutions have been willing to provide hybrid courses as an option for faculty members and learners who would like to follow the content of the course in an online setting rather than a traditional one (Olapiriyakul & Scher, 2006). The hybrid system has certainly been flourishing in the educational world with the decisions of higher education institutions to adopt the best fit (Moskal, 2017). Yet, it was the pandemic that transformed hybrid education from "an esoteric notion" into a "de facto norm" in the blink of an eye (Cohen et al., 2020, p. 1039). COVID-19 is one of the factors triggering the global shift towards online instruction, along with "(a) globalization, (b) an unprecedented movement of people in the latter decades of the 20th century and the first two decades of the 21st century, and (c) remarkable and seemingly endless advances in digital technologies" (Dixon, et al., 2021, p. 792). As a result of pandemic and lockdown, educators lived a "hybridized" version of their lives in which their homes became shared working spaces with their families and their students and the educators welcomed each other into their living spaces (Cohen et al., 2020, p. 1039). Although it has been quite challenging for them, educators in higher education institutions have become less resistant to online instruction, especially hybrid mode as they acknowledged the opportunities provided by the system during their applications during the pandemic phase (Müller et al., 2021).

The adoption of hybrid instruction in higher education, specifically in teacher education, has been an area of interest for researchers (Lin, 2008; Swenson & Redmond, 2009; Dickenson, 2016; Vininsky & Saxe, 2016; Solihati & Mulyono, 2017; Abdulhak et al., 2018; Mumford & Dikilitaş, 2020) and the ineluctable shift to hybrid instruction in teacher education due to the new normal turned the attention of the related literature to the applications during COVID-19 and post-pandemic (Calderón et al., 2020; Rachmadtullah et al., 2020; Saboowala & Manghirmalani-Mishra, 2021; Creely et al., 2022; Biberman-Shalev et al., 2023). However, verification of the system followed during the new normal calls for further research to examine the factors affecting teacher-student interactions that occur in this new online instructional environment and the reflections of the parties experiencing the hybrid system

are quite crucial (Raes, 2022). In the 2021-2022 academic year, a hybrid system was adopted by the higher education institutions in the Turkish context right after ERT. Contrary to ERT, the shift in the mode of delivery did not happen overnight for the term hybrid system was adopted, but we could still question the preparedness level of academic staff, teacher candidates, and technological infrastructure of education faculties for the application of this relatively new system. It is fair to state that post-pandemic instructional practices in higher education institutions will not be the same and all stakeholders within the process should take a lesson from their experiences of the pandemic era (Singh et al., 2021). As we have witnessed during the 2022-2023 academic year, higher education institutions always can return to a hybrid system and this possibility makes it crucial to get feedback on the practices conducted. Thus, this present study aims to reveal the reflections of English teacher educators on a hybrid system, its challenges, opportunities, and effects on English teacher candidates. The study seeks an answer to the following research questions:

RQ1. How do English teacher educators evaluate the hybrid system?

RQ2. What do English teacher educators anticipate about the post-effects of the hybrid system on English teacher candidates?

RQ3. What kind of survival tips can English teacher educators suggest to other teacher educators?

RQ4. What are the observations of English teacher educators regarding the different learner types that emerged within the hybrid system?

Method

Research Design

The present study adopted a phenomenological research design, which focuses on a concept or a phenomenon and reveals a "common meaning" (Creswell & Poth, 2013, p.76). As the study deals with the hybrid system as a concept and mainly attempts to reveal the experiences of English teacher educators and to reflect their perspectives regarding the issue, the phenomenological research design was chosen for the study.

Participants

18 English teacher educators from 10 different state universities in Türkiye participated in the study. Demographic features of the participants are presented in Table 1.

Table 1.
Demographic Features of the Participants

ID	Gender	Area of Expertise	Years of Experience
TE1	Female	Teacher training, TEFL	30
TE2	Male	ELT/Pragmatics	39
TE3	Female	Acquisition and methodology	24
TE4	Male	ELT	20
TE5	Male	ELT	30+
TE6	Male	ELT	15
TE7	Female	ELT	9
TE8	Male	FLT	23
TE9	Female	Pre-service and In-service Teacher Training	32
TE10	Female	ELT, Teacher Training	31
TE11	Female	Distance Education	19
TE12	Female	English-American Literature	28
TE13	Female	Teacher Training	25
TE14	Female	ELT	10
TE15	Female	ELT	38
TE16	Female	ELT	11
TE17	Male	Teaching and Testing Four Language Skills, Approaches, and Methods in ELT, Teacher Training, Intercultural Communication	36
TE18	Female	ELT	11

As we can understand from Table 1, most of the participants have been working in the field for more than 10 years. The majority were female (f=12) and they were experts in the field of ELT, distance education, literature, teacher training, methodology, and testing. All participants were working at the Foreign Language Education Departments of 10 different state universities at the time of data collection and the regional distribution of the universities they worked for are three in the Mediterranean, two in Central Anatolia, two in Marmara, one in Black Sea, one in Aegean, and one in Eastern Anatolia. Except for the Southeastern Anatolia region, there were participants from all regions.

Data Collection Tools and Procedure

The data were collected with the "Survey on Hybrid System for English Teacher Educators" developed by the researchers. After getting the experts' opinions and revising the draft in line with their feedback, the researchers prepared the final version of the survey which includes two parts: demographic questions regarding gender, area of expertise, and years of experience and nine open-ended questions related to the hybrid system experiences of the teacher educators such as "can you make an evaluation about hybrid teaching system you have been following to train teacher candidates in comparison to online teaching and face-to-face teaching in general, what limitations can you define about the hybrid system if there are any for English teacher educators, how will it affect the teacher candidates to take some of the major courses online during the hybrid process, and what kind of suggestions can you give to teacher educators to survive during the hybrid system".

Being teacher educators, the researchers of the present study realized that the whole process of Emergency Remote Teaching followed by a hybrid system created different 'learner types' within one single system. 3rd and 4th-year teacher candidates started their training face-to-face, then experienced ERT, and lastly graduated with a hybrid system. The researchers called them 'jugglers' as they had experienced all three systems. Then, there were 2nd-year teacher candidates who were called 'emergency remote trainees' because they had started their training with ERT and continued with a hybrid system. Lastly, 'post-lockdowners', the 1st-year teacher candidates who started their training directly with a hybrid system. In the survey, the participants were asked to evaluate the accuracy of the terms suggested by the researchers to define each learner group and 15 participants agreed on the terms. The survey also includes questions addressing the differences among the learner groups suggested by the researchers in terms of motivation, participation, and classroom interaction.

Once the researchers got the approval of the Ethics Committee (No-10/05/2022-208), the researchers sent e-mails, including an explanation about the study and a link to the online version of the survey, to English teacher educators in state universities in Türkiye. As the participation was voluntary, random sampling was used and eventually, 18 teacher educators from 10 different universities responded.

Data Analysis

The method utilized for the data analysis was thematic analysis by Braun and Clarke (2012). Thematic analysis is "a method for systematically identifying, organizing and offering insight into patterns of meaning (themes) across a data set. Through focusing on meaning across a data set, TA allows the researcher to see and make sense of collective or shared meanings and experiences" (Braun & Clarke, 2012, p. 57). Braun and Clarke (2012), specify the following phases for the process: (1) familiarizing with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing potential themes, (5) defining and naming themes, (6) producing the report.

The whole process was conducted through the MAXQDA software package. At the beginning of the data analysis, the researchers went through the whole data set twice to have a general idea about the nature of the data. The responses of the participants were organized into sections in line with each question in the survey. The next step was to generate the initial codes. At this point, the researchers tried to write down as much as possible to be able to find the best-suited codes for the data set. A color coding system was used for this phase. After generating the codes, the codes were evaluated to see whether there could be a pattern of codes or groups. The codes were grouped under possible titles of themes. As a fourth step, the researchers went over the themes and checked whether there would be

other options. Then, the names of the themes for the code groups were found. As the last step, code maps were created and direct quotations were selected to support the reporting.

Findings

Overall Evaluation of Hybrid System

Comparing the hybrid system with online and face-to-face teaching, participants evaluated the possibilities and limitations of the hybrid system not only from their perspective but also from the teacher candidates' point of view. The codes defined as a result of the analyses were: convenience, learner autonomy, infrastructure which includes e-learning platforms, unstable learning environment, reliable internet connection, and stable power supply, digital literacy, the impact of transactional distance which includes dialogue and work overload, nature of the program, nature of online teaching-learning, changing educational landscape, and differences in the application as presented in Figure 1.
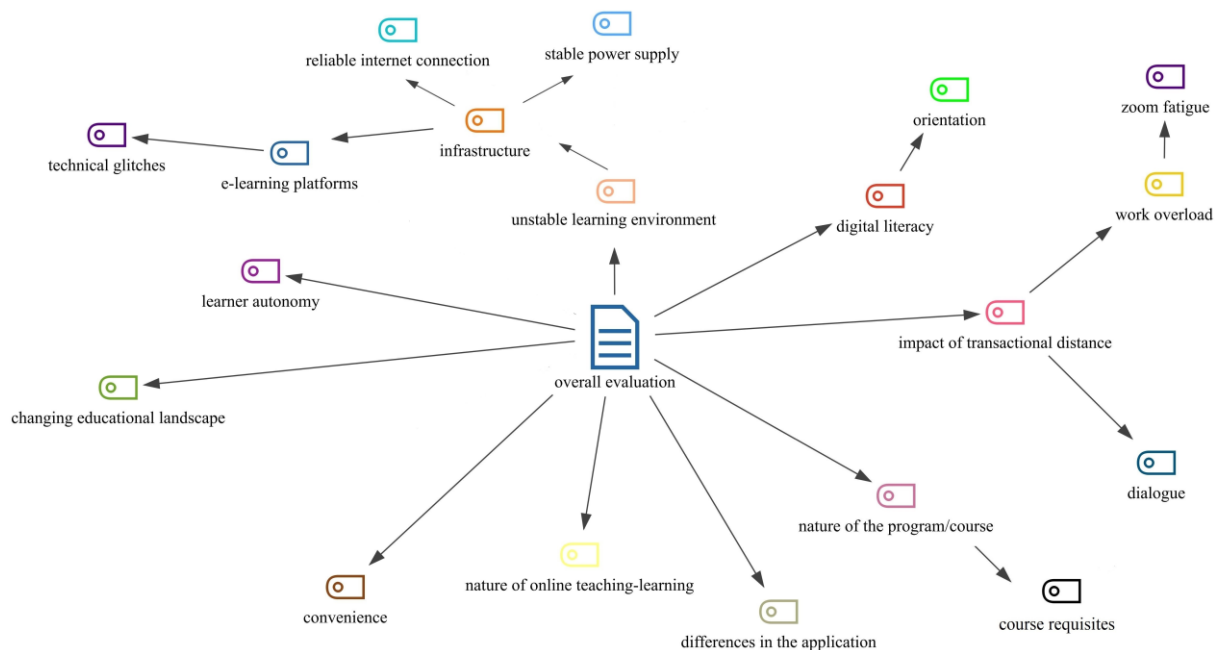
Figure 1. Overall Evaluations of English Teacher Educators Regarding Hybrid System

Some of the participants seem to question whether the system their faculty followed could be called hybrid. In other words, as they were aware of the prerequisites of online teaching and hybrid systems, the practices were not meeting the standards for the system to be called hybrid. One of the participants claimed that designing structures of the lessons and instructional materials suitable for online learning were crucial parts of the process and required a planning process before the application. It can be acceptable that most of the faculties were not ready for conducting online courses during ERT but that should not be the case for the following term in which the hybrid system was implemented. Lack of knowledge of the features and principles of online learning played a major role in the efficacy of the implementation process. One of the participants responded:

> …However, partly because of the planning process, I have observed although it is not emergency remote teaching anymore, many faculties still conduct online courses such as ERT courses, which have limitations, especially in terms of design and development. The other problem is "online", and unfortunately is perceived as "synchronous". Yet, in online learning, based on scientific evidence distance education and online learning professionals value the contribution of asynchronous activities. As far as I have observed in the online part of the hybrid system, asynchronous activities that foster critical thinking and problem-solving skills, as well as creativity, have been left aside, and weekly online synchronous meetings have replaced the f2f classes, which is just a shift in the physical setting of the lessons, not a real change in

pedagogy. I have been observing what has been done in the classroom is transferred to the online. This, unfortunately, is not online teaching/learning (TE11)

Along with their reflections on conducting the hybrid system properly, some of the participants seemed to have concerns over selecting which courses to be given with online instruction. They believed that if the course content was theoretical without any need for practice, then these courses should be chosen for online instruction. As they were concerned with training English teacher candidates as a whole and providing them with enough opportunities to practice, they preferred the field courses to be given face-to-face. Moreover, the importance of enculturation within campus life for the teacher candidates was highlighted by the participants.

Moreover, teacher educators evaluated the process for themselves and teacher candidates. They believed that both they and teacher candidates were worn out because of going back and forth between online and face-to-face classes, which also increased the workload of the teacher educators. Other than conducting their courses, the teacher educators had other responsibilities such as managing their time, arranging a suitable environment to conduct online courses, dealing with technical problems, and staying in front of the computer monitor for a long time, which resulted in zoom fatigue, and devoting attention both to the students in the classroom and the ones attending online. Moreover, the transactional distance decreased the dialogue within the classes and demotivated the teacher candidates. As mentioned by one of the participants:

> There is little to no student-teacher interaction in online classes. It is very difficult to create an atmosphere of discussion or a platform for philosophical discussions of significant concepts in literature classes. Face-to-face teaching enables authentic communication based on trust and reliance between student and teacher. Face-to-face teaching enables the teaching of life's crucial concepts, values, etc. interactively…. Alienation, isolation, and health problems are the consequences of online teaching (because of long sitting sessions 6-8 hours per day lecturing, answering e-mails, uploading materials, reading exam papers, reports, etc., and being available for online teaching 7/24 hours a day) (TE12)

According to teacher educators, one of the factors affecting the implementation of the hybrid system was digital literacy. They believed that the system required literacy in ICT but not every teacher candidate or teacher educator was digitally literate or had the experience of using e-learning software and this created the need for providing orientation or training both to teacher candidates and teacher educators in this regard. It was revealed that without proper ICT knowledge, it would be quite demanding for teacher educators to design effective online courses. The following excerpt illustrates the reflections of the participants on the issue.

> The greatest and maybe the sole possibility is access to a linguistically authentic context thanks to the internet and the utilities/functionalities that online software provides for running courses, monitoring learners' progress, and assessing and evaluating their growth. Yet I am almost sure that most of the academics are not aware of the possibilities -online software- of the web technologies, nor are they aware of ICT-based teaching techniques and strategies…This is largely dependent upon the competencies of the educator; if literate in ICT, then it can be a true experience for the learners, if not competent, then it is a sort of ceremonial course, ppt-reading torture (TE4)

In line with digital literacy, some of the participants addressed the changing educational landscape due to ERT and they claimed that the hybrid system would open new pages in the field of education and it was an opportunity for teacher candidates to have a first-hand experience of that change and see examples on how to conduct lectures online. One of them responded:

> …Considering the fact that online teaching/learning will be an inseparable part of all learning life, furnishing the teacher candidates with skills, competencies, and experiences of online learning does and will benefit them in the long run. The examples they have experienced so far might not have been very positive - and may have resulted in some negative attitude and perception- as it was an "emergency situation", both teacher candidates and teacher trainers will tune-in in time…..the teacher candidates will be exposed to several scenarios of online learning

and teaching. Observing what works and what does not is I guess one of the best ways of learning how we should teach (the same goes for the f2f part). In the hybrid system, they are not only exposed to both f2f and online courses, but they also have a "feel of" what online learning is (TE11)

While reflecting on their experiences with the hybrid system, teacher educators touched upon learner autonomy. Although the hybrid system was evaluated as a chance to develop learner autonomy, some of the participants still believed that teacher candidates lacked the characteristics of autonomous learners and could not utilize the opportunities provided by the hybrid system. Compared to face-to-face learners, online learners were claimed to lack the skills and behaviors of autonomous learners, although some participants saw online learning as beneficial for autonomy as they had more opportunities to search for information sources.

One of the main concerns for the teacher educators was revealed to be the decrease in the quality of their lectures delivered and in the participation rates of teacher candidates due to the unstable learning environment, which includes technical infrastructure, stable power supply, reliable internet connection, and e-learning platforms. For the hybrid system to be practiced properly, both sides need to have the technological equipment and infrastructure. One participant shared that the teacher candidates were having attendance problems even during the face-to-face system and due to their living arrangements, they were having trouble in attending online sessions within the hybrid system. In parallel, despite the diversity of choice, the platforms used for the hybrid system were found to be insufficient as they were not originally developed for educational purposes. Two of them responded:

> I am not very satisfied with the system. Although the app (i.e. Microsoft Teams) is a good choice and offers a variety of tools, due to the interruptions in the connection and the speed as well as power cuts, the quality of the lessons we deliver online is affected negatively (for example, it takes ages to use the breakout rooms during the lessons) (TE1)

> The hybrid system requires initial requisites, such as strong hardware and software on the side of student teachers and a high level of literacy in ICT as well as financial flexibility of obtaining internet access without cessation. If these are not met, then the rest of any evaluation would not be grounded in the reality of education. If these are met on both learners' and professors' sides, I am still suspicious about any hybrid system within ELT teacher education. Face-to-face education will always be stronger, more influential, and durable for student teachers. Our hybrid system, if we may call it a system, is not different from any other models adopted in tertiary programs in Turkey; weak software that is not designed for teaching but rather for running meetings, limited opportunities for hardware and software access of the learners, and even professors as well as low literacy competencies (TE4)

Lastly, as an asset of the hybrid system, teacher educators mentioned the convenience of the system both for themselves and teacher candidates to use time and resources efficiently, to reach the lecture recordings any time they want to, thus, providing flexibility, and making attending lectures of different institutions possible. Two of the participants stated:

> It can address different types of learners. It provides flexibility in time and space. It has the potential to increase self-directed learning. Online has no boundaries. F2F is bound to rules strictly. Hybrid has invisible boundaries. It makes students feel more comfortable (TE7)

> Flexibility, variability, easy-reach, cost-effective materials, easier contact with peers (TE15)

Post-effects of Hybrid System

As a further question, teacher educators were asked to share their opinions regarding how getting trained through a hybrid system would affect teacher candidates' performances in practicum and their professional lives. Their answers mainly focused on the gap between theory and knowledge, teacher development, and mental well-being (see Figure 2).
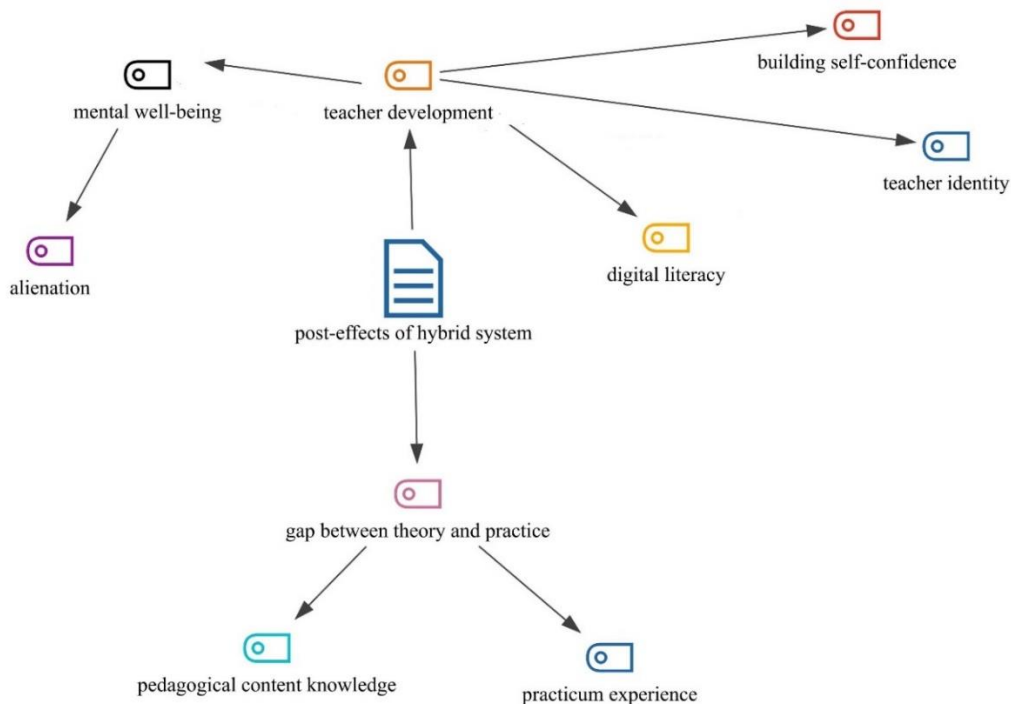
Figure 2. Post-effects of Hybrid System on Teacher Candidates

According to the participants, as teacher candidates had less chance to put their theoretical knowledge into practice compared to face-to-face learners and they could not get enough supervision, this would affect their teaching performances negatively. Although they had the chance to see the application steps for the hybrid system, due to lack of practice and lack of theoretical knowledge, they did not remember the content of the online courses well, possible problems regarding which technique to use, how to evaluate their students, or how to manage the class would be awaiting them. Some of them seemed to be sure that their knowledge in the field of teaching would be impeded. Moreover, it was claimed that the limited opportunities to put their knowledge into practice could affect their self-confidence. The following excerpts exemplify the responses of the participants.

> They may be knowledgeable about the process. However, they have not had a chance to perform in the classroom. Thus, they could not attain any experience… I believe that it will affect them negatively in making decisions related to methods and techniques, classroom management, reflection, and assessment in teaching activities (TE17)

> They might have difficulty in putting theory into practice as the theory part will be limited…. From a positive viewpoint, they know how to survive this process and can help students. From a negative viewpoint, on the other hand, they may have some problems with classroom management, etc.(TE18)

Focusing specifically on their professional lives, teacher educators stated that due to lack of practice in the hybrid system, teacher candidates were likely to have problems with shaping their professional identity and building self-confidence and have to deal with weak self-esteem and mental problems like burnout or even experience alienation in their professional environment. However, on the positive side, they would probably utilize digital materials in their classes more. Three of them responded:

> They feel that they lack important experiences, but I believe they also had important experiences for the future of education, which is already happening (TE3)

> …. one main advantage would be their willingness to integrate Web 2.0 tools in their teaching and they can make informed decisions as they would have a lot of experience (TE9)

> …since they will have been exposed to more digital materials, they will have a chance to adopt and implement these in their classes (some online activities/tools may well be used in both settings). Practicum is a great way to test these, but in my personal belief, teacher candidates

learn a lot during their training and get a "bite" of teaching in the practicum, but they test everything out in their classes (TE11)

Crucial Factors and Survival Tips

To have a better understanding of their experiences with the hybrid system, teacher educators were asked to share some survival tips with other teacher educators and to point out what was crucial for them. As presented in Figure 3, the participants touched upon self-care, the digital divide, and creating opportunities for interactive learning along with other factors.
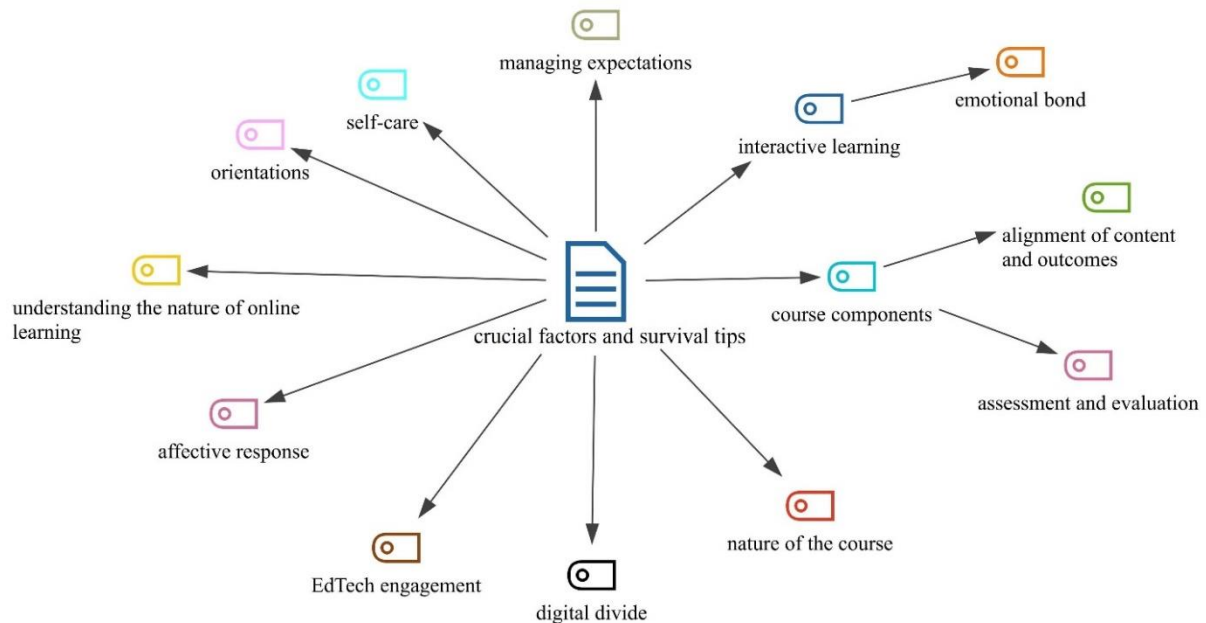
Figure 3. Crucial Factors and Survival Tips

Some participants focused on the planning phase before the instructional practice. The responses mainly suggested that it was important to decide the courses to be given online based on their nature, and the outcomes that were vital for teacher candidates should be prioritized. Specification of assessment techniques especially focusing on formative assessment was also mentioned. Two other factors were the digital divide and providing orientations on e-learning platforms. One of the participants believed that there would be no point in expecting participation if the teacher candidates did not have the technical equipment or did not know how to use it. The last factor of the planning phase was about understanding the nature of online learning. As one of the participants clarified:

> Everything has to be planned in the online classes. The course design should be planned ahead of the semester, the materials should be ready, the assessment evaluation, feedback templates, rubrics, interactions, everything should be ready. The materials should be self-explanatory, if not, they should be accompanied by clear instructions. This however can only be implemented if the decision to design to course as an online course at least 3-5 months before the semester starts. In f2f, we can save the day, online, we cannot, and in panic, I see many materials being shared by students to be "digested", which results in cognitive overload. This in return, creates overload for the teacher educators, too. Another survival tip is to follow best practices, find MOOCs that can easily be integrated into your online classes, and find, use and perhaps contribute to open educational resources (OERs). These all save a lot of time, especially in material design and development (TE11)

For the instructional practice phase of the process, some teacher educators highlighted the importance of motivation for teacher candidates while others mostly mentioned finding ways to facilitate interactive learning as a crucial factor. It was believed that whether the teacher candidates were attending face-to-face or online courses, they should be a part of the discussions and reflections, and teacher educators should search for new strategies and utilize educational technology to create an

interactive atmosphere. Aside from pedagogical factors, embracing self-care was mentioned as a tip for teacher educators. The following excerpts illustrate the opinions of the participants.

> * Attendance * motivation * participation * mutual understanding of difficulties (technological, physical, psychological, physiological) * get to know the LMS of your institution * familiarize yourself with web 2.0 tools * find ways to connect and pursue rapport with students * do physical exercise regularly (TE10)

> Looking for new strategies and solutions for interconnection and for ways of creating interactive classroom environments and changing previous problematic perspectives that prevent the understanding of students' needs (TE12)

> …engage in EdTech, pair in-class, and remote learners, and use interactive activities (TE15)

> We should develop our use of technological tools, apps, etc., and also learn how to develop interaction during the online process as well (TE16)

Parallel to the interactive learning, two of the participants touched upon human contact and the importance of mutual understanding, creating a group identity, and ensuring a feeling of being a part of that group. As it was phrased by one of the participants:

> Emotional bonds with the learners, empathy, and feelings of belonging should be established. We are educating people not machines. If you cannot establish any emotional code that is intelligible across individuals, no valuable learning can take place (TE4)

Seeing the whole experience as a chance for professional development, one of the participants concluded:

> Be realistic and consider the limitations of the circumstances, also take it as a learning experience for yourself because it seems there is no going back to traditional classrooms in the future…I believe everyone did their best, that was the reality, and it seems closer to the vision of education very shortly. There is nothing much we can do about the past but we should try to learn as much as possible and get adapted to our future roles (TE3)

Learner Types

As mentioned before the researchers of the present study believe that the whole teaching process with ERT and the hybrid system created three different learner groups: post-lockdowners, emergency remote trainees, and jugglers. One of the concerns of the study was whether there was any difference among these learner groups in terms of motivation, participation, and classroom interaction as they had experienced different teaching systems. Thus, the participants were asked to compare the groups with each other. In terms of motivation, the opinions of the teacher educators seemed to be diverse. While some of the participants specifically stated that post-lockdowners were the most motivated group, the others believed that it was not possible to make a comparison as there were times when all three groups were demotivated and confused. Based on the responses given by the teacher educators, it can be stated that due to the lack of clear instructions and uncertainty, teacher candidates felt lost at some point. Evaluating each group one by one, three participants explained themselves with the following words:

> Post-lockdowners are very motivated, emergency remote trainees feel disappointed and lack enthusiasm, jugglers want to graduate only, and they focus on job opportunities more than education quality (not all but most) (TE3)

> I had the chance to teach students from all three groups f2f. Jugglers were very happy at the beginning and they all expressed how much they had missed school. They all were motivated and I believe the majority of them maintained that high motivation. Post-lockdowners were mostly motivated. So was ERT. At the beginning of the fall term, the main worry was the uncertainty. None of us could know for sure that the lock-down was over and expected to go back to online teaching (TE9)

> I guess all of them were de-motivated in different ways. To start with the emergency remote trainees, I believe that they were the unluckiest ones since they had limited chances to make

friends, and the online classes they had taken were not designed to foster social presence, which is a critical factor affecting student motivation in online learning. They did not have a "feel" of the university life. Now, ok, they have adjusted to the system, but I have seen them struggling to form social groups and rely on group cohesion. The arrival of the post-COV period was a relief to them, and I see them more motivated now. The post-lockdowners seem to be motivated since they are already familiar with digital learning environments, and right from the beginning of their uni life, they have this feel of "uni life" which makes them even more motivated... The jugglers seem to be the most motivated. They have learned how to cope with the problems of all these. They had their first year f2f -the 4th years-, had their friends; moved online, felt less isolated and more supported, and having a chance to be physically in their classes seemed to have motivated them even more. Though I have observed them to be pretty demotivated during the lockdown period, they learned a lot from the process and learned how to cope with problems - technical and pedagogical. This feeling of accomplishment I guess increased their motivation. Still, 4th year teacher candidates seem to be more motivated in both online and f2f classes than the 3rd years (TE11)

In terms of participation, the jugglers were mentioned to be the ones who had participated most, but it is quite important to state that participants mostly were not satisfied with the participation rates and it was not easy for them to make a comparison. While some teacher educators tried to overcome the "shyness" problem among the teacher candidates with pair and group work, some believed that although each group was willing to participate to some extent, they needed to encourage emergency remote trainees more. Focusing specifically on participation rates in online courses, one of the participants stated:

> No matter how you define them, they do not participate in the courses online with their cameras and microphones. Attendance must be compulsory. Otherwise, we have a huge attendance problem (TE17)

When it comes to classroom interaction, the prominent opinion was that there was no or limited classroom interaction. However, for some participants, although the classroom interaction was mainly affected by the nature of the course, jugglers seemed to be more interactive compared to other groups. The classroom interaction was revealed to be affected mainly by the transactional distance, which caused teacher candidates not to be able to bond with their classmates. One of the participants responded:

> The major problem for the jugglers and ERTs was not knowing their classmates. I believe the main reason was not using the camera throughout online teaching and not seeing each other outside the lessons. Hence, they were shy when they were asked to work in pairs or groups. One of my students admitted that through pair and group work they got to know their classmates as at the beginning they even didn't know each other's names (TE9)

Discussion and Conclusion

The present study explored the reflections of English teacher educators on the hybrid system that was implemented during the 2021-2022 academic year in higher education institutions right after ERT. The findings revealed that the instructions were disrupted because of technical glitches, lack of personal devices, or problems with net connections. The participants seemed to acknowledge the changing educational landscape and saw the hybrid system as an opportunity for teacher candidates to experience technology integration by themselves. However, they were worried that the system followed in their faculties might not follow the principles of online teaching and the differences in the application might cause problems. Besides, they were not content with the participation rates of teacher candidates in the lectures. The interactions between teacher candidates with their peers and teacher educators were mentioned to be below the average and teacher educators observed demotivation among teacher candidates.

Some of the participants questioned whether it was right for us to call the system followed in higher education institutions hybrid. Institutions and teacher educators were indeed caught off guard by the sudden and unexpected shift in delivery mode due to ERT but did they have a chance to get ready for

the hybrid system that started right after ERT? According to some of the teacher educators, they did not. Based on the responses of the participants, it can be understood that for most of the cases, the same contents with the same sources were presented through digital platforms, which were not originally developed for online teaching, instead of face-to-face instruction. In other words, the content, activities, and materials were not modified for online education. This brings us to the issue of the nature of online education and how we understood it during the hybrid system. As underscored by Gurley (2018), for hybrid or online education, we need to adopt different pedagogical approaches than the ones for face-to-face instruction. Drawing a line between ERT and online education, Hodges, et al. (2020) believe that for online education to be effective, it needs "investment in an ecosystem of learner supports, which take time to identify and build" (para.11). Thus, online education requires a preparation phase. Higher education institutions must prepare educators specifically for hybrid or online education as their level of preparedness affects the instructional quality (Gurley, 2018). Another crucial point that needs investment and preparation is the infrastructure. As mentioned by the participants, online courses were hampered by the factors of owning the necessary hardware and software, power supply, and reliable internet connection. The related literature also mentions the lack of infrastructure as a challenge for conducting effective online courses (Koi-Akrofi, et al., 2020; Kuleto, 2021; Roman & Plopeanu, 2021; Singh, et al., 2021; Oblina, et al., 2022). Moreover, investigating the distance education capacity of higher education institutions in Türkiye, Karadağ, et al. (2021) claimed that the universities in the Turkish context presented an inefficient profile in terms of infrastructure and any attempt to improve the capacity of higher education institutions in this regard would contribute to the efficacy of higher education system.

The question of how to improve teacher candidates' digital competence to prepare them for digitalization in education remains unanswered (König, et al., 2020). Some teacher educators touched upon the importance of digital literacy, providing training both for lecturers and teacher candidates on digital platforms and integration of technology into instruction and how they also can learn from the application process of hybrid systems. As explained by Borthwick and Hansen (2017, p. 47), "a common set of teacher technology competencies for teacher education faculty will provide a pathway for professional development and related essential conditions that can be targeted and purposeful". Moreover, when the faculty members have digital skills, they can use those skills in their lectures, which can be second-hand learning for the students (Udeogalanya, 2022). For effective learning, higher education institutions should equip their learners with digital literacy but to be able to do so, faculty members should be competent in this regard (Udeogalanya, 2022). Focusing on the challenges experienced by teacher educators during the pandemic, Van Nuland, et al. (2020) claimed that except for the ones from the area of expertise, educators are often not informed about the digital sources and materials for online courses. This shows us the importance of providing orientations and training to teacher educators and teacher candidates. Teacher educators should be role models to teacher candidates for technology-integrated instruction but to be able to do so, they should be equipped with the necessary training. The studies in the related literature also suggest the need for training on digital literacy not only for faculty members (Singh, et al., 2021; Shohel, et al., 2022) but also for teacher candidates (Christiani, et al., 2022; Karagözoğlu & Gezer, 2022; Ngao, et al., 2022).

Why is it so important for teacher candidates to have digital literacy skills? The answer to this question may be twofold. First, the teacher candidates would be educating the learners of the 21st century. These learners have been engaged with technology from quite young ages and most of them access technology through their devices (Hooft Graafland, 2018). To be able to prepare lesson contents and materials in line with the needs and interests of these digital natives, teacher candidates should have digital competence. According to Buckingham (2007, p. 53), the way technology is utilized in and outside the school is quite different for the younger generation and this may cause schools to be immaterial to the learners' needs and interests as the use of technology in school is mostly "narrowly defined, unimaginative and instrumental". This leads us to the challenge of attracting learners' attention and creating an in-class environment for effective learning, which makes equipping teacher candidates with digital skills more crucial. Second, as mentioned by the participants, the educational landscape has been changing due to COVID-19. Technology has become a key point for maintaining instructional practices during COVID-19 and it seems to do so even after (Bozkurt et al., 2022). COVID-19 catalyzed a paradigm shift in the mode of delivery in education and raised the

expectations for teachers to be competent in online teaching (Zhu & Li, 2020). The educational changes due to COVID-19 seem to be influential in the post-pandemic phase and we should prepare teacher candidates "by offering training on various teaching approaches, such as blended, hybrid, flexible, and online learning, to better prepare educators for emerging roles in the post-pandemic era" (Bozkurt, et al., 2022, p. 889). Thus, going through the hybrid system has been a simulation to see the basic principles of online education and a good opportunity for the teacher candidates to make a self-evaluation of their digital skills although we can still discuss how efficient the application was for them.

Participants pointed out the importance of determining which courses within the program to be given online and giving practice-based ones face-to-face. Practicum is not the only course for teacher candidates to practice and get feedback. Ideally, during the micro-teaching sessions in some field courses teacher educators and peers evaluate the performance of teacher candidates. Taking practice-based courses like teaching language skills online during the hybrid phase limited the opportunities for teacher candidates to put their pedagogical knowledge into practice and get feedback. The participants were concerned that this could affect their performance in a real classroom and make teacher candidates question their ability and perform poorly. According to Darling-Hammond and Baratz-Snowden (2007), if teachers are not provided any guidance when they are learning how to teach, they can barely survive rather than fostering learning in their students, thus, teacher education should provide constant prospects for practice and reflection to the teacher candidates. Studies in the related literature supported the opinion that conducting courses with practical aspects in a virtual setting remains deficient (Şen & Kızılcalıoğlu, 2020; Eker & Atıcı, 2023).

Although the hybrid system provides convenience, supports learner autonomy, and shows teacher candidates how to utilize digital materials for instruction, teacher educators seemed to be concerned about its post-effects on teacher candidates. They were worried that an unstable learning environment, due to technical glitches, net connection, lack of personal devices, lack of dialogue between teacher candidates and educators as a result of transactional distance, and a limited amount of teaching practice compared to face-to-face instruction would lead to a gap between theory and practice along with learning loss and thus, would affect the professional identity of the teacher candidates and cause mental problems like burnout in the long term. The study of Berces (2022) pointed out similar points. According to Berces (2022), being deprived of opportunities to practice teaching, pre-service teachers experienced the feeling of unpreparedness along with "a feeling of guilt, lack of confidence, and dissatisfaction" (p.71). With a different perspective, Choi and Park (2022) claim that contrary to the concerns of teacher educators, attending practicum within entirely or partly online settings caused teacher candidates to have a positive attitude towards the teaching profession, develop teacher identity, and "realize their potential as innovative and inspiring teachers in a post COVID-19 era" (p.7).

The present study suggests that due to the implementation of ERT and hybrid system, three learner types emerged: post-lockdowners, emergency remote trainees, and jugglers. When participants were asked to evaluate these three groups in terms of motivation, participation, and classroom interaction, the responses of teacher educators revealed crucial points. All three groups seemed to be confused at the beginning of the implementation because of the uncertainty, which also affected their motivation level. Just like educators, students found themselves in an unexpected situation and were dealing with challenges. The study of Acosta-Gonzaga and Ruiz-Ledesma (2022) revealed the impact of a sense of uncertainty due to the implementation of the hybrid system on students' self-efficacy levels. The self-efficacy of students in their ability to maintain their learning plays a crucial role as it may lead to anxiety, stress, and distraction, which eventually decrease their level of engagement in their learning (Acosta-Gonzaga & Ruiz-Ledesma, 2022).

In terms of participation and classroom interaction, the teacher educators seemed to be dissatisfied with the performance of teacher candidates regardless of their types in this regard. Studies dealing with the level of interaction within online settings revealed that compared to face-to-face, classroom interaction decreases in online instruction (Kusuma et al., 2021; Wut & Xu, 2021; Yazgan, 2022). According to Yazgan (2022), not having enough opportunities to communicate, not being able to participate in social activities, and the exhaustion of online interaction created a gap between students, and this new form of interaction had a negative impact on learning. Due to the decrease in interaction,

teacher candidates did not have many opportunities to know their classmates and this hindered the classroom interactions. As they were not willing to use their cameras during online courses, post-lockdowners, and emergency remote trainees might not even see the faces of their classmates or know their names. The situation remained the same even for jugglers who had experienced face-to-face learning. Wut and Xu (2021) also pointed out a similar point. Online instruction hindered interaction among students who were not acquainted with each other and it became challenging for them even to get the contact information of their classmates (Wut & Xu, 2021). Students' hiding behind the screens during online sessions worsened the situation. The reluctance to open webcams during online instruction made students invisible (Gherheş et al., 2021) and left educators alone with "black squares of nothingness" (Aagaard et al., 2023, p.113). However, within a classroom setting, the students show a physical presence. The interaction and moments shared in face-to-face instruction are "the catalyst for nurturing the senses of familiarity, friendship, and trust" (Kumagai, 2023, p.116). It can be concluded that the sudden shift to ERT and hybrid systems impeded interaction not only in online sessions but also in face-to-face settings.

Based on the findings of the present study, we can highlight some points for education faculties to consider before adopting a hybrid system. First, strengthening the technological infrastructure of higher education institutions. As phrased by Olapiriyakul and Scher (2006, p. 295), infrastructure is "the backbone of overall systems that supports the entire e-learning education". Thus, higher education institutions should find ways to improve their technological infrastructure considering the possibility of conducting hybrid or online education anytime in the future. Second, specifying the courses to be given online and redesigning their content in line with the principles of online education. As criticized by some of the participants, the systems followed in most of the higher education institutions were not hybrid. Without any further plans, the courses were only moved to e-contexts with the same content, techniques, and materials used in face-to-face instruction. For effective teacher education, every single detail should be planned. Third, providing a standardized online instruction. As mentioned by some participants, there were differences among the online instructions of teacher educators. For the efficiency of teacher education, higher education institutions should standardize the applications and support faculty members in this regard. Fourth, providing constant training for teacher educators. Education technologies are constantly evolving and to be able to keep teacher educators and their in-class practices up to date, education faculties should focus more on training on digital literacy skills. Lastly, it supports the mental health of teacher educators and teacher candidates. During the period of ERT and hybrid education, every party struggled with challenges such as workload, adaptation, and alienation. To get through this process healthily and learn to cope with similar crises, both teacher educators and teacher candidates should not neglect self-care, and guidance and support should be provided in this regard.

The present study is limited to the opinions of English teacher educators. Further studies from different fields can provide a different point of view. Moreover, the findings of the study are limited to the 2021-2022 academic terms, when the hybrid system was first applied due to the pandemic. More studies can be conducted to understand the post-effects of the hybrid system on teacher education and teacher candidates. The present study suggested three learner types created as a result of the implementation of ERT followed by the hybrid system and investigated their differences in terms of motivation, participation, and classroom interaction. Further studies can evaluate these learner groups from different perspectives, with different participants from various contexts. Online or hybrid education is not a new phenomenon. However, it is fair to state that the pandemic catalyzed the transformation in the educational landscape. As foreseen by Buzzetto-More and Sweat-Guy (2006, p. 153) long before the pandemic, "in the years to come, hybrid learning is poised to cause a paradigm shift in higher education". The shift has become more obvious and extensive due to online instructions conducted during the pandemic. Now for the mitigation phase, we should see ERT and hybrid applications as an opportunity to evaluate current teacher education programs and options for technology integration to keep the content of the programs contemporary.

References

Aagaard, J., Stenalt, M. H., & Selwyn, N. (2023). 'Out of touch': University teachers' negative engagements with technology during COVID-19. *Learning and Teaching, 16*(1), 98-118. https://doi.org/10.3167/latiss.2023.160106

Abdulhak, I., Djohar, A., Rusman, & Wahyudin, D. (2018). The development of hybrid learning curriculum model for improving teachers' competencies in teacher education institutions in Indonesia and South Korea. *International Research Journal of Advanced Engineering and Science, 3*(1), 31-35.

Acosta-Gonzaga, E., & Ruiz-Ledesma, E. F. (2022). Students' emotions and engagement in the emerging hybrid learning environment during the COVID-19 pandemic. *Sustainability, 14*(16), 10236. https://doi.org/10.3390/su141610236

Bartolic-Zlomislic, S., & Bates, A. W. (1999). Investing in on-line learning: Potential benefits and limitations. *Canadian Journal of Communication, 24*(3). https://doi.org/10.22230/cjc.1999v24n3a1111

Berces, J. A. (2022). Exploring the uncertainties: The experiences of pre-service teachers in the new normal education. *World Wide Journal of Multidisciplinary Research and Development, 8*(06), 69-73.

Biberman-Shalev, L., Broza, O., & Chamo, N. (2023). Contextual changes and shifts in pedagogical paradigms: Post-COVID-19 blended learning as a negotiation space in teacher education. *Education Sciences, 13*(3), 275. https://doi.org/10.3390/educsci13030275

Borthwick, A. C., & Hansen, R. (2017). Digital literacy in teacher education: Are teacher educators competent? *Journal of Digital Learning in Teacher Education, 33*(2), 46-48. https://doi.org/10.1080/21532974.2017.1291249

Bozkurt, A., Karakaya, K., Turk, M., Karakaya, Ö., & Castellanos-Reyes, D. (2022). The impact of COVID-19 on education: A meta-narrative review. *TechTrends, 66*(5), 883-896. https://doi.org/10.1007/s11528-022-00759-0

Braun, V., & Clarke, V. (2012). Thematic analysis. In H. Cooper (Ed.), *APA handbook of research methods in psychology volume 2: Research designs* (pp. 57–71). Washington, D.C.: American Psychological Association.

Buckingham, D. (2007). Digital media literacies: Rethinking media education in the age of the internet. *Research in Comparative and International Education, 2*(1), 43-55. https://doi.org/10.2304/rcie.2007.2.1.43

Buzzetto-More, N. A., & Sweat-Guy, R. (2006). Incorporating the hybrid learning model into minority education at a historically black university. *Journal of Information Technology Education,5*(1), 153-164.

Calderón, A., Scanlon, D., MacPhail, A., & Moody, B. (2021). An integrated blended learning approach for physical education teacher education programmes: Teacher educators' and pre-service teachers' experiences. *Physical Education and Sport Pedagogy, 26*(6), 562-577. https://doi.org/10.1080/17408989.2020.1823961

Carrasco, B., & Johnson, S. M. (2015). *Hybrid language teaching in practice: Perceptions, reactions, and results*. London: Springer.

Choi, L. J., & Park, M. Y. (2022). Teaching practicum during COVID-19: Pre-Service English language teachers' professional identities and motivation. *SAGE Open, 12*(3),1-9. https://doi.org/10.1177/21582440221119472

Christiani, N., Tungka, N. F., & Nainggolan, R. (2022). Exploring digital literacy skills of prospective Indonesian EFL teachers. *International Journal of Multidisciplinary: Applied Business and Education Research, 3*(7), 1413-1422. http://dx.doi.org/10.11594/ijmaber.03.07.20

Cohen, A., Nørgård, R.T., & Mor, Y. (2020). Hybrid learning spaces—Design, data, didactics. *British Journal of Educational Technology, 51*(4), 1039-1044. https://doi.org/10.1111/bjet.12964

Creely, E., Henriksen, D., & Henderson, M. (2022). Moving beyond folk pedagogies towards hybrid and blended practices: A reflection on teacher education post-pandemic. In E. Baumgartner, R. Kaplan-Rakowski, R. R. Ferdig, R. Hartshorne, & C. Mouza, *A retrospective of teaching, technology, and teacher education during the COVID-19 pandemic* (pp. 31-37). USA: Association for the Advancement of Computing in Education.

Creswell, J. W., & Poth, C. N. (2013). *Qualitative inquiry and research design: Choosing among five approaches*. London: SAGE.

Darling-Hammond, L., & Baratz-Snowden, J. (2007). A good teacher in every classroom: Preparing the highly qualified teachers our children deserve. *Educational Horizons, 85*(2), 111-132. https://www.jstor.org/stable/42926597

Dickenson, P. (2016). The flipped classroom in a hybrid teacher education course: Teachers' self-efficacy and instructors' practices. *Journal of Research in Innovative Teaching, 9*(1), 78-89.

Dixon, T., Christison, M., Dixon, D. H., & Palmer, A. S. (2021). A meta- analysis of hybrid language instruction and call for future research. *The Modern Language Journal, 105*(4), 792-809. https://doi.org/10.1111/modl.12732

Eker, C., & Atıcı, M. (2023). Uzaktan eğitim sürecinde sanat eğitimi: Uygulamalı derslerin yürütülmesi hakkında öğretim elemanı görüşlerinin incelenmesi [Art education in distance education: Examination of instructor's views on the conduction of applied courses]. *Abant İzzet Baysal University Journal of Faculty of Education, 23*(4), 1620-1637. https://dx.doi.org/10.17240/aibuefd.2023..-1121282

Gherheş, V., Şimon, S., & Para, I. (2021). Analysing students' reasons for keeping their webcams on or off during online classes. *Sustainability, 13*(6), 3203. https://doi.org/10.3390/su13063203

Gurley, L. E. (2018). Educators' preparation to teach, perceived teaching presence, and perceived teaching presence behaviors in blended and online learning environments. *Online Learning, 22*(2), 197-220. https://doi.org/doi:10.24059/olj.v22i2.1255

Hodges, C.B., Moore, S.L., Lockee, B.B., Trust, T., and Bond, M.A. (2020, March 27). The difference between emergency remote teaching and online learning. *EDUCAUSE Review*. https://tinyurl.com/rekxcrq

Hooft Graafland, J. (2018, September 12). *New technologies and 21st century children: Recent trends and outcomes* (OECD Education Working Papers No. 179). OECD Publishing. http://dx.doi.org/10.1787/e071a505-en

Howard, S., Tondeur, J., Hutchison, N., Scherer, R., & Siddiq, F. (2022). A t(r)opical journey: Using text mining to explore teachers' experiences in the Great Online Transition. In E. Langran (Ed.), *Proceedings of Society for Information Technology & Teacher Education International Conference* (pp. 930-935). USA: Association for the Advancement of Computing in Education (AACE).

Karadağ, E., Çiftçi, S. K., Gök, R., Su, A., Ergin-Kocatürk, H., & Çiftçi, Ş. S. (2021). Covid-19 pandemisi sürecince üniversitelerin uzaktan eğitim kapasiteleri [Distance education capacities of universities during the Covid-19 pandemic process]. *Journal of University Research, 4*(1), 8-22. http://dx.doi.org/10.26701/uad.874799

Karagözoğlu, N., & Gezer, U. (2022). An investigation of the relationship between digital literacy levels of social studies teacher candidates and their attitudes towards distance education. *Educational Policy Analysis and Strategic Research, 17*(1), 218-235. http://dx.doi.org/10.29329/epasr.2022.248.11

Koi-Akrofi, G. Y., Owusu-Oware, E., & Tanye, H. (2020). Challenges of distance, blended, and online learning: A literature-based approach. *International Journal on Integrating Technology in Education, 9*(4), 17-39. https://doi.org/10.5121/ijite.2020.9403

König, J., Jäger-Biela, D. J., & Glutsch, N. (2020). Adapting to online teaching during COVID-19 school closure: teacher education and teacher competence effects among early career teachers in Germany. *European journal of teacher education, 43*(4), 608-622. https://doi.org/10.1080/02619768.2020.1809650

Kuleto, V., Ilić, M. P., Šević, N. P., Ranković, M., Stojaković, D., & Dobrilović, M. (2021). Factors affecting the efficiency of teaching process in higher education in the Republic of Serbia during COVID-19. *Sustainability, 13*(23), 12935. https://doi.org/10.3390/su132312935

Kumagai, Y. (2023). Moving from physical to virtual learning spaces: Learning a foreign language during the COVID-19 pandemic in a Zoom classroom. In S. Völkel and N. Nassenstein (Eds.), *Performative linguistic space: Ethnographies of spatial politics and dynamic linguistic practices*, (pp. 93-121). Berlin: De Gruyter.

Kusuma, P. C., Pahlevi, M. R., & Saefullah, H. (2021). EFL teachers' perception towards online classroom interaction during COVID-19 pandemic. *ETERNAL (English Teaching Journal), 12*(2), 68-79.

Lin, O. (2008). Student views of hybrid learning: A one-year exploratory study. *Journal of Computing in Teacher Education, 25*(2), 57-66. https://doi.org/10.1080/10402454.2008.10784610

Linder, K. E. (2017). Fundamentals of hybrid teaching and learning. *New Directions for Teaching and Learning, 2017*(149), 11-18. https://doi.org/10.1002/tl.20222

Moskal, P. D. (2017). Evaluating the outcomes and impact of hybrid courses. *New Directions for Teaching and Learning, 2017*(149), 19-26. https://doi.org/10.1002/tl.20223

Mumford, S., & Dikilitaş, K. (2020). Pre-service language teachers' reflection development through online interaction in a hybrid learning course. *Computers & Education, 144*, 103706. https://doi.org/10.1016/j.compedu.2019.103706

Müller, A. M., Goh, C., Lim, L. Z., & Gao, X. (2021). Covid-19 emergency eLearning and beyond: Experiences and perspectives of university educators. *Education Sciences, 11*(1), 19. https://doi.org/10.3390/educsci11010019

Ngao, A. I., Sang, G., & Kihwele, J. E. (2022). Understanding teacher educators' perceptions and practices about ICT integration in teacher education program. *Education Sciences, 12*(8), 549. https://doi.org/10.3390/educsci12080549

Oblina, B. G. C., Oblina, A. C., & Potane, J. D. (2022). Barriers and merits of hybrid teaching in Vietnam amid Covid-19. *International Journal of Multidisciplinary Research and Publications (IJMRAP), 5*(3), 145-155.

Olapiriyakul, K., & Scher, J. M. (2006). A guide to establishing hybrid learning courses: Employing information technology to create a new learning experience, and a case study. *The Internet and Higher Education, 9*(4), 287-301. http://dx.doi.org/10.1016/j.iheduc.2006.08.001

Rachmadtullah, R., Subandowo, M., Rasmitadila, Humaira, M. A., Aliyyah, R. R., Samsudin, A., & Nurtanto, M. (2020). Use of blended learning with Moodle: Study effectiveness in elementary school teacher education students during the COVID-19 pandemic. *International Journal of Advanced Science and Technology, 29*(7), 3272-3277. http://repository.unida.ac.id/id/eprint/927

Raes, A. (2022). Exploring student and teacher experiences in hybrid learning environments: Does presence matter?. *Postdigital Science and Education, 4*(1), 138-159. https://doi.org/10.1007/s42438-021-00274-0

Roman, M., & Plopeanu, A. P. (2021). The effectiveness of the emergency eLearning during COVID-19 pandemic. The case of higher education in economics in Romania. *International Review of Economics Education, 37*, 100218. https://doi.org/10.1016/j.iree.2021.100218

Saboowala, R., & Manghirmalani Mishra, P. (2021). Readiness of in-service teachers toward a blended learning approach as a learning pedagogy in the post-COVID-19 era. *Journal of Educational Technology Systems, 50*(1), 9-23. https://doi.org/10.1177/00472395211015232

Singh, J., Evans, E., Reed, A., Karch, L., Qualey, K., Singh, L., & Wiersma, H. (2022). Online, hybrid, and face-to-face learning through the eyes of faculty, students, administrators, and instructional designers: Lessons learned and directions for the post-vaccine and post-pandemic/COVID-19 world. Journal of Educational Technology Systems, 50(3), 1-26. https://doi.org/10.1177/00472395211063754

Singh, J., Steele, K., & Singh, L. (2021). Combining the best of online and face-to-face learning: Hybrid and blended learning approach for COVID-19, post-vaccine, & post-pandemic world. *Journal of Educational Technology Systems, 50*(2), 140-171. https://doi.org/10.1177/00472395211047865

Shohel, M. M. C., Roy, G., Ashrafuzzaman, M., & Babu, R. (2022). Teaching and learning in higher education in Bangladesh during the COVID-19 pandemic: Learning from the challenges. *Education Sciences, 12*(12), 857. https://doi.org/10.3390/educsci12120857

Solihati, N., & Mulyono, H. (2017). A hybrid classroom instruction in second language teacher education (SLTE): A critical reflection of teacher educators. *International Journal of Emerging Technologies in Learning, 12*(5), 169-180. https://doi.org/10.3991/ijet.v12i05.6989

Snart, J. A. (2010). *Hybrid Learning: The perils and promise of blending online and face-to-face instruction in higher education*. USA: Praeger.

Swenson, P. W., & Redmond, P. A. (2009). Online, hybrid, and blended coursework and the practice of technology-integrated teaching and learning within teacher education. *Issues in Teacher Education, 18*(2), 3-10.

Şen, O., & Kızılcalıoğlu, G. (2020). COVID-19 pandemi sürecinde üniversite öğrencilerinin ve akademisyenlerin uzaktan öğretime yönelik görüşlerinin belirlenmesi [Determining the views of university students and academics on distance education during the COVID-19 pandemic]. *International Journal of 3D Printing Technologies and Digital Industry, 4*(3), 239-252.

Udeogalanya, V. (2022). Aligning digital literacy and student academic success: Lessons learned from COVID-19 pandemic. *International Journal of Higher Education Management, 8*(2), 54-65.

Van Nuland, S., Mandzuk, D., Tucker Petrick, K., & Cooper, T. (2020). COVID-19 and its effects on teacher education in Ontario: a complex adaptive systems perspective. *Journal of Education for Teaching, 46*(4), 442-451. https://doi.org/10.1080/02607476.2020.1803050

Vininsky, H., & Saxe, A. (2016). The best of both worlds: A proposal for hybrid teacher education. *McGill Journal of Education, 51*(3), 1187-1196. https://doi.org/10.7202/1039635ar

Wut, Tm, & Xu, J. (2021). Person-to-person interactions in online classroom settings under the impact of COVID-19: a social presence theory perspective. *Asia Pacific Education Review, 22*(3), 371-383. https://doi.org/10.1007/s12564-021-09673-1

Yazgan, Ç. Ü. (2022). Attitudes and interaction practices towards distance education during the pandemic. *Education and information technologies, 27*(4), 5349-5364. https://doi.org/10.1007/s10639-021-10843-2

Zhu, X., & Liu, J. (2020). Education in and after Covid-19: Immediate responses and long-term visions. *Postdigital Science and Education, 2*, 695-699. https://doi.org/10.1007/s42438020001263

The Effect of the Socio-Emotional Learning for Professional Development (SEL-PD) Program on Turkish Preservice Teachers' Knowledge and Practices

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Abstract

The use of socio-emotional learning skills in the classroom is one of the most important teacher competencies. Therefore, this study aimed to examine the change in early childhood pre-service teachers' professional perceptions, knowledge, and skills throughout the Socio-Emotional Learning for Professional Development Program which was developed to provide support for pre-service teachers. The sample of this qualitative study consisted of 25 early childhood pre-service teachers who were selected through criterion-based purposeful sampling. They met the criterion of completing the School Experience Course and having ongoing teaching practice at a kindergarten with 3-6-year-old children. Data was collected through the Demographic Information Form and Structured Interview Form. The structured interview form includes questions regarding participants' perceptions of teachers' professional development, emotional socialization responses, their interaction with children, and the program outputs on their professional development. The findings showed that pre-service teachers' perceptions and practices towards professional development and socio-emotional learning have changed positively after the program implementation. Besides, their emotional awareness and emotional socialization skills have been improved. It has been revealed that these changes also improved their classroom practices that they displayed more social-emotional learning skills and less negative emotion socialization behaviors during their classroom practices. Findings were asserted concerning the importance of pre-service teacher training in terms of acquiring socio-emotional learning.

Keywords: Early childhood education, pre-service teachers, professional development, socio-emotional learning.

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Introduction

It is known that in the 21st century, the affective dimension of learning has gained importance as well as the cognitive aspect, and in parallel, teachers' socio-emotional interventions in learning environments have attracted attention (Ahn, 2005; Hargreaves, 2000). If the curriculum and learning environment support social-emotional learning, teachers can focus on teaching social-emotional skills directly or indirectly (Göl-Güven, 2021). The use of socio-emotional learning skills in the classroom has become an important teacher competency in the last decade.

Furthermore, the success of educational systems depends on teachers' qualifications. Therefore, teachers have been placed at the center of reforms and policies implemented in education systems. The most important policies basically cover a series of regulations involving teachers such as teacher training, employment, career development, and professional development opportunities because the most important aspect of learning to be a teacher is that professional development is an ongoing process. There are various concepts used to describe teachers' professional development. Continuous education, professional learning, in-service training, mentoring/coaching, continuous professional development, continuous career development, and lifelong learning are some of them (George & Lubben, 2002; Hoban, 1996; NAEYC, 2011). All of these aim to improve the quality of the teaching and learning process by increasing teacher qualifications. Similarly, Fullan and Hargreaves (1992) highlighted that professional development covers knowledge and skills to improve students' learning opportunities, support teachers as professionals, and make an ecological change that emphasizes the teachers' work environment. The studies emphasize that teachers should actively participate in their own learning and think about their own understanding and practices to ensure professional development (Gujarati, 2018). It has been determined that teachers' learning and levels of strategy use are higher when coaching, study groups, and peer support are used in teachers' professional development programs (Joyce & Showers, 1988).

Buettner et al. (2016) emphasize that teachers have professional responsibilities, and they should be sensitive towards students, so their social and emotional performance in the classroom and the positive social and emotional learning environments they create for children are important and necessary in terms of teacher competencies. Similarly, Denham et al. (2012) state that teachers play an important role in the education and socialization of children by creating social and emotional learning environments in early childhood education institutions. Socio-emotional learning (SEL) skills are necessary for maintaining healthy relationships in any environment (classroom, school, home, work, etc.) where social relations exist. Therefore, it is of great importance for teacher candidates to acquire these skills and teach them to children within the scope of professional development activities.

SEL refers to the acquisition of important skills and qualities related to the social, emotional, and academic development of the individual throughout life, both in school and out of school (Pasi, 2001). The concept of SEL emerged from a new understanding of the nature of biology, emotions, and the relationship of intelligence with success and happiness (Stern, 1999). In general terms, SEL is the development of skills, attitudes, and values for children, young people, and adults to gain social-emotional competence (Elias et al., 1997). In a sense, SEL is the acquisition of basic social-emotional competencies by children and young people to be successful in business and school life (Collaborative for Academic, Social, and Emotional Learning [CASEL], 2005). Notions such as child development, prevention, and emotional intelligence impact the studies related to this concept. SEL seems to be closely related to six basic approaches: emotional intelligence (McCombs, 2004), character education (Novick et al., 2002), multiple intelligence theory (Zins & Wagner, 1997), life skills approach (Greenberg, 2004), and social learning (Frey et al., 2005). Weissberg and Cascarino (2013) define the concept of SEL as "the processes acquiring and implementing effectually the necessary knowledge, attitude, and skills to manage the emotions of children and adults, to set and achieve positive goals, to feel and show empathy toward others, to establish positive relationships and to make responsible decisions" (p.9). CASEL (2017) defined SEL as five basic skill areas: self-management, self-awareness, social awareness, relationship-building skills, and responsible decision-making. Cüntay, Şad Polat, and Bakanay (2020) emphasize that schools are the most important representatives of social ties and routines in children's lives and therefore suggest that children's learning will be easier and more enjoyable in learning environments where SEL skills are established. Meta-analysis studies reveal that including socio-emotional learning skills in the school environment increases academic achievement (Durlak et al., 2011). Studies in the field of early intervention also draw attention to the

importance of supporting children's learning from early ages with SEL skills (Early et al, 2017; Gregory et al., 2017). SEL programs aiming to gain these skills, on the other hand, improve positive behaviors such as emotional understanding, cooperation, self-control, tolerance of frustration, use of effective conflict resolution strategies, and qualities such as planning, mental flexibility, general health, sexual development, and school success (Joseph & Strain, 2003; Sandy & Boardman, 2000).

Children's SEL skills are supported by the curriculum and SEL practices in the schools which are prepared or directed by the teachers (Jones et al, 2013). Therefore, teachers' socio-emotional competence and teaching skills regarding SEL play an important role in integrating SEL in early childhood classrooms. Studies conducted with primary school teachers have shown that teachers' own emotional competencies affect their professional competency perceptions. It has been found that if teachers regulate their own feelings about teaching, they have positive effects on the classroom's emotional climate, their interactions with students and parents, their personal and professional identities, and their ethical practices regarding care and teaching (Sutton, 2004; Yin & Lee, 2012). Research also shows that one of the most important SEL factors affecting the classroom practices of early childhood teachers is the emotions experienced by children (Ahn, 2005). Early childhood teachers experience rich interactions with children in terms of emotional socialization opportunities (Denham et al., 2012). Accordingly, teachers need to learn and use strategies that will support children's social-emotional skills in class.

Studies regarding SEL show the importance of developing teachers' socio-emotional competence and teacher training on SEL (Davis et al., 2021; Schonert-Reichl, 2017; Tran & Nguyen, 2021). These studies consider teachers' needs for a socio-emotional learning curriculum and elaborate on the idea that SEL should be involved in preservice teacher training. The limited number of studies on SEL and teaching skills and strategies involved in early childhood teacher candidates' professional development practices points to an important gap in this field. Therefore, it is considered important to carry out studies to support teachers' SEL skills, to teach current effective strategies, and to understand their needs. On this basis, the Social Emotional Learning for Professional Development (SEL-PD) Program, developed within the scope of this study, aims to improve early childhood teacher candidates' teaching beliefs, knowledge, and practices of socio-emotional learning—as well as indirectly develop children's social-emotional learning skills—throughout the active learning strategies such as coaching, group work, and peer support. Çoban et al. (2019) stated that teacher candidates' meta-emotional awareness improved through the pilot implementations of the SEL-PD Program. Besides, teacher candidates started to use supportive emotional socialization reactions in their practices and their communication with children, and these skills acquired by teacher candidates improved their classroom management abilities.

Research Context and SEL-PD Program

The preschool period is a crucial part of education since critical learning experiences occur in this period. The learning and teaching process in an early childhood environment has strong social, emotional, and academic components and those components are important parts of preservice teacher candidates' professional development. Therefore, it is believed that the socio-emotional learning strategies should be taught as a part of teacher training programs. In Turkey, although the national early childhood education curriculum has embodied social-emotional learning skills, it is not a compulsory course in the teacher training program (Esen Aygün & Şahin Taşkın, 2019). TÜSİAD report (2019) identifies the whole society as the target audience of social-emotional learning skills and states that SEL skills would play a major role in increasing living standards. One of TÜSİAD's noteworthy recommendations is to include the participation of all stakeholders in SEL-based programs, which will be prepared by considering the rights of the child, and to make them a lifelong learning policy that will reflect on school, family, and business life from early childhood. In the report, it was emphasized that practices related to social-emotional learning skills should be included not only in schools but also in all social and educational policies; attention has been drawn to the role of teacher training programs and media tools, especially family and teacher education, in fostering social-emotional learning. Although the 2023 Education Vision Document (MEB, 2019) does not directly emphasize social-emotional learning skills, it is important in that it contains reflections on social-emotional learning principles with its structural and methodological suggestions. In addition, SEL skills were also included in the scope of Teaching Career Steps (MEB, 2022). On this basis, the

current SEL-PD Program has been developed and piloted in various teacher-candidate groups. As a part of a departmental curriculum, SEL-PD, which aims to develop social-emotional learning/ teaching practices of early childhood teacher candidates, was formed.

This training program includes activities to discuss teachers' professional development, teacher identity, emotional awareness for teachers, and emotion coaching skills for responding to children's challenging emotions through psychoeducation and experiential techniques such as play, drama, and art. This program, which has 11 sessions, is considered to improve professional development and socio-emotional learning/teaching practices. Sessions cover certain themes, which are important for gaining supportive teaching and interaction practices. The contents of the first five sessions are as follows respectively; an intro session with an emphasis on the participants' desire to be an early childhood teacher; a metaphoric discussion about the participants' perceptions regarding teaching, and two hands-on activities to raise emotional awareness. In the third session, The Bear Card Activity (Havighurst and Harley, 2010) is used to focus on different aspects of emotions and meta-emotion philosophy. In the fourth session, the Emotion Mask activity adopted from Southam-Gerow (2013) is used to explore emotion regulation techniques and develop empathy. The fifth session continues with a psychoeducation session about the theoretical base of emotion socialization/emotion coaching while the sixth session covers a role-play session about the basic emotion socialization strategies and mechanisms. After that, sessions continue with a reflective supervision session in which participants bring their own examples from the teaching practices and they are trained on emotion coaching responses to anger and anxiety. In the eighth session, participants exercise emotion coaching responses with sample scenarios via a structured worksheet. In the ninth session participants are informed on how to cope with children's negative emotions by using picture story books, breath exercises, The Turtle technique, and The Hand Model of Brain (Siegel, 2010). The tenth session is about children with individual needs, involving watching a movie together and the session covering a discussion on inclusive education. In the last session, a focus group discussion is conducted to explore participants' metacognitions about their beliefs, skills, and knowledge of teaching. This is planned as an evaluation session. Most of the sessions are supported with informative handouts and supportive reading lists.

The Aim of Research

In this context, the study aimed to determine the effect of the professional development program based on the SEL model, which aims to enhance the professional development and teaching competencies of early childhood teacher candidates. In accordance with this purpose, the question "What is the effect of the SEL-PD Program on the competencies of teacher candidates?" will be addressed.

Method

Research Design

As related to the basic purpose of this intervention study, a qualitative case study methodology was employed in order to examine the effectiveness of the SEL-PD program. The qualitative data was collected to test the implementation from the perspective of the participants. According to Creswell (2007), case studies emphasize a systematic process, including the selection of cases, the collection of rich and relevant data, and a rigorous analysis to derive meaningful insights. A case study is a research method and a detailed longitudinal examination of a single individual, group, event, or phenomenon, enabling researchers to gain insights into real-world contexts and the intricacies of the study subject.

Participants

The study group comprises a total of 25 teacher candidates who are enrolled in the 4th year of the preschool teaching department of a public university in Ankara. Criterion-based purposeful sampling which involves selecting cases that meet predetermined criteria of importance was used for sample selection (Patton, 2014). On this basis, all teacher candidates were considered to have completed the School Experience Course and to have ongoing teaching practice at a kindergarten with 3-6-year-old children in the spring term of 2019-2020. Oral consent and the informed assent of all participants were obtained.

Data Collection Tools

The demographic information form covered their age, gender, class level, and the length of their teaching experiences. The structured interview form compiled open-ended questions and was used to conduct interviews with the participants to assess their perceptions of teachers' professional development, emotional socialization responses, and their interaction with children during their practicum and the program outputs on their professional development. Pre and post-interviews were used to assess the effectiveness of the program. The type of questions asked of the participants during the research were, but not limited, as follows: (1) their perceptions about their own professional development level, (2) their own responses to children's emotions, (3) their interaction with children during classroom practice, (4) their point of view throughout the program outputs. Additionally, participants were asked to write individual reflective journals about the sessions and received feedback about those writings.

Procedure

The research process for this study began with the sample selection. As a part of a departmental curriculum, The SEL-PD Program, which aims to develop social-emotional learning/ teaching practices of early childhood teacher candidates was announced and a purposeful sample was identified. Oral consent and the informed assent of all participants were obtained. Additionally, a group protocol was signed to protect participant rights in the group process with an emphasis on confidentiality. Then semi-structured interview forms were presented to the participants to assess their baseline perceptions, practices, and early teacher identities. As the next step, participants attended an 11-session training (SEL-PD Program) which was formed and piloted before the current research (Çoban et al., 2019). The first author directed the group sessions with the supervision of the last author, as explained in the previous chapter. In the last session of the program, a focus group discussion was conducted to explore participants' metacognition about their beliefs, skills, and knowledge. This was an evaluation session and after group interactions were completed, structured interviews were implemented as post-tests to investigate the change in their perceptions and experiences during the program. Additionally, participants were asked to write individual reflective journals about the sessions and received feedback about those writings.

Data Analysis

The findings of this study were derived from the interviews and reflective journals were used to ensure the triangulation. Content analysis was used for analyzing the data. Participants' reflections in the reflective journals were used as supportive evidence to show the change in their beliefs, knowledge, and practices. Representative quotations were presented in the findings. The qualitative data analysis process involved the researchers working on the themes and the data constantly until an inclusive set of major themes was established (Creswell, 2007). The fundamental process in content analysis is to bring together similar data in the context of certain themes and categories to interpret them in a way that the reader can understand them (Yıldırım & Şimşek, 2011). In the second stage; reduced data was used and it was tried to reveal patterns between the data. In this regard, the whole interview data was read by three researchers and analyzed under the codes and the themes generated from the theoretical background of the study scope. In order to ensure reliability, an independent researcher was asked to analyze 15% of the data. Reliability was measured by the technique suggested by Miles and Huberman (1994) as .88 which is an agreeable level for social research.

Findings

The findings obtained as a result of the study were collected in three categories: professional development, social-emotional learning, and program outcomes.
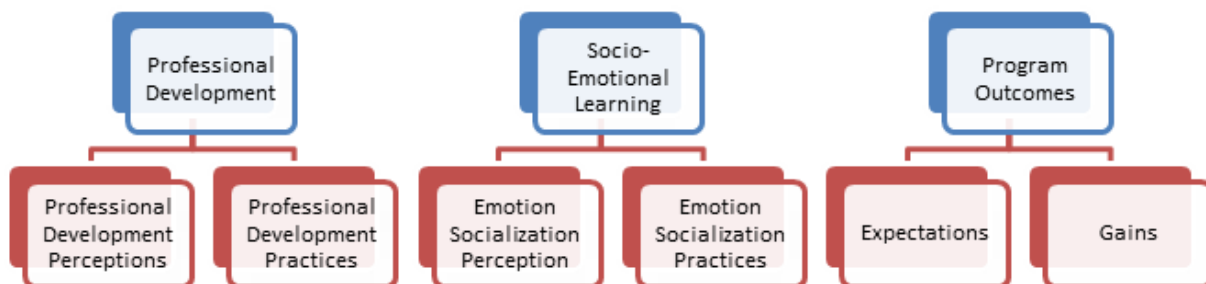
Figure 1. The Themes and Categories Obtained

As can be seen in Figure 1, the findings illustrate the changes in early childhood teacher candidates' perceptions and practices regarding professional development and emotional socialization throughout the program. In addition, the participants expressed their opinions concerning the program's efficacy.

Findings Regarding Professional Development

In the Professional Development category, two sub-themes were reached: 1) professional development perceptions and 2) professional development practices. As can be seen in Figure 2, these categories were preserved before and after the implementation of the SEL-PD Program, but it is seen that the related codes changed after the implementation.
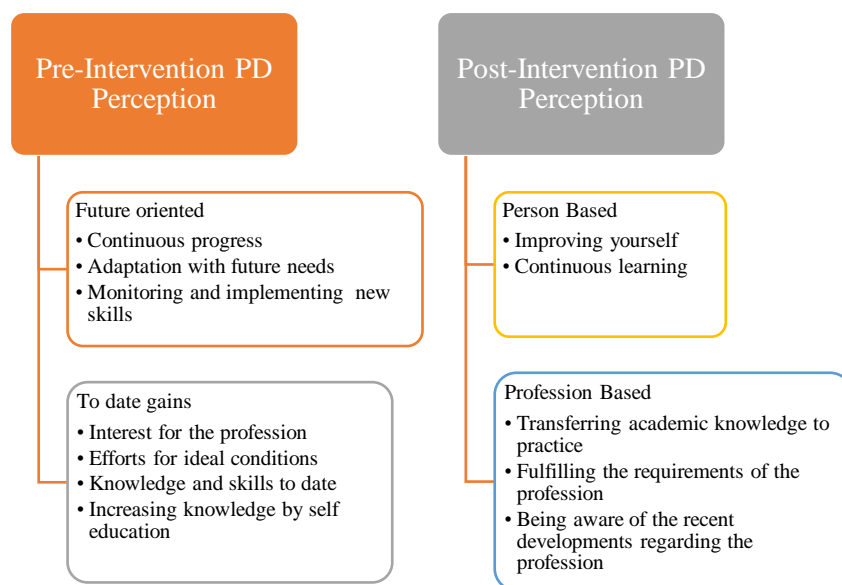
Figure 2. Findings on the Perception of Professional Development

According to Figure 2, the findings show that after the intervention; it was concluded that teacher candidates define professional development as profession-based and person-based. In the pre-tests,

there was a perception that professional development is gained through continuous progress after starting the profession, following the developments in the field, and the theoretical and practical skills acquired during the teacher training process. After the SEL-PD Program, it is seen that the professional development perceptions of teacher candidates are classified into two categories: To improve themselves through continuous learning (person-based), to follow professional developments and to put theoretical knowledge into practice, to acquire competencies required by the profession (profession-based). The statements of the teacher candidates proving this situation are as follows: *"Professional development is the state of understanding how the progress in the profession will continue. TC1" "Professional development means being aware of there are constant things to learn and continuing the learning process. TC6".*
Figure 3, shows the categories and codes of professional development practices of the participants.
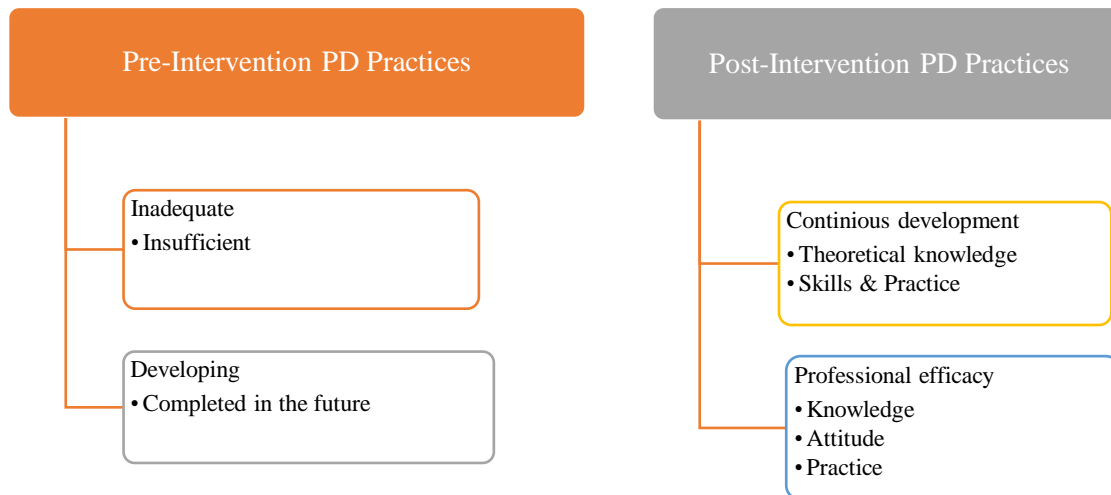
Figure 3. Findings on Professional Development Practices

When the professional development practices of the participant teacher candidates were examined; before the intervention, it was seen that they evaluated their professional development practices according to whether they were sufficient or not, but after the intervention, it was seen that they evaluated them in two categories as continuous development and professional competence. The professional development category includes knowledge-skills-attitude as three sub-dimensions. It was concluded that before the SEL-PD program, most of the participants did not do anything to provide professional development and they foresee providing their professional development in the future. Examples of participant expressions for this situation are as follows: "*After I start my profession, my professional development will progress in the future. T15*", "*My professional development is only theoretical at the moment, I think it will turn into an experience after I started my profession. T3*"
On the other hand, it was seen that after the SEL-PD program, the participants defined professional development practices in two categories: continuous development and professional competence. The teacher candidates stated that their theoretical knowledge improved, they acquired new knowledge and skills and showed positive professional development with their participation in the program. They also stated that they transferred this information into practice. The theme of professional competence includes three sub-dimensions in itself. The teacher candidates emphasize that the emotion socialization and emotion coaching approach they have acquired at the level of knowledge with their participation in the program is effective. In the skill sub-dimension, teacher candidates stated that they were able to reflect the knowledge they obtained into practice, that they were able to manage children's anger, and that they could manage emotion and behavior in their classroom practices. In addition, at the level of attitude; They stated that their motivation for teaching increased, they felt more competent, and they developed a positive attitude towards the profession. Examples of participant statements reflecting this situation are as follows: *"There were models that I learned and applied in this program. Therefore, I consider my own professional development to be 'progressive'. TC1" "In this Program, my professional skills improved as I understood the emotions of children.*

TC8" "I realized my own strength and competencies with this program (...) my self-confidence increased; I feel more competent TC3".

Findings Regarding Socio-Emotional Learning
Another finding obtained from the interviews held before and after the program is the perceptions and experiences of the participants in the social-emotional learning dimension. Under the theme of social-emotional learning, there are two categories: emotion socialization perception and emotion socialization practices which can be seen in Figure 1.

In the Socio-Emotional Learning category, two sub-themes were reached: 1) emotion socialization perceptions and 2) emotion socialization practices. As can be seen in Figure 4, these categories were preserved before and after the implementation of the SEL-PD Program, but it is seen that the related codes changed after the implementation.

Pre-Intervention ES Perception

Socialization of one's emotions
• understanding other people's emotions
• responding to other peopler's emotions

Emotional awareness
• sharing emotions with others
• expressing one's own emotions properly

Post-Intervention ES Perception

Socialization of one's emotions
• mirroring the child's emotions
• responses to child's emotions
• understanding the child's emotions

Emotional awareness
• expressing one's own emotions properly
• recognizing and defining one's own emotions
• regulating emotions

Figure 4. Findings on the Perception of Social-Emotional Learning

According to Figure 4, teacher candidates' perceptions of socializing the emotions of others and recognizing their own emotions changed after the program. Before the program, teacher candidates evaluated the emotion socialization process as understanding and reacting to the emotions of others, but at the end of the program, they detailed the emotion socialization process as being aware of children's negative emotions, reacting, and understanding children's emotions. While teacher candidates saw the process of sharing their own feelings and expressing their feelings as a part of their emotional awareness before the program, they explained the concept of emotional awareness as recognizing, defining, expressing, and regulating their own feelings appropriately at the end of the program.

Pre-Intervention ES Practices	Post-Intervention ES Practices

Negative practices
• annihilating the reason (ignoring)
• presenting entertaining activities (distraction)

Positive practices
• calming
• allowing to express the feeling
• questioning the reason

Supportive emotion socialization
• demonstrating that I understand his/her emotion
• emotion coaching
• labeling and reflecting the emotion
• allowing child to experience his/her emotion
• helping the child to solve the problem

Non supportive emotion socialization
• magnifying by sharing own experiences

Figure 5. Findings on the Practices of Social-Emotional Learning

When the emotion socialization practices of the teacher candidates were evaluated before and after the SEL-PD Program, it was found that their positive emotion socialization experiences remained the same and they used emotion-focused strategies in the socialization of positive emotions. However, it is seen that they have more supportive emotional socialization experiences and use the strategy of ignoring emotions less in the socialization of negative emotions after the SEL-PD Program. It was concluded that after the SEL-PD Program, apart from relieving the children of their negative feelings, the teacher candidates exhibited more emotion-focused attitudes such as showing understanding of the children's emotions, emotion coaching, labeling and reflecting emotion expression and giving the children the opportunity to experience their own emotions. Teacher candidates express this situation as follows: *"First I express the child's emotion verbally and then I accompany that emotion TC3", "I set up a sincere environment for him to express his feelings, I guide him to calm down, I express that I understand him and reflect his feelings."* It was observed that non-supportive emotion socialization strategies decreased after the program, but teacher candidates were able to use the growth strategy by presenting examples to children from their own experiences. Teacher candidates state that they have adopted a more relationship-based approach with children in their classroom interactions and that they are now able to focus on the needs of children, thanks to the socio-emotional learning skills they acquired within the scope of the SEL-PD Program.

Findings Regarding Program Outcome
Within the program outputs category, the pre-tests highlighted the prominence of personal development and professional development sub-themes under the expectations category. Furthermore, in the final tests, in addition to the personal and professional development categories, the group interaction category emerged under the achievements sub-theme. Figure 6 shows the findings of the program outcomes category.

Pre-Intervention Expectations	Personal skills	Self awareness
		Developing social emotional skills
	Professional needs	Guiding children
		Coping with professional anxiety
		Professional development
Post-Intervention Outcomes	Personal skills	Self awareness
		Emotional awareness
		Communication skills
	Professional needs	Instructional/teaching skills
		Self efficacy
		Emotion coaching skills
		Tuning in to children
	Group interactions	Being understood
		Being accepted
		Co-learning

Figure 6. Findings Under the Theme of Program Outcomes

As seen in Figure 6, it is concluded that the themes of personal development and professional development needs are preserved in the final tests in the theme of outputs of the program. In addition, it is seen that the expectation of learning to guide children under the category of professional development needs changed as the acquisition of instructional skills after the SEL-PD Program and group interaction emerged as a new category. In the theme of personal development, during the pre-tests, it was revealed that the expectations of the teacher candidates from the program were met at the end of the program, whose expectations were to get to know themselves, develop professionally, and improve their social and emotional skills. At the end of the program, the participants stated that their communication skills, self-expression levels, and awareness of themselves and their emotions increased and that the program also contributed to their personal lives. In the category of professional development needs, pre-tests drew attention to the professional development needs of teacher candidates; It is seen that they have expectations such as gaining professional knowledge and skills by participating in the program, coping with professional fears and anxieties, recognizing and eliminating their inadequacies, and finding answers to their professional inquiries. When the post-tests were evaluated, teacher candidates stated that they had learned emotional socialization strategies and acquired professional skills by understanding and managing children's emotions and that their sense of self-efficacy increased in classroom processes. Also, in the category of professional development needs, the teacher candidates who drew attention to the needs of guiding children, recognizing children's needs, and coping with children's challenging emotions before the program, drew attention to the progress they noticed in classroom management skills by learning the skills of coping with children's compelling emotions and emotion coaching at the end of the program. The group interaction category that emerged in the final tests indicated that the participants felt understood and accepted in this program which is conducted as an interaction group; It shows that they have the opportunity to learn from each other's experiences. It is seen that the expectations of the participants for a learner-centered professional development program are also met through the SEL-PD Program. As expected, the SEL-PD Program offered learners the opportunity to get to know themselves; It has provided

personal and professional development and has provided personal awareness because of being emotion-oriented.

In summary, it has been determined that the SEL-PD Program has been effective in the professional development needs, social-emotional learning, and teaching skills of teacher candidates and has met their expectations. These findings will be discussed in the following section within the relevant literature.

Discussion, Conclusion, and Suggestions

The findings obtained in this study show the effectiveness of a professional development program developed to support teacher candidates' social-emotional skills. An effective professional development program is expected to have clear objectives, blend theory and practice, support collaborative group learning, and harmonize content and duration (Zaslow et al., 2010). With this aspect, participant views on the SEL Program emphasize the positive qualities of the program. Similarly, in studies on the professional development of teacher candidates in the literature, among the most emphasized principles of professional development include increasing teachers' content and pedagogical knowledge, providing sufficient time and resources, providing solidarity and cooperation, including evaluation processes, being based on teachers' needs, making decisions according to the learners' outcomes, focusing on individual and institutional development, including monitoring and support, being research-based, targeting effective teaching and learning, presenting various stages of change, and providing continuous questioning and reflection (Guskey, 2003). Similar to the features of professional development programs defined in the literature, a structure has been created in the SEL-PD Program that will increase the content knowledge of teacher candidates, allow them to interact with each other, include reflections of the teacher candidates, consider their needs, and allow them to evaluate their skills. Darling-Hammond et al. (2017) identified the elements of effective professional development as content focus, active learning, collaboration, use of examples and modeling, coaching and expert support, feedback and reflection, and sustainability. Studies investigating the effectiveness of the My Teaching Partner Program (University of Virginia, 2012), a professional development program developed for teachers to support children's social-emotional skills within the framework of a coaching model, show that children's social-emotional development progresses by supporting teachers in terms of professional development and that teacher–children interactions increased (Gregory et al., 2017). The positive outcomes of the SEL-PD Program, such as meeting the expectations of teacher candidates, including group interaction and emotion coaching skills, providing coaching and practitioner modeling, constantly reflecting on the teacher candidates, and receiving feedback on their practices, seem to be compatible with the professional development models in the literature.

Evaluation of the findings related to the SEL dimension of the program indicated that teacher candidates showed improvement in terms of emotional awareness and emotional socialization skills. Studies aimed at acquiring SEL skills, especially those related to gaining these skills at an early age, draw attention to the role of the teacher in the development of these skills (Poulou, 2007; Cüntay et al., 2020). The literature shows that early childhood teachers present various situational responses to children's emotions, and these responses can be supportive and non-supportive reactions such as empathy, relief, distraction, focusing on the problem, punishment, and contempt (Ahn, 2005; Ahn & Stifter, 2006). To support emotional awareness, which is one of the important dimensions of SEL, supportive emotional socialization skills offered by adults to children are of great importance. Children and adults can regulate their emotions to the extent that they can understand and recognize their own emotions. Accordingly, in the aforementioned study, teacher candidates could learn and reflect on supportive emotional socialization practices. In fact, Hargreaves (2000) stated that teaching has become a profession with more relational and emotional components. Due to the multidimensional nature of SEL skills, adults can both develop self-awareness and consider the emotions of children. It is thought that the balanced inclusion of these two dimensions in the SEL-PD Program will be effective in terms of teacher candidates' skills acquisition. The studies on teacher emotion socialization assert that early childhood teacher candidates experience rich interactions with children in terms of emotional socialization opportunities and that children's emotions are socialized through modeling, emotional teaching, and situational reactions during these interactions (Ciucci et al., 2018; Denham et al, 2012). Consistent with the literature, this study showed that teacher candidates used

similar situational reactions, and these reactions were shaped in a more supportive way at the end of the program.

Denham et al. (2017) stated that the job stress of teachers affects the emotional socialization responses they offer to children. It has been concluded that early childhood teachers with positive feelings toward the profession are more open to positive emotional experiences and have a higher tendency to support children's socio-emotional development. In parallel with the findings of this study, it has been found that teachers' own emotional competencies affect their professional competency perceptions and that if teachers regulate their feelings about teaching, they have positive effects on the classroom emotional climate, their interactions with students and parents, their personal and professional identities, and their ethical practices regarding care and teaching (Sutton, 2004; Yin & Lee, 2012). Therefore, it is believed that professional development activities that will nurture teachers' positive perceptions and experiences about the profession may affect teachers' workload, self-efficacy perception, and level of consideration for children. The findings of this study also confirm that the teacher candidates gained positive skills through the SEL-PD Program and that they felt more competent in their practices.

Current studies suggest that emotion coaching should be involved in the teacher education process by revealing that teachers' beliefs about their own emotions, their level of acceptance of their emotions, their emotional intelligence, and their level of mindfulness affect the level of considering and ignoring the emotions of children from different levels such as preschool, primary school, and high school (Ülker, 2021; Denham et al., 2012; Ersay, 2015). Gus et al. (2015) claim that discussion and consensus are needed on how to enable personal and professional skills to support frameworks for social and emotional learning in schools and support the idea that emotion coaching could be easily transferred to professional educational environments. In addition, Çoban et al. (2019), in the results of pilot studies of the SEL-PD Program, stated that teacher candidates' meta-emotional awareness improved, they started to use supportive emotional socialization reactions in their teaching practices and communications with children, and the skills they acquired improved their classroom management skills.

This study is important in terms of showing the effect of a professional development program that will enable early childhood teacher candidates to acquire SEL and teaching strategies. Schools have an important role not only in providing cognitive development but also in promoting individuals' social-emotional development (Durlak et al., 2011; Göl Güven, 2021). Roffey (2010) highlights that for successful implementation and integration of intervention programs, a symbiotic relationship is needed between the two educational systems; -school culture and climate, and the social and emotional curriculum for children. Therefore, as the most important shareholders of schools, teachers must improve themselves in terms of SEL, using professional development opportunities. It is also important that teachers should have the opportunity to acquire all these skills from the pre-service years so that they can internalize these skills and have sustainable goals. Considering the critical role of teacher competencies and qualifications in improving child outcomes in early childhood, the significance of professional development becomes highly evident. These kinds of professional development opportunities would affect all children who will be in the teacher's classes in the coming years, thus this ensures the intervention is long-term and large-scale. From this perspective, it becomes important for teacher candidates to have access to SEL-based curriculums or professional development opportunities before starting their careers.

On the other hand, this study has limitations. Qualitative research design was employed in this study and the sample consists of a single study group without a control group. In order to eliminate these limitations, it is recommended to have quasi-experimental research designs with control groups for future studies. Future research could be conducted with teachers, focus on certain child outcomes, and examine the change in learning environments.

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conflict of interest between the authors, that all authors contribute to the study, and that all the responsibility belongs to the article authors in case of any ethical violations.

References

Ahn, H.J. (2005). Teachers' discussions of emotion in child care centers. *Early Childhood Education Journal, 32*(4), 237–242. doi:10.1007/s10643-004-1424-6

Ahn, H.J., & Stifter, C. (2006). Child care teachers' response to children's emotional expression. *Early Education and Development, 17*(2), 253–270. doi:10.1207/s15566935eed1702_3

Buettner, C. K., Jeon, L., Hur, E., &. Garcia, R. E. (2016). Teachers' social–emotional capacity: Factors associated with teachers' responsiveness and professional commitment. *Early Education and Development, 27*(7), 1018-1039. http://doi.org/10.1080/10409289.2016.1168227

CASEL (2005). *Safe and sound an educational leader's guide to evidence-based social and emotional learning (SEL) programs*. Retrieved from https://casel.org/safe-and-sound-guide-to-sel-programs/

CASEL (2017). *Key implementation insights from the collaborating districts initiative.* Retrieved from https://casel.s3.us-east-2.amazonaws.com/CDI-Insights-Report-May.pdf

Ciucci, E,. Baroncelli, A., Toselli, M., & Denham, S.A (2018). Personal and professional emotional characteristics of early childhood teachers and their proneness to communicate with parents and colleagues about children's emotions. *Child & Youth Care Forum*, *47*(2), 303-316. doi:10.1007/s10566-017-9431-0

Creswell, J.W. (2007). *Qualitative inquiry and research design: Choosing among five approaches.* Thousand Oaks, CA: Sage.

Cüntay, S., Şad Polat, C., & Bakanay, E. (2020). *Pandemi süreci ve sonrasında sosyal duygusal öğrenme* [Socio emotional learning during and afterwards of the pandemics]. Sosyal Duygusal Öğrenme Akademisi.

Çoban, A. E., Erdem, A. U., & Iyi, T. I. (2019). Supporting emotion socialization skills of preschool teacher candidates. In *Proceedings of 8th Psychological Applications and Trends Conference*, 145-149. doi: 10.36315/2019inpact036 2019

Darling-Hammond, L., Hyler, M.E., & Gardner, M (2017). *Effective teacher professional development.* Palo Alto, CA: Learning Policy Institute. Retrieved from https://learningpolicyinstitute.org/sites/default/files/productfiles/Effective_Teacher_Professional_Development_REPORT.pdf

Davis, K., Hammett, R., Seagraves-Robinson, T., Christian, D.D., & Low, G. (2021). Social-emotional learning: a framework for practice and pedagogy. *AI Practitioner, 23*(4), 92-101.

Denham, S.A., Bassett, H.H., & Miller, S.L (2017). Early childhood teachers' socialization of emotion: Contextual and individual contributors. *Child & Youth Care Forum, 46*(6), 805-824. doi:10.1007/s10566-017-9409-y

Denham, S.A., Bassett, H.H., & Zinsser, K (2012). Early childhood teachers as socializers of young children's emotional competence. *Early Childhood Education Journal, 40*(3), 137–143. doi:10.1007/s10643-012-0504-2

Durlak, J.A., Weissberg, R.P., Dymnicki, A.B., Taylor, R.D., & Schellinger, K.B (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, *82*(1), 405-432. doi:10.1111/j.1467-8624.2010.01564.x

Early, D.M., Maxwell, K.L., Ponder, B.D., & Pan, Y. (2017). Improving teacher-child interactions: A randomized controlled trial of Making the Most of Classroom Interactions and My Teaching Partner professional development models. *Early Childhood Research Quarterly*, *38*(1), 57-70. doi:10.1016/j.ecresq.2016.08.005

Elias, M.J., Zins, J.E., Weissberg, T.P., Frey, K.S., Greenberg, M.T., Haynes, N.M., & Shriver, T.P (1997). *Promoting Social and Emotional Learning: Guidelines for Educators*. Alexandria, VA: Association for Supervision and Curriculum Development. Retrieved from http://www.ascd.org/publications/books/197157E4/chapters/The-Need-for-Social-and-Emotional-Learning.aspx

Ersay, E. (2015). Preschool teachers' emotional awareness levels and their responses to children's negative emotions. *Procedia-Social and Behavioral Sciences*, *191*(2015), 1833-1837. doi:10.1016/j.sbspro.2015.04.220

Esen Aygün, H., & Şahin Taşkın, Ç. (2019). Öğretmen adaylarının öğretmenlik uygulaması kapsamında bilişsel esnekliğe ilişkin görüşleri. *Eğitimde Nitel Araştırmalar Dergisi*, *7*(4), 1475-1499. doi:10.14689/issn.2148-2624.1.7c.4s.8m

Frey, K.S., Nolen, S.B., Van Schoiack Edstro, L., & Hirschstein, M.K (2005). Effects of a school-based social-emotional competence program: Linking children's goals, attributions, and behavior. *Applied Developmental Psychology, 26*(2), 171-200. doi:10.1016/j.appdev.2004.12.002

Fullen, M., & Hargreaves, A. (1992). Teacher development and educational change. In M. Fullan & A. Hargreaves (Eds.), *Teacher development and educational change* (pp. 1-9). London: Routledge.

George, J.M., & Lubben, F. (2002) Facilitating teachers' professional growth through their involvement in creating context-based materials in science. *International Journal of Educational Development*, *22* (6), 659-672. doi:10.1016/S0738-0593(01)00033-5

Greenberg, M.T. (2004). Current and future challenges in school-based prevention: The researcher perspective. *Prevention Science*, *5*(1), 5-13. doi:10.1023/b:prev.0000013976.84939.55

Gregory, A., Ruzek, E., Hafen, C.A., Mikami, A.Y., Allen, J.P., & Pianta, R.C. (2017). My teaching partner-secondary: A video-based coaching model.*Theory Into Practice*, *56*(1), 38-45. doi:10.1080/00405841.2016.1260402

Göl-Güven, M. (2021). *Çocuklukta sosyal duygusal öğrenme*. İstanbul: Yeni İnsan Yayınevi.

Gujarati, J. (2018). Taking action: (Re)imagining professional development through the teacher research project. *Inquiry in Education*, *10*(2), 1-19.

Gus, L., Rose, J., & Gilbert, L. (2015). Emotion coaching: A universal strategy for supporting and promoting sustainable emotional and behavioural well-being.*Educational & Child Psychology*, *32*(1), 31-41.

Guskey, T.R. (2003). What makes professional development effective?. *Phi Delta Kappan*, *84*(10), 748-750. doi:10.1177/003172170308401007

Hargreaves, A. (2000). Mixed emotions: Teachers' perceptions of their interactions with students. *Teaching and Teacher Education*, *16*(8), 811-826. doi:10.1016/S0742-051X(00)00028-7

Havighurst, S., & Harley, A. (2007). *Tuning in to kids: Emotionally intelligent parenting: Program manual*. Melbourne: University of Melbourne.

Hoban, G. (1996). *A professional development model based on interrelated principles of teacher learning* (Unpublished doctoral thesis). University of British Columbia, Vancouver.

Jones, S. M., Bouffard, S. M., & Weissbourd, R. (2013). Educators' social and emotional skills are vital to learning. *Phi Delta Kappan, 94*(8), 62-65.

Joseph, G. E., & Strain, P. S. (2003). Comprehensive evidence-based social emotional curricula for young children: An analysis of efficacious adoption potential. *Topics in Early Childhood Special Education*, *23*(2), 62-73. https://doi.org/10.1177%2F02711214030230020201

Joyce, R.B., & Showers, B. (1988). *Student achievement through staff development.* USA: Longman.

McCombs, B.L. (2004). The learner-centered psychological principles: A framework for balancing academic achievement and social-emotional learning outcomes. In J. E. Zins R. P. Weissberg, M. C. Wang & H. J. Walberg (Eds.), *Building academic success on social and emotional learning what does the research say?* (pp. 23-29). USA: Teacher College Press.

Milli Eğitim Bakanlığı [MEB] (2022). *Başöğretmenlik yetiştirme programı*. Ankara: Meb Basımevi.

Milli Eğitim Bakanlığı [MEB] (2019). *MEB 2023 eğitim vizyon belgesi*. Ankara: Meb Basımevi.

Miles, M.B., & Huberman, A.M. (1994). *Qualitative data analysis: An expanded sourcebook*. USA: Sage Publications.

National Association For The Education Of Young Children (NAEYC). (2011). *Early childhood education professional development: Training and technical assistance glossary*. Washington, DC.

Novick, B., Kress, J.S., & Elias, M.J. (2002). *Building learning communities with character: How to integrate academic, social, and emotional learning*. USA: ASCD Publications.

Pasi, R.J. (2001). *Higher expectations: Promoting social-emotional learning and academic achievement in your school*. USA: Teachers College Press.

Poulou, M. (2007). Social resilience within a social and emotional learning framework: The perceptions of teachers in Greece. *Emotional and Behavioural Difficulties*, *12*(2), 91-104. doi:10.1080/13632750701315482

Patton, M.Q. (2014). *Nitel araştırma ve değerlendirme yöntemleri.* (Mesut Bütün & Selçuk Beşir Demir, Trans.). Ankara: Pegem Akademi. (Original work published 2001).

Roffey, S. (2010). Content and context for learning relationships: A cohesive framework for individual and whole school development. *Educational & Child Psychology, 27*(1), 156–167.

Sandy, S. V., & Boardman, S. K. (2000). The peaceful kids conflict resolution program. *International Journal of Conflict Management*, *11*(4), 337-357. https://doi.org/10.1108/eb022845

Schonert-Reichl, K. A. (2017). Social and emotional learning and teachers. *The Future of Children,* *27*(1), 137-155.

Siegel, D. (2010). *Mindsight: Transform your brain with the new science of kindness*. NY: Bantam Books Trade Paperbacks.

Southam-Gerow, M.A. (2013). *Emotion regulation in children and adolescents: A practitioner's guide*. NY: Guilford Press.

Stern, R. (1999). Hormone-driven kids: A call for social and emotional learning in the middle school years. *Voices from the Middle*, *7*(1), 3-8.

Sutton, R.E. (2004). Teaching under high-stakes testing: Dilemmas and decisions of a teacher educator. *Journal of Teacher Education*, *55*(5), 463-475. doi:10.1177/0022487104270186

Tran, T. N., & Nguyen, T. D. H. (2021). Literature review of social-emotional competence: approach to professional standards of preschool teachers. *In Proceedings of 1st Hanoi Forum on Pedagogical and Educational Sciences*, 550-562.

Türk Sanayicileri ve İş İnsanları Derneği [TÜSİAD] (2019). *Sosyal ve duygusal öğrenme becerileri: Yeni sanayi devriminin eşiğinde iş ve yaşam yetkinliklerinin anahtarı.* Retrieved from https://tusiad.org/tr/yayinlar/raporlar/item/10450-sosyal-ve-duygusal-ogrenme-becerileri

University of Virginia (2012). *My teaching partner*. Retrieved from https://education.virginia.edu/myteachingpartner

Uygun, S., Ergen, G., & Öztürk, I.H. (2011). A comparison between practical training programs in teacher education in Turkey, Germany, and France. *Elementary Education Online, 10*(2), 389-405.

Ülker, A. (2021). Sosyal duygusal gelişimin kesişim noktası 6: Duygu sosyalleştirme ve duygu koçluğu uygulamaları. In H. Gülay Ogelman (Ed.) *Sosyal ve duygusal gelişim* (pp. 587-623). Ankara: Eğiten Kitap

Weissberg, R.P., & Cascarino, J. (2013). Academic learning + social-emotional learning = national priority. *Phi Delta Kappan*, *95*(2), 8-13.

Yıldırım, A., & Şimşek, H. (2011). *Sosyal Bilimlerde Nitel Araştırma Yöntemleri*. Akara: Seçkin Publishing.

Yin, H.B., & Lee, J.C.K. (2012). Be passionate, but be rational as well: Emotional rules for Chinese teachers' work. *Teaching and Teacher Education*, *28*(1), 56-65. doi:10.1016/j.tate.2011.08.005

Zaslow, M., Tout, K., Halle, T., Whittaker, J.V., & Lavelle, B. (2010). *Toward the identification of features of effective professional development for early childhood educators. Literature review*. US Department of Education. Retrieved from https://files.eric.ed.gov/fulltext/ED527140.pdf

Zins, J.E., & Wagner, D.I. (1997). Educating children and youth for psychological competence. In R.J. Illback & C.T. Cobb (Eds.), *Integrated services for children and families: opportunities for psychological practice* (pp.137-156). USA: American Psychological Association.

Examination of Science Teachers' Burnout Levels in Terms of School Climate and Various Variables

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Abstract

The burnout levels of science teachers hold significant implications for both educators and students. Burnout can evolve in response to significant social events or be influenced by various variables. In this context, the objective of this study is to examine the burnout levels of science teachers, taking into account factors such as gender, age, length of service, and working time in the institution, with a particular focus on the perception of the school climate. The study adopted a descriptive survey model, utilizing a convenience sampling method, and involved 182 science teachers employed in Adana province. Data collection instruments encompassed the "School Climate Survey" and the "Maslach Burnout Inventory", along with their sub-dimensions. Data were gathered through a face-to-face survey conducted by one of the researchers following rigorous efforts. The results showed that the burnout levels of science teachers were relatively low. In addition, when evaluated in general in terms of all the variables examined, it was determined that all averages in the dimension of emotional exhaustion, one of the three sub-dimensions of burnout, were always higher, while the values in the dimension of depersonalization were always lower. Although it varied according to gender, age, length of service, and working time in the institution, it was found that burnout differed either in the overall scale or in at least one sub-dimension. Notably, science teachers with a low perception of the school climate experienced significantly higher burnout levels across the overall school climate scale, encompassing all sub-dimensions of burnout. While this pattern varied within sub-dimensions of school climate perception, dimensions exhibiting significant differences also favored those with lower climate perception. In the final section of the study, various recommendations are presented in light of these findings.

Keywords: Science teachers, burnout levels, school climate

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Introduction

Healthy and contented teachers play a crucial role in enhancing student achievement (Brasfield et al., 2019). Despite finding their profession rewarding and satisfying, teachers can often face stressors arising from inadequate working conditions, student disciplinary issues, and time constraints (Zhu et al., 2018). Schaufeli and Enzmann (1998) stated that long-term stress can lead to burnout in individuals. They define burnout as a psychological condition marked by emotional exhaustion, depersonalization, and diminished personal accomplishment, which may manifest when individuals collaborate in work settings. Specifically, emotional exhaustion signifies the exhaustion of one's emotional reservoirs; depersonalization involves adopting a detached attitude toward colleagues; and a loss of personal accomplishment reflects feelings of ineffectiveness and inadequacy in job performance and work-related situations (Togia, 2005). Teacher burnout can be attributed to several factors, including excessive workloads, conflicting demands, an imbalance between effort and rewards, dysfunctional school-organizational relations, role conflicts or uncertainties regarding work tasks, and the prevalence of students with behavioral disorders (Räsänen et al., 2022). Importantly, when teachers experience burnout, it can detrimentally impact student achievement. Teacher burnout not only negatively affects students' physical and emotional well-being but also hampers their academic success, ultimately creating an unfavorable classroom atmosphere (Çelik & Kahraman, 2019). Considering the adverse repercussions of teacher burnout on teachers, students, educational institutions, and society as a whole, it is imperative to allocate greater attention to factors associated with teacher burnout (Saloviita & Pakarinen, 2021). Furthermore, teacher burnout may also exert an influence on motivation (Cengiz et al., 2023). Given the significance of science education in both the educational context and national development, it is essential to prioritize the investigation of teacher burnout levels and the underlying causes among those who are responsible for bridging the gap between science education and everyday life.

Certain demographic characteristics are known to contribute to burnout among teachers, as evidenced in the literature (Aydın et al., 2022). These factors include gender, age, length of service, and working time in the institution. When the gender variable is evaluated, the rates of adopting teacher identity may differ in both genders. Societal perceptions may lead to a slightly higher prevalence of teacher identity among women (Uçar-Çelebi, 2018). However, women's increased professional responsibilities and dedication may also heighten their susceptibility to burnout. Additionally, emphasizing gender disparities within the family may further exacerbate the impact of gender on burnout (Gündüz, 2016).

In terms of the age variable, different age levels may have different effects on individuals. Especially in the younger age group, a lack of perceived competence and an inability to manage responsibilities may contribute to burnout (Gündüz, 2016). On the other hand, the fact that individuals are in the young age group may cause them to approach the profession more idealistically and thus increase their motivation. In the older age group, individuals may have more knowledge about coping with problems. On the other hand, individuals with excessive responsibility may feel burnout. And they may get tired of constantly solving problems (Özipek-Karabıyık, 2006).

The length of service can have both positive and negative implications for burnout. Prolonged service may lead to a decline in professional enthusiasm, a reduced focus on improving working conditions, and lower expectations, potentially contributing to burnout (Acar, 2020). However, extended tenure in an institution can also foster greater adherence to institutional norms and promote a more balanced and patient attitude (Tekin-Yenigün, 2021). Conversely, working in an unsupportive or oppressive institutional environment for an extended period can lead to burnout, especially if professional satisfaction is lacking (Koç & Doğan, 2022). A review of relevant literature reveals numerous studies investigating the relationship between demographic variables and burnout among science teachers. Among these, Tatar and Aslan (2020) found a difference between length of service and burnout level in a study conducted with science teachers. In contrast, Kılınç's (2018) study with science teachers found no significant correlations between burnout and gender, seniority, age, marital status, weekly course load, or place of employment. Yıldırım (2019) examined age and gender variables in his study with science teachers and determined that they may affect burnout levels at the end of the research. Arslan (2020) determined that the length of service will affect burnout as a result of his study with science teachers.

When the literature is examined from a broader perspective, it is evident that studies have been conducted on many other factors that may affect teacher burnout. These are psychological empowerment (Okan & Yılmaz, 2017), professional social support levels (Gökhan & Kılıç, 2023), professional satisfaction levels (Korkutan & Tekin, 2017), attitude towards unwanted student behaviors (Hanedar & Öçalan, 2018), colleagues (Emre-Erden & Kılınç, 2021), daily rhythm preference and sleep variable (Yurduseven & Önder, 2019), professional burnout and psychological well-being (Söner & Yılmaz, 2020), toxic leadership behaviors of school principals (Ordu & Çetinkaya, 2018), teachers' positive psychological capital perceptions (Oral et al., 2017), organizational alienation tendencies (Örücü et al., 2022), life satisfaction (Çelik & Üstüner, 2018), organizational socialization (Baş & Coşkun, 2020), self-efficacy (Tokmak, 2018), perfectionism levels (Sancar et al., 2021). There are also studies (Dönük & Bindak, 2022; Kocaoğlu & Demirdağ, 2022) on school climate.

The concept of school climate organization is one of the important factors affecting burnout (Kocaoğlu & Demirdağ, 2022). Organizations are structures formed by multiple individuals to achieve specific objectives within a social framework. Considering the attributes of organizations, it can be said that schools with a bureaucratic structure where responsibility and authority are distributed hierarchically are also organizations (Hoy et al., 1991). The comprehensive concept that encompasses interpersonal, organizational, and instructional dimensions, ultimately shaping the quality of interactions within a school, is termed "school climate" (Hoy et al., 1991). School climate is the relationship between all stakeholders in the school—students, teachers, parents, and administrators—and the feelings that develop as a result of this relationship (Kaplan & Geoffroy, 1990). Teachers' daily interactions with students and colleagues make social relationships pivotal to their work (Pyhältö et al., 2021). According to Bayat (2015), a school's climate encompasses all the distinctive characteristics that set it apart from others. As per Balcı (2013), who defines school climate as the lifestyle cultivated by a school over time, it's appropriate to view school climate as the school's personality.

A review of studies specifically focused on science teachers reveals research concerning burnout levels and their causes (Tatar & Arslan, 2020), the examination of burnout levels in terms of some variables (Kılınç, 2018), the relationship between burnout levels and job satisfaction (Yıldırım, 2019), the levels of burnout with the use of new methods and techniques (Okumuşoğlu & Geçikli, 2021), and the relationship between daily rhythm preferences and sleep patterns on burnout (Yurduseven & Önder, 2019). Additionally, there is substantial evidence suggesting that social relationships within the context of school climate can contribute significantly to teachers' well-being (Berkovich & Eyal, 2018). Furthermore, positive relationships with colleagues have been demonstrated to alleviate teacher stress, while research has highlighted that a weak sense of community and disruptive tensions in social interactions, both with students and colleagues, are associated with teacher burnout (Pyhältö et al., 2021). Research on the relationship between school climate and teacher burnout has involved various groups, including mathematics teachers (Dönük & Bindak, 2022), classroom teachers (Bayat, 2015), secondary school students (Şahin, 2020), and school administrators (Kocaoğlu & Demirdağ, 2022). However, there is a notable absence of research specifically examining burnout among science teachers within the context of school climate. Given this gap in knowledge, the main goal of this research is to explore the levels of burnout syndrome experienced by science teachers in relation to several key variables, with a particular focus on school climate perception. In this regard, the study is directed by the subsequent research questions:

1. Is there a significant difference in teachers' burnout levels according to gender?
2. Is there a significant difference in teachers' burnout levels according to age?
3. Is there a significant difference in teachers' burnout levels according to length of service?
4. Is there a significant difference in teachers' burnout levels according to their working time in their institutions?
5. Is there a significant difference in teachers' burnout levels according to school climate perception?

Method

In this study, the descriptive survey method was used to examine the burnout levels of science teachers in terms of gender, age, total length of service, working time in the institution, and school climate perceptions.

Participants

The study group for this convenience sampling research consisted of science teachers working in secondary schools affiliated with the Ministry of National Education (MoNE) in Adana province in the 2021–2022 academic year. A total of 182 teachers participated in the study. Various characteristics of the science teachers participating in the study are given in Table 1.

Table 1.
Characteristics of Participants

Variable	Group	*N*	*%*
Gender	Female	111	61.0
	Male	71	39.0
Age	40 years or under	92	50.5
	41 years or older	90	49.5
Length of service	Under 16 years	89	48.9
	16 years or over	93	51.1
Working time in the institution	Under 5 years	86	47.3
	5 years or over	96	52.7
School climate perception	Below 3 points	82	45.1
	3 points or above	100	54.9

When Table 1 is analyzed, it is seen that the teachers participating in the study are predominantly female (61.0%). In terms of the age variable, the cut-off value determined to divide the participants into two groups with approximately the same number of participants was 40, and those who were "40 years of age or under" constituted 50.5% of the whole group. When compared according to the length of service, it was found that the group with "under 16 years" and the group with "16 years or over" were at approximately the same rate. In terms of working time in the institution, it was understood that the proportion of the group of teachers with "5 years or over" (52.7%) was slightly higher. When the participant science teachers were grouped according to their perceptions of school climate, it was observed that slightly more teachers (100) had item response averages of "3 points or above" (high in terms of school climate perception) than those with lower perceptions of school climate.

Data Collection Tools

Maslach Burnout Inventory (MBI) and School Climate Survey (SCS) were used as data collection tools.

Maslach Burnout Inventory

The MBI used in the study was developed by Maslach and Jackson (1981) to measure aspects of burnout syndrome. Çam (1993) first adapted this inventory into Turkish to determine the burnout level of healthcare workers. Validity and reliability studies were conducted. The 22 items of the MBI used in this study were obtained from the study conducted by Gündüz (2006). These items are of the five-point Likert type and are graded from one to five. Gündüz (2006) determined that the MBI has three sub-dimensions: emotional exhaustion, depersonalization, and personal accomplishment. All seven items in the personal accomplishment dimension are negative. The Cronbach's alpha reliability coefficients calculated by Gündüz (2006) are given in the "original (*α*)" column in Table 2, and the items constituting the dimensions are given in the "items-original" column.

Table 2.
Original and New Versions of MBI Items and Alpha Values

Dimension	Items-Original	Original (*α*)	Items-New	New (*α*)
Emotional exhaustion	1, 2, 3, 6, 8, 13, 14, 16, 20	.85	1, 2, 3, 6, 8, 13, 14, 16, 20	.87
Depersonalization	5, 10, 11, 15, 22	.65	5, 10, 11, 15, **21**, 22	.77
Personal accomplishment	4, 7, 9, 12, 17, 18, 19, 21	.73	4, 7, 9, 12, 17, 18, 19	.81

This study also involved factor analysis, revealing that scale items were loaded onto three factors. Notably, Item 21, highlighted in Table 2, shifted to the depersonalization dimension instead of personal accomplishment. This is because the composure in this item, "I deal with emotional problems in my job with composure", was perceived as depersonalization rather than accomplishment by the participants of

this study. The reliability values calculated according to these new item groupings are presented in Table 2, and sample items for each sub-dimension are given in Table 3. Parallel to the increase in dimension-based reliability values, Cronbach's alpha coefficient for the overall scale was calculated as .91.

Table 3.
Sample Items for Each Dimension of the MBI

Dimension	Sample Items
Emotional exhaustion	1. I feel emotionally drained from my work.
	8. I feel burned out from my work.
Depersonalization	5. I feel I treat some students as if they were impersonal objects.
	10. I've become more callous toward people since I took this job.
Personal accomplishment	4. I can easily understand how my students feel about things.
	17. I can easily create a relaxed atmosphere with my students.

School Climate Survey

To assess science teachers' perceptions of the organizational climate, we utilized the SCS, originally developed by Hoy et al. (1991). Adapted from Şenel's (2015) study, the original 42-item scale was reduced to 35 items through factor analysis. The items on the five-point Likert-type scale were rated from one to five. Şenel's (2015) factor analysis revealed that the scale comprised six dimensions. The items related to principal behaviors, totaling 19 items, were categorized into three dimensions: supportive, directive, and restrictive. Meanwhile, the items pertaining to teacher behaviors, totaling 16 items, were grouped into three dimensions: collegial, intimate, and disengaged. Table 4 provides the names of these dimensions, the corresponding items, and their Cronbach's alpha reliability values.

Table 4.
Original and New Versions of SCS Items and Alpha Values

Dimension	Items-Original	Original (α)	Items-New	New (α)
Supportive principal	3, 6, 12, 13, 19, 20, 24, 25, 35	.93	3, 6, 12, 13, **14**, 19, 20, **21**, 24, 25, 35	.95
Directive principal	7, 14, 21, 26, 29, 30, 34	.81	7, 26, 29, 30, 34	.86
Restrictive principal	8, 15, 31	.67	8, 15, 31	.57
Collegial teacher	1, 9, 16, 22, 27, 33	.71	1, 9, 16, **17**, 22, **23**, 27, **32**, 33	.88
Intimate teacher	2, 4, 10, 17, 23, 28, 32	.84	2, 4, 10, 28	.71
Disengaged teacher	5, 11, 18	.58	5, 11, 18	.58

In our study, the factor analysis also identified three dimensions for both principal and teacher behaviors. However, among the five bolded items in Table 4, items 14 and 21 were perceived as indicative of supportive principal behaviors rather than directive principal behaviors. Additionally, three bolded items (17, 23, and 32) were considered representative of collegial teacher behaviors rather than intimate teacher behaviors by the participating science teachers. All other items remained within their respective factors. Şenel (2015) determined the Cronbach alpha reliability coefficient of the scale as .90. In this study, it was found to be .92. The recalculated Cronbach's alpha reliability coefficients for all sub-dimensions and the previously calculated values are given in Table 4, and sample items for each sub-dimension of the SCS are presented in Table 5.

Table 5.
Sample Items for Each Dimension of the SCS

Dimension	Sample Items
Supportive principal	3. The principal goes out of his or her way to help teachers.
Directive principal	26. The principal closely checks teacher activities.
Restrictive principal	8. Routine duties interfere with the job of teaching.
Collegial teacher	16. Teachers help and support each other.
Intimate teacher	10. Teachers know the family backgrounds of other teachers.
Disengaged teacher	5. There is a minority group of teachers who always oppose the majority.

Data Collection Procedure

The data collection process was conducted rigorously and ethically, with prior approval from the ethics committee and under the supervision of the MoNE. In the context of data collection, the survey technique was used. With the data collection tools used, the participants answered the MBI and SCS, respectively. However, before starting to answer, one of the researchers gave information about the study and explained the instructions for the scales. In particular, it was stated that participation was voluntary, and the participants voluntarily participated in the study. The data collection tools were administered manually and took approximately 25 minutes to complete. After a concerted effort, data were collected from a total of 184 teachers.

Data Analysis

First, all data were transferred to a computer environment for data cleaning. Upon examination, it was found that only six participating teachers had missing data. The percentage values of the missing data in the items on both scales were below 5%, so the missing data were filled by giving the serial averages of the items. To identify and analyze outlier data, separate box and whisker plots were generated for each variable. Consequently, the data from two teachers who exhibited multiple extreme outliers across different variables were excluded from the study. After the kurtosis and skewness values were checked and confirmed, and the box plot diagrams were checked again, the analysis of the study continued with the data of the remaining 182 teachers. Finally, independent samples t-tests were conducted to examine the burnout levels of science teachers according to gender, age, length of service, working time in the institution, and school climate perception variables, whose categories are expressed in Table 1.

Findings

Table 6 summarizes the descriptive findings related to the burnout levels of science teachers in terms of gender, age, length of service, working time in the institution, and school climate perception variables.

Table 6.
Mean Scores in MBI and Its Dimensions According to Variables

Variable	Group	Emotional Exhaustion	Depersonalization	Personal Accomplishment	MBI
Gender	Female	2.46	1.74	2.02	2.12
	Male	2.18	1.55	2.01	1.96
Age	40 years or under	2.46	1.78	2.11	2.16
	41 years or older	2.24	1.55	1.92	1.95
Length of service	Under 16 years	2.42	1.77	2.14	2.16
	16 years or over	2.28	1.57	1.90	1.96
Working time in the institution	Under 5 years	2.48	1.80	2.11	2.18
	5 years or over	2.24	1.55	1.93	1.95
School climate perception	Below 3 points	2.64	1.91	2.22	2.30
	3 points or above	2.12	1.47	1.85	1.86

Table 6 shows that female science teachers have higher levels of burnout than male science teachers. This was evident in the mean scores of the MBI and its sub-dimensions, which were higher for female teachers than male teachers. In terms of the age variable, it was understood that the mean scores of the teachers 40 years of age or younger in the MBI and all its sub-dimensions were higher than the group 41 years of age or older. It was found that the mean scores of the group with less than 16 years of service were higher than the group with "16 years or over" in the MBI and all sub-dimensions. Similarly, both the group with less than 5 years of working time in the institution had higher mean scores than the group with "5 years or over", and the group with "below 3 points" (low) school climate perception had higher mean scores than the group with "3 points or above" (high) school climate perception. When the values in Table 6 were evaluated in general in terms of all variables, it was found that all averages in the dimension of emotional exhaustion among the three sub-dimensions were always higher, while the values in the dimension of depersonalization were always lower.

The results of independent samples t-tests conducted to examine the burnout levels of science teachers according to gender variable are given in Table 7. As seen in Table 7, it is understood that the higher mean burnout level scores of female teachers are statistically significantly different from those of male teachers [$t(180) = 2.19$, $p = .030$]. It was seen that this difference was caused by significant differences, especially in emotional exhaustion [$t(180) = 2.65$, $p = .009$] and depersonalization [$t(180) = 2.32$, $p = .022$] dimensions.

Table 7.
Independent Samples T-test Results Related to the First Research Question

Dimension	Female ($\bar{X}$)	Male ($\bar{X}$)	t	p
Emotional exhaustion	2.46	2.18	2.65	.009
Depersonalization	1.74	1.55	2.32	.022
Personal accomplishment	2.02	2.01	0.16	.987
MBI	2.12	1.96	2.19	.030

The results of the independent samples t-test conducted to determine whether the burnout levels of the science teachers who participated in the study differed significantly in terms of the age variable are presented in Table 8. Upon analyzing this table, it becomes evident that burnout levels differ significantly ($p < .05$) in MBI and all sub-dimensions. In other words, the burnout levels of science teachers aged 40 years or under in the MBI and all its sub-dimensions were significantly higher than the group aged 41 years or older.

Table 8.
Independent Samples T-test Results Related to the Second Research Question

Dimension	40 Years or Under ($\bar{X}$)	41 Years or Older ($\bar{X}$)	t	p
Emotional exhaustion	2.46	2.24	2.22	.028
Depersonalization	1.78	1.55	2.88	.005
Personal accomplishment	2.11	1.92	2.65	.009
MBI	2.16	1.95	2.98	.003

Table 9 presents the results of the independent samples t-test analysis concerning participants' length of service. Upon examination of this table, it becomes evident that there is a statistically significant difference in burnout levels among science teachers, favoring the group with less than 16 years of service [$t(180) = 2.61$, $p = .010$]. Furthermore, within the sub-dimensions, statistically significant differences were observed in both the depersonalization dimension [$t(180) = 2.54$, $p = .012$] and the personal accomplishment dimension [$t(180) = 3.34$, $p = .001$], once again favoring the groups with less than 16 years of service.

Table 9.
Independent Samples T-test Results Related to the Third Research Question

Dimension	Under 16 Years ($\bar{X}$)	16 Years or Over ($\bar{X}$)	t	p
Emotional exhaustion	2.42	2.28	1.38	.171
Depersonalization	1.77	1.57	2.54	.012
Personal accomplishment	2.14	1.90	3.34	.001
MBI	2.16	1.96	2.61	.010

Table 10 presents the results of an independent samples t-test analysis conducted to assess whether there exists a significant difference in burnout levels among science teachers based on their tenure within the institution. As depicted in this table, there is a statistically significant difference in burnout levels among teachers, favoring those with less than 5 years of tenure in the institution [$t(180) = 3.11$, $p = .002$]. Moreover, statistically significant differences ($p < .05$) were observed in the sub-dimensions of emotional exhaustion and personal accomplishment, more clearly in the depersonalization sub-dimension [$t(180) = 3.16$, $p = .002$], in favor of the groups with less than 5 years of working time in the institution.

Table 10.
Independent Samples T-test Results Related to the Fourth Research Question

Dimension	Under 5 Years ($\bar{X}$)	5 Years or Over ($\bar{X}$)	t	p
Emotional exhaustion	2.48	2.24	2.32	.022
Depersonalization	1.80	1.55	3.16	.002
Personal accomplishment	2.11	1.93	2.58	.011
MBI	2.18	1.95	3.11	.002

The results of the analysis conducted to understand whether the burnout levels of science teachers differ significantly according to the school climate perception variable are shown in Table 11.

Table 11.
Independent Samples T-test Results Related to the Fifth Research Question

Dimension	Value	Emotional Exhaustion	Depersonalization	Personal Accomplishment	MBI
Supportive principal	Low ($\bar{X}$)	2.67	1.95	2.21	2.33
	High ($\bar{X}$)	2.16	1.49	1.90	1.89
	t	5.22	5.94	4.21	6.25
	p	< .001	< .001	< .001	< .001
Directive principal	Low ($\bar{X}$)	2.50	1.77	2.15	2.19
	High ($\bar{X}$)	2.24	1.59	1.92	1.96
	t	2.47	2.14	3.12	3.06
	p	.014	.033	.002	.003
Restrictive principal	Low ($\bar{X}$)	2.35	1.66	2.10	2.08
	High ($\bar{X}$)	2.35	1.67	1.97	2.04
	t	0.03	-0.20	1.65	0.48
	p	.975	.843	.101	.632
Collegial teacher	Low ($\bar{X}$)	2.73	2.01	2.32	2.40
	High ($\bar{X}$)	2.24	1.57	1.93	1.96
	t	4.15	4.76	4.62	5.37
	p	< .001	< .001	< .001	< .001
Intimate teacher	Low ($\bar{X}$)	2.40	1.71	2.10	2.12
	High ($\bar{X}$)	2.26	1.57	1.84	1.94
	t	1.24	1.67	3.41	2.29
	p	.215	.097	.001	.023
Disengaged teacher	Low ($\bar{X}$)	2.33	1.63	2.03	2.04
	High ($\bar{X}$)	2.50	1.90	1.94	2.16
	t	-1.22	-1.75	0.82	-1.15
	p	.224	.091	.413	.251
SCS	Low ($\bar{X}$)	2.64	1.91	2.22	2.30
	High ($\bar{X}$)	2.12	1.47	1.85	1.86
	t	5.45	5.76	5.28	6.73
	p	< .001	< .001	< .001	< .001

When Table 11 is examined, it is understood that the burnout levels of the teachers (in terms of the MBI score) were statistically significantly different in favor of the group with low school climate perception [$t(180) = 6.73$, $p < .001$]. Notably, statistically significant differences ($p < .05$) were observed in favor of the low school climate perception groups across all three sub-dimensions of the MBI. When the sub-dimensions of the SCS were examined, it was seen that there were significant ($p < .05$) differences in favor of the groups with low school climate perception in all sub-dimensions of the MBI and MBI only for the sub-dimensions of "supportive principal", "directive principal", and "collegial teacher" among the six sub-dimensions of the SCS. It's important to mention that while a statistically significant difference was observed in the "intimate teacher" sub-dimension of the SCS in favor of the low school climate perception group [$t(180) = 2.29$, $p = .023$], further analysis revealed that this difference in terms of burnout was primarily driven by distinctions in the "personal accomplishment" sub-dimension [$t(180) = 3.41$, $p = .001$]. Lastly, in the "restrictive principal" and "disengaged teacher" sub-dimensions of the

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SCS, it was determined that there were no significant differences in the burnout levels of the teachers ($p > .05$) as measured by the MBI and all associated sub-dimensions.

Discussion, Conclusion, and Suggestions

When the mean scores of the MBI and its sub-dimensions in Table 6, which descriptively reveal the burnout levels of science teachers, are examined in terms of gender, age, length of service, working time in the institution, and school climate perception variables, they can be considered relatively low. It was observed that these averages, calculated on a five-point scale, ranged between 1.47 and 2.64 and remained below 3. Among the three sub-dimensions of MBI, emotional exhaustion was consistently the highest (ranging between 2.12 and 2.64), followed by personal accomplishment (ranging between 1.85 and 2.22), and depersonalization was consistently the lowest (ranging between 1.47 and 1.91). Among these values in the depersonalization sub-dimension, it was understood that the lowest and highest averages among the examined variables were in school climate perception. This is because individuals can distance themselves from depersonalization for various reasons (Görgülü, 2018). Examples include the individual's characteristics, the ability to cope with problems (Güngör-Uğurtaş, 2020), teacher-student interaction (Göksal, 2018), and the attitude of the school administration (Alkevli, 2021). When the literature is examined, it is seen that there are similar results (Adıgüzel & İpek, 2016).

The findings obtained for the first research question of this study showed that the burnout levels of female teachers were higher than those of male teachers. Some studies in the literature (Kılınç, 2018; Yıldırım, 2019) reveal different results. In this context, in Yavuz and Akdeniz's (2019) study examining the relationship between KPSS (Public Personnel Selection Examination) anxiety levels and burnout levels of pre-service science teachers, no significant difference was found in terms of gender variable. However, the findings of the studies in the literature (Acar, 2020; Bıçak, 2018) generally support our study. Purvanova and Muros (2010) emphasized that while women may be more susceptible to stress structurally, the numerical and cultural dominance of one gender in a specific profession may generate negative experiences for members of the other gender. For instance, working in traditionally male-dominated professions could lead to role stress for women. On the other hand, working in traditionally female-dominated professions may result in low social status and lower pay, which, in turn, could lead to higher levels of burnout among individuals. Moreover, work-family and family-work conflict is typically defined as a form of inter-role conflict in which the demands from one's work and family roles are inherently contradictory in certain respects, and, for example, investing more time at work can encroach upon time dedicated to the family or household responsibilities, leading to late arrivals at work (Netemeyer et al., 1996). The common belief is that women experience work-family conflict more than men and are more affected by it. Particularly given that women continue to bear the responsibility for over 50% of household chores and often act as caregivers for elderly family members, they tend to face a greater number of family-related demands, including challenges related to role conflict and role ambiguity. When looking at burnout from a gender perspective, excessive stress related to academic sources or other stress factors can lead to burnout, a condition where an individual experiences emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment. Gender differences, in addition to physiological factors, are influenced by the nature of the job as well as cultural and social contexts, affecting job satisfaction and burnout (Kara, 2020). Regarding the sub-dimensions, there was no significant gender difference in the personal accomplishment dimension when examining burnout levels among science teachers. Similar results were observed in previous studies (Çelebi, 2018). Considering that personal accomplishment loss is defined as a state of inefficacy and inadequacy in the face of job performance and situations encountered in workplaces (Akdemir, 2019), it can be interpreted that individuals of both genders may have adopted similar coping strategies.

The findings obtained for the second research question showed that the burnout levels of science teachers did change significantly according to the categories of the age variable. Yıldırım's (2019) study supports this finding. In this context, the positive benefits of advancing age can be taken into consideration. For example, it is known that mature people can actively use emotion-focused coping strategies (Mefoh et al., 2019). At the same time, people can create various ways to be satisfied with their jobs in different age groups (Rožman et al., 2019). Despite the potential for professional burnout, the fact that individuals become more proficient in their profession as they age and address professional challenges with a more seasoned approach can be considered a contributing factor in preventing burnout

(Gomez-Polo et al., 2022). Simultaneously, while younger teachers may be more active, the growing sense of self-assurance in areas such as decision-making, fear of making errors, and job responsibilities as individuals' age might lead to a deeper affinity for the profession (Wijeratne et al., 2021). Kolachev and Novikov (2020) pointed out in their research that different factors may have an effect on the age variable burnout. For example, workloads may be proportional. Simplifying workloads, implementing job sharing, introducing breaks, and age-related improvements in economic factors may all impact burnout (McDuffy, 2016). Similarly, life experiences can either enhance or diminish work adjustment (Johnson et al., 2017). When the sub-dimensions of the burnout scale are analyzed according to the age variable, significant differentiation is observed in all dimensions. The emotional exhaustion dimension can be associated with the stress experienced by the individual. Younger individuals are less able to cope with stress, which may cause them to feel under pressure, tired, and have low motivation (Yıldırım, 2019). Teachers who experience emotional exhaustion may also become depersonalized and thus show indifferent and cold attitudes towards the individuals in the organization (Arslan, 2020). Since young teachers have less experience, they may feel inadequate in solving problems related to students or mastering the profession, which may cause the individual to experience burnout in the personal accomplishment dimension.

The findings pertaining to the third research question in this study have revealed a significant variation in the burnout levels among science teachers in relation to their length of service. While some studies in the literature (Özel, 2016; Tatar & Arslan, 2020; Yurduseven, 2020) support this finding, a different result was obtained in Kılınç's (2018) study. As experience accumulates, a notable decrease in burnout levels is observed, concomitant with individuals gaining confidence through their tenure and developing effective strategies to cope with challenges (Çelik & Üstüner, 2018). Moreover, as the length of service increases, individuals become better at shaping their expectations. Novice professionals entering the field may commence with heightened expectations, only to experience disappointment when these aspirations are not met. Additionally, an overwhelming workload can contribute to an escalation in burnout levels (Demirtaş, 2020). When evaluating the sub-dimensions of burnout, a significant difference was found only in the emotional exhaustion dimension. Emotional exhaustion refers to depleting one's emotional resources, while depersonalization represents a more distant attitude towards colleagues in the workplace (Togia, 2005). In a study conducted by Thomas et al. (2014) on a sample of California human services workers, they found that, when controlling for education and caseload size, age was a positive predictor of burnout, while years of experience were not related to burnout. The research findings can be interpreted as suggesting that newcomers to the field may be less susceptible to burnout due to a reduced degree of professional distortion. Çelik (2021) also stated that individuals, even with many years of experience in the profession, may not experience burnout over time due to their ability to advance their professional skills, develop coping mechanisms for challenges, and experience an increase in self-confidence.

The results obtained for the fourth research question, concerning the length of service within the institution, unveiled a notable disparity in the burnout levels of science teachers based on their working time in the institution. Akkaya's (2019) examination of the correlation between individual-organization fit among academics and burnout levels yielded findings that parallel the outcomes of the current study. Similarly, the results derived from Birkan's (2020) exploration of the impact of teachers' burnout levels on their work-life balance align with the findings of our study. The length of time spent at school increases the communication of individuals with the school environment. The state of the school having the necessary equipment, the positive or negative school climate, the relationship between the administrator and teachers, the relationship between teachers and teachers, and the student demographics can collectively influence the teachers' burnout levels (Caruso et al., 2014; Von der Embse et al., 2016). At the same time, the administration's perception of justice is another factor affecting teachers' professional status (Spell & Arnold, 2007). Upon scrutinizing the sub-dimensions, it became evident that the lowest averages were recorded in the depersonalization dimension. Within this context, consistent human relations or recurring issues within the same institution may contribute to depersonalization among individuals. Depersonalization can induce stress, potentially leading to a diminished sense of accomplishment within one's role (Alkevli, 2021).

The findings pertaining to the final research question of the study underscored a significant distinction in the burnout levels of science teachers based on their perceptions of the school climate, whether high or low. Upon reviewing the existing literature, no study was identified that specifically delved into the correlation between school climate and the burnout levels of science teachers. When the sub-dimensions of SCS were examined, it was seen that there was a significant difference in favor of the groups with low school climate perception in all sub-dimensions of MBI and MBI only for the sub-dimensions of "supportive principal", "directive principal", and "collegial teacher" among the six sub-dimensions. In instances characterized by supportive principal behavior, principals typically provide considerable support to teachers, fostering an environment where employees can work in a secure and constructive atmosphere (Göksal, 2018). This approach is generally preferred within the school climate, contributing significantly to a positive work environment for teachers (Bayat, 2015). Consequently, the observed significant relationship between these factors and burnout levels can be comprehended within this context. Conversely, within directive principal behavior, the principal's lack of respect for teachers and the manifestation of a rigid attitude are prevalent (Göksal, 2018). This dynamic often leads to a lack of decision-making autonomy for teachers, resulting in diminished motivation and job satisfaction (Bayat, 2015). Hence, the significant relationship identified between these factors and burnout is explicable within this framework. Regarding collegial teacher behavior, teachers benefit from a collaborative work environment that fosters mutual respect among colleagues (Şenel, 2015). The establishment of a positive climate perception among teachers often stems from an environment where collaboration is encouraged and a sense of safety is fostered. Such an environment has the potential to alleviate the feeling of burnout among teachers (Alkevli, 2021). Hence, the significant relationship between these factors comes as an anticipated outcome. Upon examining the study's findings, a noticeable distinction was observed solely in the "personal accomplishment" dimension within the "intimate teacher" behavior sub-dimension of the SCS. This result implies that teachers may not face communication challenges among themselves; however, they might experience a lack of satisfaction in terms of their professional competencies. In schools situated in low socioeconomic areas or rural settings, despite the existence of collaboration within the school environment, the subpar academic performance of students can lead to professional dissatisfaction among teachers. This finding finds support in the existing literature (Alkevli, 2021). In addition, Spell and Arnold (2007) reported that school climate dimensions such as rules indicating relationships with students, time allocated for learning activities, and external interventions can affect individuals' job satisfaction and thus their burnout. Positive relationships with colleagues and principals are very important in establishing common values and norms and creating a collective goal orientation (Spell & Arnold, 2007). On the other hand, it is consistent with the literature that principal leadership predicts teachers' stress level and self-efficacy (Malinen & Savolainen, 2016). At the same time, cooperation also emerges as a vital factor in stress reduction. Interpersonal trust, both among teachers and between teachers and principals, along with the perception of a favorable school climate, have been shown to play pivotal roles in various studies (Caruso et al., 2014). Upon closer examination of sub-dimensions, no significant difference was observed in restrictive principal behavior and disengaged teacher behavior concerning burnout. Restrictive principal behavior refers to the fact that principals impose too much workload on teachers (Şenel & Buluç, 2016). The fact that there is no difference in this dimension can be interpreted as teachers' high interest in the profession, and as a result, they willingly do their job even if it is overloaded. On the other hand, disengaged teacher behavior involves teachers' working with each other, and it is generally seen that teachers with this attitude focus only on professional studies. Teachers do not set a common goal and often criticize each other (Şenel & Buluç, 2016). The absence of a difference in this dimension may indicate that teachers are inclined towards independent work and remain open to constructive criticism.

Consequently, the study underscores the variances in burnout levels among science teachers based on the variables of gender, age, length of service, working time in the institution, and school climate perception. The distinctions within the emotional exhaustion, depersonalization, and personal accomplishment sub-dimensions further emphasize the complexities of the issue. Thus, it is imperative that more extensive and detailed research be conducted across various regions. Comprehensive quantitative and qualitative investigations are expected to facilitate the development of actionable policies and practices aimed at mitigating science teachers' burnout. Notably, the influence of school climate on burnout levels among science teachers highlights the need for studies dedicated to fostering

and sustaining a supportive school environment, particularly for school administrators and policymakers. Furthermore, it is understood that there is a need for studies that examine the effects of school climate on teachers' job satisfaction, motivation, and general well-being in more detail.

Acknowledgment

References

Acar, A. (2020). *Sınıf öğretmenlerinin tükenmişlik düzeyleri ile örgütsel bağlılıkları arasındaki ilişki* [Unpublished master's thesis]. Siirt Üniversitesi, Siirt.

Adıgüzel, İ., & İpek, C. (2016). Okul öncesi öğretmenlerinin sınıf yönetimi becerileri ve tükenmişlik düzeyleri. *International Journal of Eurasia Social Sciences*, *7*(23), 247–273.

Akdemir, Ö. A. (2019). The effect of teacher burnout on organizational commitment in Turkish context. *Journal of Education and Training Studies*, *7*(4), 171–179.

Akkaya, A. (2019). *Akademisyenlerin birey-örgüt uyumları ile tükenmişlik düzeyleri arasındaki ilişkinin incelenmesi* [Unpublished master's thesis]. İstanbul Üniversitesi, İstanbul.

Alkevli, S. (2021). *Okul öncesi öğretmenlerinin tükenmişlik düzeyleri ile örgüt iklimi algıları arasındaki ilişkinin incelenmesi* [Unpublished master's thesis]. Çukurova Üniversitesi, Adana.

Arslan, F. (2020). *Fen bilimleri öğretmenlerinin mesleki tükenmişlik düzeylerinin ve nedenlerinin incelenmesi* [Unpublished master's thesis]. Cumhuriyet Üniversitesi, Sivas.

Aydın, B., Çulha, Ş., Mercan, B., & Zöğ, E. (2022). Öğretmen adaylarının iyimserlik ve tükenmişlik düzeylerinin karşılaştırılması. *Bayburt Eğitim Fakültesi Dergisi*, *17*(34), 688–719. doi:10.35675/befdergi.708092

Balcı, A. (2013). *Etkili okul ve okul geliştirme: Kuram, uygulama ve araştırma*. Ankara: Pegem Akademi.

Baş, A., & Coşkun, Y. (2020). Okul öncesi öğretmenlerinin örgütsel sosyalleşme ile tükenmişlik düzeyleri arasındaki ilişkinin incelenmesi. *Kahramanmaraş Sütçü İmam Üniversitesi Sosyal Bilimler Dergisi*, *17*(2), 729–749. doi:10.33437/ksusbd.711270

Bayat, S. (2015). *Okulların örgüt ikliminin öğretmenlerin tükenmişlik düzeyine etkisi* [Unpublished master's thesis]. Fırat Üniversitesi, Elazığ.

Berkovich, I., & Eyal, O. (2018). Principals' emotional support and teachers' emotional reframing: The mediating role of principals' supportive communication strategies. *Psychology in the Schools*, *55*(7), 867–879. doi:10.1002/pits.22130

Bıçak, S. (2018). *Bir üniversite hastanesinde çalışan öğretim üyeleri, araştırma görevlileri ve hemşirelerin tükenmişlik düzeylerinin belirlenmesi ve buna etki eden faktörler* [Unpublished master's thesis]. Zonguldak Bülent Ecevit Üniversitesi, Zonguldak.

Birkan, R. (2020). *Öğretmenlerin tükenmişlik düzeylerinin iş yaşam dengeleri üzerine etkisi* [Unpublished master's thesis]. İstanbul Sabahattin Zaim Üniversitesi, İstanbul.

Brasfield, M. W., Lancaster, C., & Xu, Y. J. (2019). Wellness as a mitigating factor for teacher burnout. *Journal of Education*, *199*(3), 166–178. doi:10.1177/0022057419864525

Caruso, A. L., & Giammanco, M. D., & Gitto, L. (2014). Burnout experience among teachers: A case study. *Mediterranean Journal of Clinical Psychology*, *2*(3), 1–20. doi:10.6092/2282-1619/2014.2.1023

Cengiz, S., Yağan, F., Kara, F., & Dörtyol, Z. (2023). Ergenlerde akademik beklentilere ilişkin stres, akademik motivasyon ve okul tükenmişliği arasındaki ilişkilerin incelenmesi. *Mavi Atlas*, *11*(1), 63–75. doi:10.18795/gumusmaviatlas.122744

Çam, O. (1993). Tükenmişlik envanterinin geçerlik ve güvenirliğinin araştırılması. R. Bayraktar ve İ. Dağ (Edt.), *VII. Ulusal Psikoloji Kongresi Bilimsel Çalışmaları* (pp. 155–160). Ankara: VII. Ulusal Psikoloji Kongresi Düzenleme Kurulu ve Türk Psikologlar Derneği Yayını.

Çelebi, F. (2018). Tükenmişlik ve iş tatmini ilişkisinde Ankara-Kızılay'daki banka çalışanları örneği. *Ömer Halisdemir Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, *11*(4), 84–92. doi:10.25287/ohuiibf.459043

Çelik, K., & Kahraman, Ü. (2019). Okullarda korku kültürü ölçeği: Geçerlik ve güvenirlik çalışması. *İnönü Üniversitesi Eğitim Fakültesi Dergisi*, *20*(2), 319–333. doi:10.17679/inuefd.537884

Çelik, M. Y. (2021). Üniversite sınavına hazırlanan gençlerin Covid-19 korkusunun öğrencilerin tükenmişlik ve anksiyetelerine etkisi. *Van Sağlık Bilimleri Dergisi*, *14*(1), 19–28. doi:10.52976/vansaglik.760062

Çelik, O. T., & Üstüner, M. (2018). Öğretmenlerin mesleki tükenmişlikleri ile yaşam doyumları arasındaki ilişki. *Journal of Theoretical Educational Science*, ICSE-2018, 41–60. doi:10.30831/akukeg.421820

Demirtaş, H. (2020). *Rehber öğretmenlerde tükenmişlik düzeyinin demografik değişkenler açısından incelenmesi* [Unpublished master's thesis]. İstanbul Gelişim Üniversitesi, İstanbul.

Dönük, O., & Bindak, R. (2022). Ortaokul matematik öğretmenlerinin tükenmişliklerinin yordayıcısı olarak okul iklimi ve örgütsel bağlılık. *İnönü Üniversitesi Eğitim Fakültesi Dergisi*, *23*(1), 599–620. doi:10.17679/inuefd.1080283

Emre-Erden, G., & Kılınç, A. Ç. (2021). Öğretmen mesleki öğrenmesini etkileyen faktörlerin incelenmesi: Bir durum çalışması. *Avrasya Beşeri Bilim Araştırmaları Dergisi*, *1*(1), 1–29. doi:10.7596/abbad.20122021.001

Gomez-Polo, C., Casado, A. M. M., & Montero, J. (2022). Burnout syndrome in dentists: Work-related factors. *Journal of Dentistry*, 121, Article 104143. doi:10.1016/j.jdent.2022.104143

Gökhan, O., & Kılıç, R. (2023). İngilizce öğretmenlerinin mesleki tükenmişlik ve mesleki sosyal destek düzeyleri arasındaki ilişki. *Edebiyat Dilbilim Eğitim ve Bilimsel Araştırmalar Dergisi*, *2*(1), 93–121.

Göksal, S. (2018). *Matematik öğretmenlerinin algıladıkları okul iklimi ve tükenmişlik düzeyleri arasındaki ilişki* [Unpublished master's thesis]. İstanbul Kültür Üniversitesi, İstanbul.

Görgülü, S. (2018). *Çalışan bireylerin tükenmişlikleri üzerine bir çalışma* [Unpublished master's thesis]. Üsküdar Üniversitesi, İstanbul.

Güngör-Uğurtaş, G. (2020). *Ceza infaz kurumunda çalışan personellerin ikincil travmatik stres düzeylerini sıkıntıya dayanma gücü, psikolojik sağlamlık ve tükenmişlik algısının yordayıcılığı* [Unpublished master's thesis]. Çağ Üniversitesi, Mersin.

Gündüz, H. (2006). *Yatılı ilköğretim bölge okullarında görev yapan yönetici ve öğretmenlerin tükenmişlik düzeyleri* [Unpublished master's thesis]. Dicle Üniversitesi, Diyarbakır.

Gündüz, Z. B. (2016). *Ortaöğretim öğrencilerinin okul tükenmişliği ile kendine saygı ve anne baba tutumları arasındaki ilişkinin incelenmesi* [Unpublished master's thesis]. Karabük Üniversitesi, Karabük.

Hanedar, A. N., & Öçalan, M. (2018). İstenmeyen öğrenci davranışlarına karşı beden eğitimi öğretmenlerinin tutumları ile mesleki tükenmişlik düzeyleri arasındaki ilişkinin analizi. *Gaziantep Üniversitesi Spor Bilimleri Dergisi*, *3*(2), 46–60. doi:10.31680/gaunjss.423209

Hoy, W. K., Tarter, C. J., & Kottkamp, R. B. (1991). *Open school/healthy schools: Measuring organizational climate*. Beverly Hills: Sage.

Johnson, S. J., Machowski, S., Holdsworth, L., Kern, M., & Zapf, D. (2017). Age, emotion regulation strategies, burnout, and engagement in the service sector: Advantages of older workers. *Journal of Work and Organizational Psychology*, *33*(3), 205–216. doi:10.1016/j.rpto.2017.09.001

Kaplan, L. S., & Geoffroy, K. E. (1990). Enhancing the school climate: New opportunities for the counselor. *The School Counselor*, *38*(1), 7–12.

Kara, S. (2020). Investigation of job satisfaction and burnout of visual arts teachers. *International Journal of Research in Education and Science*, *6*(1), 160–171. doi:10.46328/ijres.v6i1.817

Kılınç, B. (2018). *Fen bilimleri öğretmenlerinin mesleki tükenmişlik düzeylerinin bazı değişkenler açısından incelenmesi* [Unpublished master's thesis]. Fırat Üniversitesi, Elazığ.

Kocaoğlu, M., & Demirdağ, S. (2022). Okul yöneticilerinin liderlik tarzları, okul iklimi ve öğretmenlerin tükenmişlik düzeyleri arasındaki ilişki. *Adnan Menderes Üniversitesi Eğitim Fakültesi Eğitim Bilimleri Dergisi*, *13*(2), 28–40.

Koç, B., & Doğan, S. (2022). Okul yönetimi nasıl olmalıdır? Bir okul incelemesi. *Cumhuriyet International Journal of Education*, *11*(1), 26–40. doi:10.30703/cije.891520

Kolachev, N., & Novikov, I. (2020). Age as a predictor of burnout in Russian public librarians. *Evidence Based Library and Information Practice*, *15*(4), 33–48.

Korkutan, T. B., & Tekin, U. (2017). Meslek lisesi öğretmenlerinin tükenmişlikleri ve mesleki doyum düzeyleri arasındaki ilişkinin incelenmesi. *İstanbul Aydın Üniversitesi Eğitim Fakültesi Dergisi*, *3*(2), 49–78.

Malinen, O. P., & Savolainen, H. (2016). The effect of perceived school climate and teacher efficacy in behavior management on job satisfaction and burnout: A longitudinal study. *Teaching and Teacher Education*, 60, 144–152.

Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Organizational Behavior*, *2*(2), 99–113. doi:10.1002/job.4030020205

McDuffy, M. S. (2016). *Rumination, age, and years of experience: A predictive study of burnout* [Unpublished Ph.D. thesis]. Capella University, Minneapolis.

Mefoh, P. C., Ude, E. N., & Chukwuorji, J. C. (2019). Age and burnout syndrome in nursing professionals: Moderating role of emotion-focused coping. *Psychology, Health & Medicine*, *24*(1), 101–107. doi:10.1080/13548506.2018.1502457

Netemeyer, R. G., Boles, J. S., & McMurrian, R. (1996). Development and validation of work–family conflict and family–work conflict scales. *Journal of Applied Psychology*, *81*(4), 400–410. doi:10.1037/0021-9010.81.4.400

Okan, M., & Yılmaz, K. (2017). Kamu okullarında psikolojik güçlendirme ile öğretmenlerin tükenmişlikleri arasındaki ilişki. *Dumlupınar Üniversitesi Eğitim Bilimleri Enstitüsü Dergisi*, *1*(1), 16–27.

Okumuşoğlu, O., & Geçikli, E. (2021). Fen bilimleri öğretmenlerinin yeni yaklaşım, yöntem ve teknikleri bilme ve kullanma düzeyleri ile mesleki tükenmişlikleri. *Atatürk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *25*(Özel sayı), 396–415. doi:10.53487/ataunisosbil.875359

Oral, B., Tösten, R., & Elçiçek, Z. (2017). Öğretmenlerin pozitif psikolojik sermaye algıları ile tükenmişlik düzeyleri arasındaki ilişkinin incelenmesi. *Elektronik Eğitim Bilimleri Dergisi*, *6*(11), 78–87.

Ordu, A., & Çetinkaya, H. (2018). Okul yöneticilerinin toksik (zehirli) liderlik davranışları ile öğretmenlerin tükenmişlik düzeyleri arasındaki ilişki. *Pamukkale Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, (31), 15–28. doi:10.30794/pausbed.414612

Örücü, E., Hasırcı, I., & Ergenler, E. (2022). Covid-19 pandemi döneminde öğretmenlerin örgütsel yabancılaşma ile eğilimleri ile tükenmişlik seviyeleri arasındaki ilişkinin incelenmesi. *Doğuş Üniversitesi Dergisi*, *23*(Covid-19 Özel Sayısı), 153–175. doi:10.31671/doujournal.949484

Özel, S. (2016). *Farklı liselerde görev yapan yönetici ve öğretmenlerin iş doyumlarına ilişkin algıları ve tükenmişlik düzeyleri arasındaki ilişki Tekirdağ/Çerkezköy örneği* [Unpublished master's thesis]. İstanbul Sabahattin Zaim Üniversitesi, İstanbul.

Özipek-Karabıyık, A. (2006). *Ortaöğretim okullarında görev yapan öğretmenlerde mesleki tükenmişlik düzeyleri ve nedenleri* [Unpublished master's thesis]. Trakya Üniversitesi, Edirne.

Purvanova, R. K., & Muros, J. P. (2010). Gender differences in burnout: A meta-analysis. *Journal of Vocational Behavior*, *77*(2), 168–185. doi:10.1007/s10212-020-00465-6

Pyhältö, K., Pietarinen, J., Haverinen, K., Tikkanen, L., & Soini, T. (2021). Teacher burnout profiles and proactive strategies. *European Journal of Psychology of Education*, *36*(1), 219–242.

Räsänen, K., Pietarinen, J., Soini, T., Väisänen, P., & Pyhältö, K. (2022). Experienced risk of burnout among teachers with persistent turnover intentions. *Teacher Development*, *26*(3), 317–337. doi:10.1080/13664530.2022.2055629

Rožman, M., Grinkevich, A., & Tominc, P. (2019). Occupational stress, symptoms of burnout in the workplace and work satisfaction of the age-diverse employees. *Organizacija*, *52*(1), 46–52. doi:10.2478/orga-2019-0005

Saloviita, T., & Pakarinen, E. (2021). Teacher burnout explained: Teacher-, student-, and organisation-level variables. *Teaching and Teacher Education*, *97*, Article 103221. doi:10.1016/j.tate.2020.103221

Sancar, Y., Kartal, S., & Öztürk-Gübeş, N. (2021). Öğretmenlerin tükenmişlik ve mükemmeliyetçilik düzeyleri arasındaki ilişkinin incelenmesi. *Uşak Üniversitesi Sosyal Bilimler Dergisi*, *14*(1), 156–173.

Schaufeli, W. B., & Enzmann, D. (1998). *The burnout companion to study and practice: A critical analysis*. Washington, DC: Taylor & Francis.

Söner, O., & Yılmaz, O. (2020). Özel eğitim sınıflarında görev yapan öğretmenlerin psikolojik iyi oluşları ve tükenmişlik düzeyleri. *Trakya Eğitim Dergisi*, *10*(3), 668–682. doi:10.24315/tred.599742

Spell, C. S., & Arnold, T. J. (2007). A multi-level analysis of organizational justice climate, structure, and employee mental health. *Journal of Management*. 33, 724–751. doi:10.1177/0149206307305560

Şahin, İ. (2020). Okul tükenmişliği ve algılanan akademik başarının ortaokul öğrencilerinin okul iklimi algıları üzerindeki etkisinin incelenmesi. *Mustafa Kemal Üniversitesi Eğitim Fakültesi Dergisi*, *4*(6), 1–8.

Şenel, T. (2015). *İlkokullarda okul iklimi ile okul etkililiği arasındaki ilişki* [Unpublished master's thesis]. Gazi Üniversitesi, Ankara.

Şenel, T., & Buluç, B. (2016). İlkokullarda okul iklimi ile okul etkililiği arasındaki ilişki. *TÜBAV Bilim Dergisi*, *9*(4), 1–12.

Tatar, N., & Arslan, F. (2020). Fen bilgisi öğretmenlerinin mesleki tükenmişlik düzeyleri ve nedenleri. *Eğitim Bilim ve Araştırma Dergisi*, *1*(2), 1–21.

Tekin-Yenigün, B. (2021). *İş stresi ve tükenmişlik ilişkisi: Gümrük çalışanları üzerine bir çalışma* [Unpublished master's thesis]. Kocaeli Üniversitesi, Kocaeli.

Thomas, M., Kohli, V., & Choi, J. (2014). Correlates of job burnout among human services workers: Implications for workforce retention. *Journal of Sociology and Social Welfare*, *41*, 69–90. doi:10.15453/0191-5096.3983

Togia, A. (2005). Measurement of burnout and the influence of background characteristics in Greek academic librarians. *Library management*, *26*(3), 130–138. doi:10.1108/01435120510580870

Tokmak, M. (2018). Pozitif psikolojik sermayenin tükenmişlik üzerine etkileri: Kamu çalışanlarına yönelik bir araştırma. *Yönetim ve Ekonomi Dergisi*, *25*(3), 863–878. doi:10.18657/yonveek.419469

Uçar-Çelebi, N. (2018). *Öğretmenlerin kimlik ve tükenmişlik algıları arasındaki ilişki* [Unpublished master's thesis]. Osmangazi Üniversitesi, Eskişehir.

Von der Embse, N. P., Pendergast, L. L., Segool, N., Saeki, E., & Ryan, S. (2016). The influence of test-based accountability policies on school climate and teacher stress across four states. *Teaching and Teacher Education*, *59*, 492–502. doi:10.1016/j.tate.2016.07.013

Wijeratne, C., Johnco, C., Draper, B., & Earl, J. (2021). Doctors' reporting of mental health stigma and barriers to help-seeking. *Occupational Medicine*, *71*(8), 366–374. doi:10.1093/occmed/kqab119

Yavuz, S., & Akdeniz, A. (2019). Fen bilgisi öğretmen adaylarının tükenmişlik ve KPSS kaygı düzeylerinin çeşitli değişkenler açısından incelenmesi. *Karaelmas Eğitim Bilimleri Dergisi*, *7*(2), 212–227.

Yıldırım, M. (2019). *Fen bilimleri öğretmenlerinin tükenmişlik ve iş doyumu düzeylerinin incelenmesi* [Unpublished master's thesis]. Erciyes Üniversitesi, Kayseri.

Yurduseven, K. (2020). *Fen bilimleri öğretmenlerinin iş doyumları, mesleki tükenmişlik düzeyleri, günlük ritim tercihleri ve uyku değişkenleri arasındaki ilişkinin incelenmesi* [Unpublished master's thesis]. Sakarya Üniversitesi, Sakarya.

Yurduseven, K., & Önder, İ. (2019). Fen bilimleri öğretmenlerinin mesleki tükenmişlik düzeyleri ile günlük ritim tercihi ve uyku değişkenleri arasındaki ilişki. *Journal of Multidisciplinary Studies in Education*, *3*(4), 39–51.

Zhu, M., Liu, Q., Fu, Y., Yang, T., Zhang, X., & Shi, J. (2018). The relationship between teacher self-concept, teacher efficacy and burnout. *Teachers and Teaching*, *24*(7), 788–801. doi:10.1080/13540602.2018.1483913

Examination of High School Physics Teachers' Professional Identity: A Case Study

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Abstract

This study aimed to explore physics teachers' professional identity through multiple-case methodology. The goal of physics teacher education is to enhance teachers' professional development to address the suggestions of reform-based science education. Science teachers' professional identity has been explored at different grade levels: science teachers defined themselves as content teachers, classroom managers, or isolated workers. In this study, physics teachers' professional identity is analyzed and explained through Wenger's theory of learning. The participants were three male high school physics teachers. Data were collected through interviews, reflections, lesson plans, and classroom observations and analyzed through thematic analysis. The results showed that participating teachers had different identity characteristics in that they were defined as question-oriented, project-oriented, or lecture-oriented teachers. The question-oriented teacher focused on questioning to elicit students' ideas on different types of questions, the project-oriented teacher tended to encourage students to explore the real-life physics through projects, and the lecture-oriented teacher aimed to explain the content through following a smart notebook including all content explanations and sample questions. The analysis through Wenger's theory showed that the relationship between teachers' beliefs and practices was linked to physics teachers' professional identity. The study has important implications to understand development and characteristics of teacher professional identity.

Keywords: Case study, physics teacher, professional identity, Wenger learning theory

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Introduction

Science teaching and learning in the national and international documents make suggestions to focus on three-dimensional learning, in particular, science and engineering practices, disciplinary core ideas, and crosscutting concepts (National Research Council (NRC), 2012; NGSS Lead States, 2013). These standards aim to enhance teachers' and learners' capacity to engage in reform-based instruction to integrate laboratory activities, different forms of modelling (visual, qualitative, and quantitative etc.), scientific argumentation, and communication. These suggestions promote teachers' and learners' engagement in scientists' practices to facilitate "doing science" rather than rote memorization and passive learning (Berland et al., 2016). What are the important characteristics of doing science? How does "doing science" support teachers' and learners' professional development? or Can "learning by doing science" support the development of professional identity for reform-based instruction? The overarching goal of science teacher education is to support science teachers' professional development through content and pedagogy to address the suggestions of standards (Shulman, 1986). However, according to Schleicher (2019), PISA (2018) results showed that Turkey as a developing country had only less than 10% of students as top performers in science; most students scored lower than the average score. These low achievement results indicated that science teaching and learning should have more reform-based features and might need further investigation for students' learning and teachers' work.

Teacher education focuses on the development of teachers' professional identity in an ongoing process through personal, contextual, and community interactions (Lave & Wenger, 1991). Teacher professional identity defines teachers' commitment to construct and reconstruct knowledge and practice of a particular profession (Beauchamp & Thomas, 2009). Individuals' experiences, beliefs, and perspectives contribute to their growth and how they behave and make sense of their work (Beijaard et al., 2004). Professional identity is dynamic and constantly developing through social interactions within a community of learners that can support each other to strengthen professional practices of teachers. Most studies focused on teacher professional identity for science teaching in elementary school, middle school, or pre-service teacher education level (Avraamidou, 2014; Madden & Wiebe, 2015; Timostsuk & Ugaste, 2010). For example, elementary science teachers rarely considered themselves as science content teachers, some teachers preferred to act as classroom managers (Madden & Weibe, 2015). In Timostsuk & Ugaste (2010)'s study, pre-service teachers did not feel any belonging to teaching community that emphasized significance of having a community in initial training.

Some studies on physics education also argued that physics teachers were expected to develop knowledge of physics, knowledge of pedagogy, and knowledge of how to teach physics (Etkina, 2010). Physics teachers focused on conceptual understanding and problem-solving ability rather than enhancing students' appreciation and attitudes about learning and doing physics (Bates et al., 2011; Nissen et al., 2021). These results showed that there was a need to understand physics teachers' professional development from a teacher professional identity perspective. In this study, we considered that experienced high school physics teachers could provide a solid foundation for their professional identity. To facilitate development of reform-based physics education, we needed to address a gap in the literature to understand the professional identity of physics teachers. This research aimed to examine experienced physics teachers to conceptualize their professional development. This study aimed to explain the components of physics teacher identity based on Wegner's (1998) theory of learning. The following research questions guide the study: What are the characteristics of professional identity for experienced physics teachers? How do these characteristics influence physics teachers' professional identity?

Theoretical Framework

Identity is to describe yourself based on cognitive, social, affective and epistemic perspectives (Beijaard et al., 2000). These perspectives are shaped within a culture and society, in which individuals make sense of themselves and their actions in social and political contexts. Individuals describe their roles based on the expectations, requirements, and rules of their work through meaning-making within a specific context by acting on these expectations such as refusing, evaluating, internalizing, and affirming (Liang et al., 2023). Identity is a complex term and includes many connections and negotiations across different dimensions of personal roles (Stets & Serpe, 2013). A teacher has multiple roles including planning, preparation, instruction, management, assessment, and collaborating activities (Renwick,

2023). Teacher identity shapes teachers' "disposition, work engagement, and commitment and professional development" (Liang, Ell, & Meissel, 2023, p.1.). These roles involve many activities and lead teachers to act in different ways as active thinkers, facilitators, or passive observers (Schutz et al., 2018). This process describes identity development as a dynamic and iterative process that occurs between and within individuals and contexts (Cohen, 2010; Melasalmi & Husu, 2018; Trent, 2015).

A teacher's identity is a reflection of the nature of their work. Beauchamp and Thomas (2009) argue that teacher identity is shaped within a process and a result of teacher learning and development. Teachers have challenges between teaching for learning or teaching for the test. This contradiction in teachers' practices creates an imbalance in their planning and teaching and shapes their roles and identity as a support or constrain of their practice (Boyd & Harris, 2010). Teacher resources influence the development of teacher identity; Reflective teacher practice assists teachers to realize and understand their internal dialogue for personal and professional self and mediate their role (Renwick, 2023). Teachers' personal beliefs, views, experiences, and interactions play a role in supporting teacher identity for their career development (Wenger, 1998). Clandinin, Connelly, and Bradley (1999) conceptualize teacher professional identity through three major dimensions: (a) interaction, b) continuity, and c) situation. These researchers argue that personal and social interactions have an influence on individuals' internal and external conditions; personal meaning-making is not separate from past, present, and future experiences and the context that they live. Individuals' interpretations of past and present experiences, and their imagination of the future can influence their identity construction.

Educational society in a country- their cultures, norms, and practices interact with teachers' work. These approaches show that identity is a contradictory, dynamic, and evolving construct and requires teachers to develop resilience (Beauchamp & Thomas, 2011; Schutz et al., 2018). Beijaard et al. (2004) summarize the characteristics of teachers' professional identity as below: Professional identity is:
(1) ongoing and dynamic.
(2) related to a person and his/her interactions with others and the context including social, cultural, political differences.
(3) dependent on active teacher thinking, learning, and emotions based on the goals and the resources.
(4) defined based on sub-identities and roles that are related to construction of teacher's overall identity.

Zeichner and Gore (1990) suggest that teachers' professional development includes their interactions and learning during the teacher education program and while working as a classroom teacher. Therefore, teachers' professional identities consist of components related to experiences, expectations, context, affective factors, reflections, and family roles. Community of Practice (CoP) explores the process of learning and construction of identity as a social practice. CoP is suggested by social-constructivist theory of learning to develop a community of learners, who have community engagement to share knowledge development through producing, practicing, sharing, modifying, and using ideas (Wenger, 2015). Wenger (1998) defines community of practice in terms of joint enterprise, mutual engagement, and shared repertoire. This community of learners has a mutual purpose to do and continues their collective learning and develops collective resources. Identity develops through interactions within a community of learners including colleagues, students, school and teaching community.

According to Lave and Wenger (1991), learning occurs through participation and cooperation in a social context rather than cognitively passive knowledge accumulation and transfer process. Learning changes and restructures the individuals' experiences and making sense of themselves, diverse practices based on the contextual factors, and views, perceptions, and beliefs to contribute to the professional development or professional identity within a community (Lave & Wenger, 1991). Learning occurs by novice participants through being involved in the practices of experts within a community. Learning helps individuals construct knowledge to modify and reconstruct through new interactions to identify themselves (Wenger, 1998). Since individuals have diverse interactions within a community, analyzing their experiences, practices, views or personal philosophies, community relations and negotiations can support understanding their professional identity as a form of learning.

Related Literature
Identity refers to how people see themselves and how they are recognized or accepted by others (Carlone & Johnson, 2007; Stets & Burke, 2003). Avraamidou (2022) argues that identity development is

influenced by social and political factors that may lead to some people to be recognized but others to have lack of recognition. Therefore, research on identity can investigate power relations that may influence participation in a community of practice.

In 1998, Helms explored how science teacher identity was related to teachers' beliefs about the nature of subject matter. As part of a teacher education program, the author worked with five science teachers through a qualitative study and collected data through transcriptions of group meeting discussions, teaching observations, in-depth interviews. The data were analyzed through grounded theory approach to find patterns. The results showed that science teachers identified themselves in terms of actions (excitement), others' expectations (nature of politics), values and beliefs (science vs. faith, philosophy), and what they want to be (scientist) when they talked about the nature of subject matter. The study provided suggestions to understand teachers' pedagogical engagement.

In a recent study, Rushton (2021) worked with five pre-service secondary geography teachers on an environmental education program to understand the development of their professional identities. Data were collected through interviews and participants' reflections and analyzed through reflexive thematic analysis to develop codes and themes through familiarization, coding, theme generation, and narrative writings. The findings indicated that pre-service teachers approached environmental science education in diverse ways: making connections with nature, society, and politics or playful approaches. They also valued and shared their stories on environmental issues: valueing outdoor learning, protecting spaces from damage, coral reefs, sustainability. Teachers tended to facilitate younger students' awareness towards environmental problems to make changes. This study showed the pre-service teachers' identity development in an environmental science education course. The further study suggested the exploration of the ways other science education classes can serve to promote science teachers' identity development.

Participating in professional development courses can assist pre-service teachers to develop a professional stance although they have limited and salient teacher identity at the beginning (Sutherland, et al., 2010). Yuan and Lee (2016) conducted a narrative inquiry to explore the identity development in relation to emotions, reflections, and negotiations of a student-teacher in the process of becoming a teacher. Participant was a last year pre-service language teacher in China, who joined interviews and discussions with the researchers, and kept personal reflections. The narrative analysis was conducted with the participant Ming's data and reported that his negative emotional experiences influenced the process of his learning to become a teacher. At first, Ming described himself as excited and anxious to take the responsibility of being a teacher such as considering students' needs and interests. Second, Ming experienced disappointment about not being able to integrate what he has learned in the teacher education program since mentor teacher resisted to create a passive learning atmosphere in the classroom. He could learn about how power relations could influence the teaching and learning processes, and he needed to be strong and powerful to take constructive actions. Third, his attitude as a student teacher was recognized by his mentor teacher as a good assistant that gave him satisfaction for his work. The participant's experiences enhanced his emotional responses and contributed to the professional identity development.

Avraamidou (2014) conducted a case study to explore a beginning elementary teacher's identity for science teaching. The five-year data were collected through interviews, reflections, assignments, lesson plans, and observations and analyzed through inductive methods. The results showed that the beginning pre-service science teacher developed knowledge of scientific inquiry and enacted diverse strategies such as argumentation, experimentation, and group work among students. Another result was related to the teacher's relationship or communication with others such as family, mentor teacher, and her teachers who influenced her in becoming a teacher. This teacher also discussed the role of gender and context in science and teacher development since there were negative and non-supportive experiences of women in science. The study showed the positive impact of longitudinal data collection to understand teachers' experiences, relationships, and contexts.

Additionally, Timostsuk and Ugaste (2010) aimed to explain 45 pre-service teachers' professional identity. Data were collected through individual and focus group interviews and analyzed through inductive methods to construct the themes of Wenger's (1998) theory of learning. The results reported student teachers' successes and failures. They focused on content coverage using diverse pedagogical

strategies, and they had difficulty finding a teaching community, but they were successful in communicating with mentor teachers and peers to develop themselves. The study emphasized the importance of creating an educational community for the development and preparation of pre-service teachers for future studies.

A study by Menon (2020) aimed to examine pre-service elementary teachers' science teacher identities and self-efficacy beliefs through a science methods course. Participants were 121 pre-service elementary teachers. Among the participants, four elementary science teachers in different content and preparedness levels were selected for classroom instruction. The study was designed and analyzed based on the theoretical framework of Bandura (1977) for self-efficacy and Gee's (2000) identity framework. Data sources included self-efficacy questionnaire, open-ended questionnaire, interviews, reflections, observations, and artifacts. Statistical (repeated measures analysis of variance) and inductive analysis were conducted. The results showed that attending a science methods course enhanced pre-service teachers' self-efficacy beliefs, and their experiences in the course and classroom teaching connected to their self-efficacy beliefs with identity. For example, participants' mastery and verbal experiences were found to be contributor of discourse and affinity identity. The study suggested exploring the relationship between self-efficacy and identity framework in different contexts.

Teacher identity should be linked to develop cultural, pedagogical, and subject matter competence to establish inclusive classroom environments and address diverse student needs (Rodriguez & Navarro-Camacho, 2023). Varelas et al. (2022) studied science teacher identity to focus on multiple identities including race, gender, ethnicity that teachers brought to address equity and justice issues in teacher education. The study focused on teacher learning and identity construction of teachers of color to examine how teachers experience critical pedagogies. The study was designed with a phenomenological approach to understand how teachers experienced and negotiated being teachers of color. Participants were three female first year science teachers (two Hispanic, and one African American teacher). These teachers' application essays to Master of Education program, conversations within the program, and teacher inquiry presentations were utilized as data sources and analyzed based on teacher identity construction framework. The results indicated that these teachers were able to link the conceptions of equity and excellence to their science teacher identity in teaching, reflecting, and lesson design for teaching science, facilitating discourse in the classroom, and addressing multiple identities involving race, color, and gender. The study made suggestions for science teacher education towards equity and excellence framework.

In a narrative case study, Madden and Weibe (2015) studied science teaching of elementary teachers and their teacher identity. Participants were three female second-grade teachers. Data collected through classroom observations, science notebooks, and student interviews. The analysis was conducted by Gee's (2000) framework including nature, institution, discourse, and affinity. The results showed that three teachers defined their teaching in different ways such as hands-on focused, math person, or classroom manager. In terms of institutional identity, although hands-on focused teacher was perceived as teacher of other teachers about science, the other science teachers were defined as extrinsic motivator or classroom leader. Teacher of other teachers had more science related interactions and excitement to science topics whereas math-person found to have didactic instruction and have less interest in science. Classroom-manager or extrinsic motivator liked to talk about science in an informal style since the teacher had a personal interest toward science and aimed to help students listen better. The study suggested exploration of other science teachers to learn how they defined themselves in different frameworks.

These research studies were important to understand the factors that influence and inhibit the development of science teaching identities. The involvement of in-service teachers and prospective teachers in scientific communities and activities can be a useful tool for shaping and developing science teacher identities. Most of the studies focused on elementary teacher education for science teaching, pre-service teachers in general and science education, and induction period of science teachers with a focus on Gee's (2000) framework. Only a few studies focused on in-service science teachers' identity with a focus on Wenger's (1998) theory of learning. These studies were also situated in the elementary school and middle school contexts, leaving a gap in the literature regarding teacher identities for specific science disciplines. An exploration of how physics teachers form and use their teacher identities and the

factors mediating the formation and use of their identities is missing. The current study differs from the previous work to present and compare the experienced physics teachers' identities with theory of learning. This study adds to the literature to explore three male experienced physics teachers' professional identity.

Method

Research Design and Participants

This study aimed to explore how in-service physics teachers understand and describe their professional identity through a multiple case study design (Yin, 2014) using only qualitative approaches. Multiple case study aimed to conduct in-depth analysis for each case to explore their characteristics or perspectives and the patterns across cases (Yin, 2014). This multiple case study was conducted to make a holistic description of physics teachers through in-depth data collection from multiple sources of information and understand the similarities and differences across cases (Merriam, 1998). Three public high school physics teachers were selected from different schools in a metropolitan city in the northwest region of Turkey to be examined and compared. The participants were purposefully selected from 30 physics teachers, who joined one-year long project on teacher identity. Three participating teachers voluntarily agreed to provide data over the course of one year. They were selected as contrastive and illustrative cases to enhance the rich descriptions. These teachers were Ahmet, Mehmet, and Mustafa (Turkish pseudonyms). Demographic information of participants is presented on Table 1. All three teachers were male around 60 years old and had worked for more than 30 years of experience in Turkish Public Schools. They were teaching in public schools and had worked in different kinds of schools including science-based, vocational-based, and normal high schools. They worked in different regions of Turkey before coming to the metropolitan city. These teachers completed four-year physics program and received a teaching certificate by taking pedagogy courses in their university; Ahmet and Mehmet completed the same university in a big city in the east part of Turkey, and Mustafa completed a university in another big city in the northwest region of Turkey. These teachers were teaching all school grades (ninth, tenth, eleventh, and twelfth) that there were 10-25 students in their classes.

Table 1
Demographic information of participants

	Teaching experience	Education Background	University (pseudonymous)	Previous teaching
Ahmet	35	Physics Department + Pedagogy Certificate	East University	Project Schools Vocational Schools Normal Schools
Mehmet	33		East University	
Mustafa	32		West University	

Table 2
Sample interview questions

1. How were your experiences in teacher education program?
2. How do you describe yourselves as a science/physics teacher?
3. How do you define teaching science?
4. How do you think learning is occurring?
5. What supports did you need after you graduated from teacher education program?
6. What supports did you get after you graduated from teacher education program?
7. What is your relationship with students?
8. Are there any facilitating or limitation factors that influence your profession?

Data Collection and Analysis

The main data collection strategy was semi-structured interviews to obtain in-depth information from the participants about their prior experiences, their science teaching orientations, teaching practices, and interactions with others such as students, other teachers, administrators. Each interview took 90 minutes. The sample interview questions are provided on Table 2. The interview questions focused on physics teachers' experiences in teacher education program, their beliefs and teaching orientations, their students' learning, their instructional strategies, and their competency in their work. In addition, the researcher observed these

Table 3
Sample codes, themes, and excerpts from the qualitative analysis

Themes	Categories	Codes	Excepts from Interviews	Data Source
Experience	High school	Emotional	*I decided to be a physics teacher, but not like him* (Mehmet).	Interview
	Teacher education program	Courses	*Attending pedagogy classes were not helpful to learn how to teach physics* (Mehmet).	
	In-service teacher	Curriculum	*Curriculum changed in 2012… I had tried to teach through experiments…There was a lack of equipment to conduct different experiments* (Mustafa).	
		Classroom context	*Classroom environment is not suitable to do experiments* (Mustafa).	
		Student profile	*Physics is considered as a difficult and unachievable subject* (Mustafa).	
Belief	Science	Absolute knowledge	*Books include accepted and validated information, but students believe what is said on YouTube videos* (Ahmet).	Interview
		Political	*Politics cannot be integrated within science since the atomic bomb was a political decision* (Mehmet).	
		Use of experiments	*Students should deal with how and why questions and apply theories through active participation* (Mustafa).	
Community	Interactions with	Students	*I can easily organize students to discuss science topics such as Chaos Theory in physics club* (Ahmet).	Interview
		School/projects	*I organize projects with other science teachers to teach physics. I should teach physics within a social science class as well* (Mehmet).	
		University	*University professors come and discuss physics, atom physics with our students* (Ahmet).	
		Parents	*Parents come and talk to me and ask me to prepare students for the exam without solving complex physics problems* (Mustafa).	
Practices	Instructional Strategies	Triadic Dialogue	*Use of Initiate-Response-Evaluate trio* (Ahmet)	Classroom Practices
		Daily-life examples	*How many meters do I take from the class to teachers' room? Is it distance or displacement?* (Mehmet)	
		Use of board/smartboard	*Openning a question on smartboard* (Mustafa)	

teachers in their classroom and school contexts to take fieldnotes about their practices. The main purpose of the classroom observations was to understand the role of the teacher and instructional strategies. No classroom observation protocol was utilized, but the researcher took fieldnotes based on the teachers' classroom practices. Each teacher's teaching was observed for two lesson hours (100 minutes). Three teachers' interviews, lesson plans, personal statements, and fieldnotes from classroom observations were used to understand teachers' professional identity.

The interviews were audio-recorded and transcribed verbatim for analysis. Since the interviews were conducted in Turkish, the first author read through the interviews and translated important components to English. The interviews were analyzed through thematic analysis (Braun & Clarke, 2006). After reading the responses to the interview questions, the responses were categorized into themes of Wenger's (1998) theory of learning including experience, practice, community, and belief. Table 3 included sample codes, themes and excepts from the interviews. At the end, the case profiles were constructed by the first author to conduct a cross-case analysis to examine the similarities and differences across three teachers in the discussion part.

To establish the ethical standards, the study was designed and conducted through receiving the approval of ethical committee of researcher's university and Ministry of National Education (MoNE) to conduct interviews with in-service physics teachers and observe their classrooms. For trustworthiness of the research analysis, the author used triangulation techniques; the researcher collected data for the purpose of the study through various sources including interviews, lesson artifacts, observations, and written statements. The idea of member checking was used (Denzin & Lincoln, 2011); each participant was also asked to review the interpretations of the data. The author and a graduate student separately read through 30% of the material and identified the connections between categories and codes to establish the interrater reliability. Both the author and graduate student coded the interviews and compared them to check the consistency. After establishing 70% agreement between the raters, disagreements were resolved through discussion.

Findings

Case-1: Ahmet

Experience: Ahmet devoted himself to physics books to solve different types of questions and to help his students. He defined himself as a "question-bank" since he aimed to know all types of physics questions and answer them when students asked. He said, "When I first started teaching, I hesitated with students' questions, and I was angry when I was not able to answer. This forced me to solve a lot of questions. I have been solving all questions for years." He was question-oriented and collected many questions as a guide for students' exam preparation. For his teaching, he said, "High school education in Turkey is very much affected by university preparation: the inability to do laboratories, the lessons are not based on the theory of the course, but always the preparation for university prevails. We must head there" (Interview, 2022/11/09). He emphasized that the curriculum might restrict teachers' teaching or explanation of concepts, he preferred to focus on the details of the concepts. He defined himself as a disciplined person and stated, "It is not a discipline to make students afraid of me, but to help students be organized and study." He added that students' academic background, family status, and interest influenced their approach to physics discipline and stated, "Some students have high interest towards physics, they want to learn particles, quarks, they want to go to CERN. They want to talk to university professors. I need to support them to explore and learn and help me learn as well." He supported and guided his students' physics club activities as an after-class activity to make them engage in science.

Practice: Ahmet's teaching was content-oriented to help students solve problems. During the classroom observations, Ahmet was on board and talking to his students. Teaching resources were white board, smart board, and teachers' personal teaching notes. The teacher explained the physics concepts by drawing figures on a white board and showing visuals and questions on a smart board. The teacher facilitated a triadic dialogue since he asked questions and after he received the responses from students, he evaluated and asked other questions. Typical classroom practices were based on questioning, short student responses and extended teacher explanations (Observation, 2022/11/18).

Community: Ahmet was the oldest and most respected teacher in his school community. He could organize students to work on physics problems and discuss scientific issues. However, he separated his teaching job from physicists work and stated, "Physicists study hard to explain nature, what is going on in space; but I am a teacher at school, and I cannot solve some hard questions in society" (Interview, 2022/11/09). Ahmet considered himself as a teacher at school, but he defined his job as separate from scientists' work. He said, "I am a standard teacher. I show my visual ability in painting, not in science." He emphasized that he did not have a science-related community after school, but he spent time on drawing and painting physical figures. His classroom community lacked the characteristics of dialogic discourse or active learning since the lessons involved the introduction of formulas, drawing graphical representations, and direct teacher explanations with short student responses. The teacher's traditional instruction was related to his emphasis on standard instructional practices to transfer knowledge that linked to teacher's teacher identity.

Belief: Ahmet valued having interest and curiosity to develop scientific knowledge. His approach to science-related activities was limited to traditional books. He defined, "Books include accepted and validated information, whereas students easily believe what is said on YouTube videos" (Interview, 2022/11/09). He emphasized that students could learn through reaching validated information and memorizing accumulated facts. His beliefs about teaching and learning physics aimed to develop good content knowledge through memorization and solving many questions.

Case-2: Mehmet

Experience: Mehmet's experiences as a male physics student had impact on his career choice. Mehmet had negative experiences with a male physics teacher in his high school and stated, "When I saw that strict man was behaving badly to students who could not answer physics questions, I decided to be a physics teacher, but not like him" (Interview, 2022/10/26). His emotional experience enhanced his interest to become a physics teacher. His university professors were also male, and he could develop good content knowledge in their classes, whereas attending pedagogy classes were not helpful to learn how to teach physics. He stated, "There is a problem that physics is taught as the final product of scientific studies, and it is easy to develop alternative conceptions in this way." Mehmet commented on the limitations of teaching physics practices to approach all students as equal, so he aimed to change and develop his practices through attending professional development programs and learning how to prepare good curriculum materials.

Practice: Mehmet's classroom instruction was discussion oriented. Mehmet was walking around students' desks while asking questions to observe what students were doing. Mehmet's facilitation of the discussion started with an open-ended question to explore sets of students' ideas. Students were also asking questions and making extensive explanations to elaborate on each other's responses. Mehmet continued asking conceptual and open-ended questions without providing direct responses (Observation, 2022/11/01). The explanations included examples from real-life events and everyday use of physics concepts. The main element of the lesson was students' responses and teacher guidance to dialogic interaction. White board, smart board, and any book was not used during the lesson. Although some materials were utilized to make demonstrations, no experimental work was included in his lessons.

Community: Mehmet was known as a project-person among science teachers including biology and chemistry teachers to design and enact science projects within their school context. He stated, "We do not have an interdisciplinary curriculum, we are teaching physics without any context. We need to combine science lessons, chemistry, biology, physics, even mathematics to teach concepts. Since we cannot do everything in the classroom, I organize projects with other science teachers to teach physics. I should teach physics within a social science class as well" (Interview, 2022/10/26). He argued that a physics teacher had an important role in students' lives to make them understand their nature and develop analytical thinking skills. He aimed to create a classroom and school environment to motivate and enhance students' interest in everyday physics through data collection, analysis, and explanation. This was also reflected in his classroom community since he aimed to enhance student voice with less teacher talk. Moreover, he emphasized the role of parents in the development of scientific literacy in society. He said, "Parents need to have advanced scientific literacy to support their students'

development as a science person." Mehmet's communicative interactions with colleagues and his students supported him to develop a science community at his school.

Belief: Mehmet valued nature in science. He thought that teaching physics should involve making natural observations, measurements, and connections to daily life. He believed that these teaching strategies could create a disequilibrium in students' thinking to repeat their data collection methods. In addition, he defined science as universal and stated, "Science is not related to ethical, social, cultural, and religious values that could be dogmatic. Socio-cultural values prevent scientific thinking. Politics cannot be integrated within science since the atomic bomb was a political decision. It serves for financial assets" (Interview, 2022/10/26). He thought that scientific products were consumed and used for financial purposes, but his students should learn how to do science for the benefits of the society.

Case-3: Mustafa

Experience: Mustafa described himself as a competent physics student in high school and college years since he completed the physics department as the first rank student. He said, "I believe physics requires questioning. When we think what, how, and why questions, we can do the rest of it with mathematics" (Interview, 2022/11/07). He thought that being a physics teacher was the most appropriate occupation for him since he liked talking about physics. He aimed to attend a graduate school to complete a master program in physics, but he could not continue due to some problems. He said, "I was successful in the graduate school exam, but there were political issues at the universities in 1990s, so I left and continued teaching physics at public schools." He worked in different schools with diverse student profiles including religion-based schools, middle schools, rural schools, and technical high schools. He said, "In most schools, physics is considered as a difficult and unachievable subject; students have a lot of bias towards physics. I think most students in the past -when I was a student- were more ambitious to study physics, but now students tend to choose social sciences. Some students graduate without solving a physics problem." He emphasized that students had low math skills to achieve in physics, but if students had math skills, they tended to study for the exam instead of developing scientific thinking skills. He thought that doing physics experiments was an important component of physics learning to help students learn by doing. He said, "In 2012, the curriculum changed, and we were asked to teach physics through activities. I had tried to teach through experiments for two months by showing the experiments and asking students to answer the questions. There was a lack of equipment to conduct different experiments with all students." Therefore, the teacher preferred to use modelling and virtual simulations during the instruction.

Practice: Mustafa taught physics lessons through lecturing without integrating experimental work. He said, "I am not preparing a lesson plan, but I prepared a smart notebook to give my students to follow during the lesson. Students are not able to take good lecture notes. I ask them to write the definitions, draw figures and solve questions in this notebook. I give homework on this notebook" (Observation, 2022/11/07). The teacher preferred using the question-answer method about the topic to ask questions, receive responses from a few students, and then, ask students to complete the questions on the notebook. The teacher's questions were generally in the knowledge, understanding, and application level. The teacher asked students to solve questions using the formulas. Students needed to listen to the teacher's explanations while answering the questions. For example, he integrated simulations and visual materials such as pictures or videos via smart board. He also used the white board to write explanations and draw figures, but he was not making extensive explanations. He said, "I am not an authoritarian teacher, I give the information that they need to use and work on it." The teacher said that he aimed to manage classroom instruction through a smart notebook and needed more student participation for effective lessons.

Community: Mustafa was known as the expert physics teacher among his colleagues at his school. However, Mustafa indicated that parents could sometimes complain about his teaching style. He stated, "Parents come and talk to me and ask me to prepare students for the exam without solving complex physics problems" (Interview, 2022/11/07). He thought that parents prevented him from giving effective physics lectures in class. He indicated that physics was not only in the classroom, but students also needed to observe real-life physical events and out-of-school science activities to understand what and how something was happening. Thus, his communicative interactions in his classroom were also limited

to smart notebook to cover the content and solve sample questions since he aimed not to exceed the students' and parents' expectations for exam preparation.

Belief: Mustafa defined science as subject to change by making observations of physical and social events and collecting multiple data. He thought that he collected a lot of data about students' learning, and current curriculum and instructional materials forced teachers to teach for memorization without addressing students' learning needs. He added, "Students should deal with how and why questions and apply theories through active participation rather than being passive observers" (Interview, 2022/11/07). He indicated that physics lessons should be taught in laboratories with sufficient equipment for all students. Mustafa defined physics as a dominant positive science and universal that scientific truths could change the social and cultural values to develop systematic thinking.

Discussion, Conclusion, and Suggestions

These three physics teachers' professional identities were analyzed through Wenger's (1998) identity framework considering teachers' experiences, practices, community relations, and orientations to science. The study aimed to explore the following research question: What are the characteristics of professional identity for experienced physics teachers? How do these characteristics influence physics teachers' professional identity?

The results showed that participating experienced teachers had developed different professional identities: question-oriented (Ahmet), project-oriented (Mehmet), and lecture-oriented (Mustafa) teacher identities. Question-oriented teacher identity was aligned with his practices in the classroom and his beliefs about science as accumulated information. Project-oriented teacher identity aimed to collaborate with other teachers on science projects to enhance student participation; he was more student-oriented to increase students' voice in science classrooms. He tended to develop new assessment materials through attending professional development programs. He believed that scientific knowledge had been approached as a financial asset rather than developing scientific literacy, so he aimed to enhance students' interest towards science. Lecture-oriented teacher identity was more lecture-oriented to manage the classroom instruction according to students' and parents' expectations. His beliefs challenged with his practices since he thought that physics should have been taught through experimentation and application. These results showed that although these teachers were aware of reform-minded teaching characteristics, only project-oriented teacher identity facilitated dialogic discourse in the classroom to promote student participation. Question-oriented and lecture-oriented teachers preferred to create a teacher-centered classroom, whereas question-oriented teacher was more disciplined in establishing rules, and lecture-oriented teacher aimed to manage the classroom instruction through science notebook. Project-based teacher attended several professional development programs to learn new educational innovations, question-oriented teacher solved and prepared physics questions for this teaching, and lecture-oriented teacher planned his teaching according to expectations for exam preparation. Like Helms (1998) suggested that these participants defined their positionality as physics teachers referring to their personal characteristics, other's expectations, and their interest towards science projects. These results suggested how teacher development for reform-based instruction was crucial for promoting active learning and for reform-oriented professional teacher identity.

Beauchamp and Thomas (2009) suggested that teacher identity starts to develop in the teacher education program and enhances through being aware of the innovations and understanding their implications for effective teaching and learning. Question-oriented and lecture-oriented teachers continued teaching in the traditional format or enacting teacher-oriented identity after graduating from the teacher education program, but project-oriented teacher valued and taught through discourse that attributed him a more student-oriented teacher identity through his learning of innovative strategies. These teachers attended similar teacher-education programs: they took core physics courses and pedagogy courses to receive a teaching certificate. Since their teacher education programs were content-focused, their identity was shaped by their experiences, communicative interactions, social and physical or school-based factors. For example, question-oriented teacher identity was known as a disciplined elderly teacher, so his lessons focused on solving questions in a silent way, and his students tended to listen to his suggestions. Lecture-oriented teacher was influenced by the pressure of parents to teach for the exam. Project-based teacher was more social in his school to design and conduct science projects to communicate with students and other teachers. This teacher's interest in becoming an active teacher led him to attend

courses and seminars in universities. This finding is related to previous studies that it was possible to support and promote experienced teacher learning to become a reform-minded teacher (Madden & Wiebe, 2015). The K-12 Framework in Science Education also suggests continuous professional development of pre-service and in-service science teachers on scientific practices and nature of science (Avraamidou, 2014; NRC, 2012). Avraamidou (2014) suggested that longitudinal data collection on a pre-service science teacher's identity could provide the process of development of reform-minded identity in later years. This argument is also relevant for in-service science teachers. For example, in the current study, only project-oriented teacher identity had opportunities to join seminars and professional development programs to prepare lesson materials. Question-oriented and lecture-oriented teacher identities were isolated and strived for self-development. This conclusion showed that these teachers did not have a chance to attend a professional development program either in early or late years of their teacher work. These results suggested that physics teachers' development should start in early stages while they were pre-service teachers and continue towards beginning and experienced years in a collaborative process with other teachers and teacher education programs. Our results showed that we need further research to explore how longitudinal professional development programs on reform-based instruction can support in-service physics teachers to develop identities aligned with reform suggestions.

These three case studies indicated that experienced teachers had worked in different teaching and learning contexts, and they had different interactions within school contexts. Teachers' experiences showed how their identity was shaped via their interactions. Ahmet, as a question-oriented teacher was the most respected teacher among his colleagues and students, he had positive relationships with his students since he supported their interest in science in the physics club. However, Mustafa as a lecture-oriented teacher had negative relationships with parents and students, so he limited his teaching to cover the content. Mehmet as a project-oriented teacher had positive interactions with students, other teachers, and outside of the school context on science related issues and courses. Project-oriented teacher had a negative experience with a male physics teacher who undervalued learners' ability to do science, so he aimed to be a responsive teacher for students' needs. Among these teachers, lecture-oriented teacher had more emotional responses to the reactions of others' (such as parents) responses which could contribute to his identity development. These results suggested that in-service physics teachers needed to communicate with other teachers and university professors to design and enact lessons through constructivist pedagogy and to eliminate bias and emotional reactions towards their work (Sutherland et al., 2010; Yuan & Lee, 2016). These interactions can also enhance the equity considerations in teaching and learning science to promote the participation of both female and male learners in physics (Vareles et al., 2022). Project-oriented teacher's reaction to a bad behavior of a male teacher helped him develop culturally relevant strategies to access his students and enhance their participation (Rodriguez & Navarro-Camacho, 2023).

Two teachers' beliefs were related to their practices, only one teacher's beliefs were not in alignment. Question-oriented teacher thought that scientific knowledge was accumulation of validated information and learning occurred through memorization of facts. He taught through triadic dialogue in a teacher-centered format. Project-oriented teacher identity believed that scientific knowledge developed through observations and measurements and required application for data collection and analysis. He aimed to teach through student-oriented instruction. However, lecture-oriented teacher identity believed that learning occurred through observation and application and active involvement, and he taught physics through lecturing. Menon (2020) found that teachers' beliefs and experiences were connected to their identity. However, in our study teachers' meaning of self may be related to or differ from their beliefs or practices. For example, question-oriented and project-oriented teacher identities were contributor of their classroom practice and community interactions, whereas lecture-oriented teacher identity was connected to others' expectations.

This study provided a perspective to understand experienced physics teachers' professional identities. The study was limited to three cases to collect data though a face-to-face interview and classroom observation.These results helped us conceptualize how experienced physics teachers see themselves and how they were viewed by others; we were able to understand these teachers' experiences, beliefs, practices, and communicative interactions. There were both agreements and disagreements on how teachers defined their work and their interactions, their beliefs, and practices. The study showed the

need to focus on development of teacher identity through mentoring. Future studies should focus on in-service physics or science teacher's identity development through longitudinal studies to understand their interactions with students, other teachers, parents as well as in- and out-of-school activities to support teacher learning through reform-based instruction.

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Institutional Review Board Statement: The author's project on "Physics Teacher Identity" was approved by the ethical committee of Boğaziçi University on 31.08.2022 with the document no 2022-51. The document is available on request.

Data Availability Statement: Data generated or analyzed during this study should be available from the authors on request.

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References

Avraamidou, L. (2014). Tracing a beginning elementary teacher's development of identity for science teaching. *Journal of Teacher Education*, 65(3), 223-240. doi:10.1177/0022487113519476

Avraamidou, L. (2022). Identities in/out of physics and the politics of recognition. *Journal of Research in Science Teaching*, 59(1), 58-94. doi:10.1002/tea.21721.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84 (2), 191–215. doi:10.1037/0033-295X.84.2.191

Bates, S. P., Galloway, R. K., Loptson, C., & Slaughter, K. A. (2011). How attitudes and beliefs about physics change from high school to faculty. *Physical Review Special Topics-Physics Education Research*, 7(2), 020114. doi:10.1103/PhysRevSTPER.7.020114

Beauchamp, C., & Thomas, L. (2009). Understanding teacher identity: An overview of issues in the literature and implications for teacher education. *Cambridge Journal of Education*, 39(2), 175-189. doi:10.1080/03057640902902252.

Beauchamp, C., & Thomas, L. (2011). New teachers' identity shifts at the boundary of teacher education and initial practice. *International Journal of Educational Research*, 50(1), 6-13. doi:10.1016/j.ijer.2011.04.003

Beijaard, D., Meijer, P. C., & Verloop, N. (2004). Reconsidering research on teachers' professional identity. *Teaching and Teacher Education*, 20(2), 107-128. doi:10.1016/j.tate.2003.07.001

Berland, L. K., Schwarz, C. V., Krist, C., Kenyon, L., Lo, A. S., & Reiser, B. J. (2016). Epistemologies in practice: Making scientific practices meaningful for students. *Journal of Research in Science Teaching*, 53(7), 1082-1112. doi:10.1002/tea.21257

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. doi:10.1191/1478088706qp063oa

Boyd, P., & Harris, K. (2010). Becoming a university lecturer in teacher education: Expert school teachers reconstructing their pedagogy and identity. *Professional Development in Education*, 36(1-2), 9-24. doi:10.1080/19415250903454767

Carlone, H. B., & Johnson, A. (2007). Understanding the science experiences of successful women of color: Science identity as an analytic lens. *Journal of Research in Science Teaching*, 44(8), 1187-1218. doi:10.1002/tea.20237

Clandinin, D. J., Connelly, F. M., & Bradley, J. G. (1999). Shaping a professional identity: Stories of educational practice. *McGill Journal of Education*, 34(2), 189.

Cohen, J. L. (2010). Getting recognised: Teachers negotiating professional identities as learners through talk. *Teaching and Teacher Education*, 26(3), 473-481. doi:10.1016/j.tate.2009.06.005

Denzin NK, Lincoln YS (2011) Introduction: the discipline and practice of qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research* (p. 1-20). Sage.

Etkina, E. (2010). Pedagogical content knowledge and preparation of high school physics teachers. *Physical Review Special Topics-Physics Education Research*, 6(2), 020110. doi:10.1103/PhysRevSTPER.6.020110

Gee, J. P. (2000). Chapter 3: Identity as an analytic lens for research in education. *Review of Research in Education*, 25(1), 99-125. doi:10.3102/0091732X025001099

Helms, J. V. (1998). Science—and me: Subject matter and identity in secondary school science teachers. *Journal of Research in Science Teaching*, 35(7), 811-834.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge University Press.

Liang, J., Ell, F., & Meissel, K. (2023). Researcher or teacher-of-teachers: What affects the salient identity of Chinese university-based teacher educators. *Teaching and Teacher Education*, 130, 104184. doi:10.1016/j.tate.2023.104184

Madden, L., & Wiebe, E. (2015). Multiple perspectives on elementary teachers' science identities: A case study. *International Journal of Science Education*, 37(3), 391-410. doi:10.1080/09500693.2014.987715

Melasalmi, A., & Husu, J. (2018). A narrative examination of early childhood teachers' shared identities in teamwork. *Journal of Early Childhood Teacher Education*, 39(2), 90-113. doi:10.1080/10901027.2017.1389786

Menon, D. (2020). Influence of the sources of science teaching self-efficacy in preservice elementary teachers' identity development. *Journal of Science Teacher Education*, *31*(4), 460-481. doi:10.1080/1046560X.2020.1718863

Merriam, S. B. (1998). *Case Study Research in Education*. San Francisco, CA: Jossey-Bass Publishers.

National Research Council. (2012). *A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas*. National Academies Press.

Next Generation Lead States (2013). *Next Generation Science Standards.* Washington DC: National Academies Press.

Nissen, J. M., Horses, I. H. M., Van Dusen, B., Jariwala, M., & Close, E. W. (2021). Tools for identifying courses that support development of expertlike physics attitudes. *Physical Review Physics Education Research*, *17*(1), 013103. doi:10.1103/PhysRevPhysEducRes.17.013103

Renwick, K. (2023). Developing teacher identity through purposeful dialogue. *Teaching and Teacher Education*, *128*, 104135. doi:10.1016/j.tate.2023.104135

Rodriguez, A. J., & Navarro-Camacho, M. (2023). Claiming Your Own Identity and Positionality: The First Steps toward Establishing Equity and Social Justice in Science Education. *Education Sciences*, *13*(7), 652. doi:10.3390/educsci13070652

Rushton, E. A. (2021). Building teacher identity in environmental and sustainability education: The perspectives of preservice secondary school geography teachers. *Sustainability*, *13*(9), 5321. doi:10.3390/su13095321

Schleicher, A. (2019). *PISA 2018: Insights and Interpretations*. OECD Publishing.

Schutz, P. A., Nichols, S. L., & Schwenke, S. (2018). Critical events, emotional episodes, and teacher attributions in the development of teacher identities. In P.A. Schutz, J. Hong, & D.C. Francis (Eds.). *Research on Teacher Identity: Mapping Challenges and Innovations* (49-60). Springer.

Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, *15*(2), 4-14.

Stets, J. E., & Burke, P. J. (2003). A sociological approach to self and identity. In M. Leary & J. Tangney (Eds). *Handbook of Self and Identity*, (23-50). Guilford Press.

Stets, J. E., & Serpe, R. T. (2013). Identity theory. In J. DeLamater & A. Ward (Eds.), *Handbook of Social Psychology* (pp. 31-60). Springer Netherlands.

Sutherland, L., Howard, S., & Markauskaite, L. (2010). Professional identity creation: Examining the development of beginning preservice teachers' understanding of their work as teachers. *Teaching and Teacher Education*, *26*(3), 455-465. doi:10.1016/j.tate.2009.06.006

Timoštšuk, I., & Ugaste, A. (2010). Student teachers' professional identity. *Teaching and Teacher Education*, *26*(8), 1563-1570. doi:10.1016/j.tate.2010.06.008

Trent, J. (2015). " Inclusive and different?" Discourse, conflict, and the identity construction experiences of preservice teachers of English language learners in Australia. *Australian Journal of Teacher Education*, *40*(10), 7. doi:10.14221/ajte.2015v40n10.7

Varelas, M., Segura, D., Bernal-Munera, M., & Mitchener, C. (2023). Embracing equity and excellence while constructing science teacher identities in urban schools: Voices of new Teachers of Color. *Journal of Research in Science Teaching*, *60*(1), 196-233. doi:10.1002/tea.21795

Wenger, E. (2015). *Communities of practice: A brief introduction*. Retrieved September, 14, 2023, from http://www.ewenger.com/theory/.

Wenger, E. (1998). Communities of practice: Learning as a social system. *Systems Thinker*, *9*(5), 2-3.

Yin, R. K. (2014). *Case Study Research Design and Methods* (5th ed.). SAGE.

Yuan, R., & Lee, I. (2016). 'I need to be strong and competent': A narrative inquiry of a student-teacher's emotions and identities in teaching practicum. *Teachers and Teaching*, *22*(7), 819-841. doi:10.1080/13540602.2016.1185819

Zeichner, K., & Gore, J. (1990). Teacher socialization. In R. Houston (Ed.), *Handbook of Research on Teacher Education* (pp.329-348). Macmillan.

The Effect of Using Digital Story In Teaching Proverbs And Idioms To Primary School Students[1]

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Abstract

In this study, it was aimed to determine the impact of using digital stories in teaching proverbs and idioms to primary school students. In the study, a pretest-posttest quasi-experimental research design with a control group was preferred. The sample of the study was created by 86 second-grade students who studied in a primary school in the Erzurum province in the 2021-2022 academic year. The semi-experimental process was completed in a total of 5 weeks with a 3-week teaching program and 2-week test application. During this time, the experiment group was taught proverbs and idioms through digital stories. The control group was taught with the traditional straight narrative. The study data were collected using the "Family and Child Information Form", in which the demographics of the students were included, and the "Proverb and Idioms Success Test", which was developed by the researcher. The data were analyzed using SPSS 22.0, and G-power 3.1 statistical package programs. Analysis was done using power analysis, descriptive statistics, dependent sample t-test, independent sample t-test, chi-square test, and Kuder-Richardson's-20 test. In the study, it was determined that there was a significant increase in the course of the experiment group between Proverbs and Idioms Success Test scores of students in the experiment and control group following the application of digital story-based proverbs and idioms teaching. According to the results of the research, the use of digital stories in the teaching of proverbs and idioms was found to provide students with a better learning and understanding of the subject.

Keywords: Proverb, idiom, digital story, vocabulary

Introduction

Language is considered the fundamental tool of communication, and as such, its importance in education is crucial for the sustenance and continuity of life. These structures, which can be approached both in written and visual forms, have played a role in education as both a means and an end due to their contained elements. Language, which carries influences from the lives of societies, increases its significance proportionally when used correctly in its content. Idioms and proverbs, recognized as traces of experience, serve as fundamental elements for the linguistic transmission of a culture. Hence, idioms and proverbs play a pioneering role in the transmission of cultural heritage, along with the proper usage of language, and are vital points that need meticulous attention within educational processes.

Language, having existed simultaneously with the history of humanity, is the most essential element that has played a fundamental role in the transmission of communication and culture. The sharing and accurate transmission of culture depend on preserving and comprehending language to ensure the continuation of national culture across generations. Idioms and proverbs represent the richest cultural elements contained within language (Kaban & Bulut, 2020, p. 2686; Özerbaş & Öztürk, 2017, p. 102).

Among the most identifiable recurrent expressions are proverbs and their closely associated idioms. Centuries of paremiological study have underscored their significance within language and culture, demonstrating their widespread popularity among various cultural traditions (Davis, 2021). Proverbs are words that stem from the thoughts of a nation as a result of the experiences and observations experienced by the large communities in it during the historical process, and are made public because the narrator is not remembered, and have taken the form of sentences with structural judgment (Kaban & Bulut, 2020, p. 2686). Idioms, however, are concise, short, and formulaic expressions of the language spoken by a community and convey many material and spiritual cultural elements of that society, e.g., customs, beliefs, traditions, way of living, and way of thinking (Bulut, 2013, p. 569; Kaban & Bulut, 2020, p. 2688). As the most important building blocks of vocabulary, proverbs, and idioms can express a lot with few words and convey the past and experiences, making them important in education. When people use language, they often utilize words or expressions that may not have a direct literal meaning. Proverbs and idioms are terms designated for these expressions. Language acquisition can occur through various sources such as movies, cartoons, textbooks, and stories. Among these, stories are the most common medium through which children encounter these linguistic phenomena (Sayekti, 2023). To employ proverbs and idioms in education, it is required to provide students with settings that are more understandable and suitable for experience because of their abstract structure, and stories used from the past to provide these settings (Özerbaş & Öztürk, 2017, p. 103).

Because stories provide students with creative thinking skills and imagination, it will be productive to teach the advice and lessons learned as a result of past events with proverbs idioms, and stories (Bayrak & Şahin, 2019, p. 46). Digital applications enable students to be more active and employ visual/auditory/tactile senses and alternative education opportunities. The digital story, which is frequently used in education among digital applications, has the advantages of interacting, especially on abstract subjects, visualizing the narrative, and making learning easier. Additionally, the utilization of these elements in education is justified by their capacity to create imaginative elements and metaphorical structures that appeal to the senses, their ease of application, and their economical nature. (Ciğerci & Gültekin, 2019, p. 47).

Varışoğlu, Şeref, Yılmaz and Gedik (2014) stated in his study conducted on proverbs and idioms, which are so important to teach, that they were language products that had rich expression content that showed the culture and philosophy of the society, combined the past and the present, strengthened the expression and made the expression interesting. These products also enable the person to express himself/herself adequately in written and oral form in teaching Turkish, and they aim to employ the beauty and elegance of the language economically, correctly, and effectively.

When the Turkish course curricula are evaluated, there must be an effective teaching approach that is far from the traditional education approach and rather than plain expression to achieve the purpose of

teaching proverbs and idioms in the acquisition of the field of vocabulary. The fact that their metaphorical structures and sources are based on the past makes it difficult for today's students to properly perceive proverbs and idioms. So much so that the comprehension of the meaning of proverbs and idioms in the teaching process, their permanence, and reflection on language use cannot be achieved at the targeted level (MEB, 2019, p. 8).

Achieving the targeted acquisitions in teaching proverbs and idioms is possible with educational practices that focus on the student and are designed in this respect. In our present day, thinking that primary school students are considered the Z-Generation and live in the age of technology, it is inevitable to structure the teaching process with digital education technologies and settings in teaching a meaning-based subject e.g., proverbs and idioms (Kaban & Bulut, 2020).

A digital story is among the digital education technologies that are effective, economical, easy to employ and widespread and have high student readiness. Visualizing the metaphorical aspect of proverbs and idioms and facilitating their learning in this way are the most advantageous aspects of the digital story. Also, the origin stories of proverbs and idioms can be presented to the student with a visual expression appropriate to their level with this technology (Duran & Ertan Özen, 2017). Providing the teaching of proverbs and idioms, which have an important place in language and culture education, with digital stories will contribute to education in terms of their compliance with the requirements of the age and the efficiency of education.

In this regard, the study aimed to investigate the impact of using digital storytelling in teaching proverbs and idioms to primary school students. Accordingly, three research problems were formulated. The study sought answers to the following research questions:

1. Is there a significant difference between the pre-test and post-test scores of the students in the experimental group for which digital story-based proverb and idiom teaching were used?
2. Is there a significant difference between the pre-test and post-test scores of the students in the control group for which teaching based on the Turkish Course Curriculum was used?
3. Is there a significant difference in terms of post-test scores between the students in the experimental group for which digital story-based proverb and idiom teaching were applied, and the students in the control group for which teaching based on the Turkish Course Curriculum was applied?

Method

The study had a quasi-experimental study with a pretest-posttest control group within the scope of quantitative study methods. Experimental studies aim to test the effect of the differences created by the researcher on the dependent variable (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz & Demirel, 2018, p. 195). A pre-test was first applied to the entire sample group in the quasi-experimental study model and the application whose effect is examined is presented to the experimental group. No additional application was performed in the control group. Finally, the entire sample group was subjected to a post-test and the study was terminated (Coştu & Ünal, 2007, p. 199).

During the study process, the teaching of proverbs and idioms was performed by the researcher by using "digital stories" for the students in the experimental group. Proverbs and idioms were explained to the students in the control group by the researcher using a direct narrative method to the students in the control group, digital stories were not used. The pre-test applied to both groups at the beginning of the study process was applied as the post-test after the digital story-based teaching was completed.

Study Group

The study was conducted in the school where the researcher worked as a classroom teacher, using the convenience sampling method, which enabled data collection quickly and economically (Cohen, 1988). The population of the study consisted of second-grade students who were studying in the 2021-2022 academic year. The sample consisted of second-grade students studying at a primary school during the 2021-2022 academic year.

Analysis was performed in the G*Power 3.1 program to determine the sample size, a sample of 74 people was preferred with a 95% confidence interval, 5% margin of error, 0.85 effect size (Faul, Erdfelder, Lang & Buchner, 2007), and a 95% ability to represent the population. As a result, the study

was conducted with a total of 86 students, 43 experimental + 43 control, with approximately 14% reserve.

When demographic characteristics were examined, it was found that 65.1% of the experimental group was female, 53.5% of the mothers had a bachelor's degree, and 65.1% of the fathers had a bachelor's degree. It was found that 51.2% of the control group were female students, 58.1% had mothers with bachelor's degrees, and 48.8% had fathers with bachelor's degrees.

The demographic characteristics of the experimental and control groups and the dependent variable of the study were evaluated in the study with the Proverbs and Idioms Achievement Test and compared according to the pre-test scores. It was found that there was no significant difference between the groups and that the groups had similar characteristics (p>0.05).

Data Collection Tools
The "Family and Child Information Form" and "Proverbs and Idioms Achievement Test" were used as the data collection tools in this study.

Family and Child Information Form
The relevant form consisted of 5 questions about the demographic characteristics of the mother/father (age, education level) and the student (gender).

Proverbs and Idioms Achievement Test
This test, which consisted of 12 questions in total, was based on the list of proverbs and idioms that emerged as a result of the researcher's review of the Turkish Textbook and the 2nd Grade Study Questions book recommended by the Ministry of National Education to be used in Turkish Course s with the approval of the Board of Education in the 2021-2022 academic year. The test was submitted to the opinion of 44 primary school teachers in Turkey with an online form prepared by the researcher. Proverbs and idioms were evaluated by the teachers in terms of suitability for students' language and education levels, frequency of usage, and control of the curriculum. After the evaluations, and after the selection of the 3 proverbs and 3 idioms that received the most votes, a 12-question multiple-choice achievement test that included these proverbs and idioms was prepared by the researcher. The questions were also evaluated in terms of intelligibility, grammar, relevance to the curriculum, and the final version of the test was given according to expert opinions with the feedback received from four faculty members from the field of education as experts. The KR-20 value for the reliability of the achievement test was found as 0.71 (in the experimental group) and 0.85 (in the control group). A one-question sample of the achievement test used in the study is given below:

- *"Which of the following stories can be associated with the proverb "A liar's candle burns until the end of time"?*
  A) Snow White and the Seven Dwarfs
  B) The False Shepherd
  C) Country Mouse and City Mouse"

Implementation Process of the Study
The study was conducted with 2nd-grade students who were studying in a primary school in the Palandöken district of Erzurum in the 2021-2022 academic year. The questionnaires were applied face to face to the students in the experimental and control groups as pre-test and post-test. The Child Information Form was answered by the families of the students who participated in the study. Before starting the quasi-experimental study, the "Proverb and Idiom Achievement Test" was applied to the experimental and control groups. The scores obtained in this step were recorded as the pre-test scores of the students in the experimental and control groups.

The study was conducted in a total of 24 lesson hours for 3 weeks in the form of teaching two lessons every week, depending on the curriculum of the classes and the routines of the teachers to process the curriculum. The lessons of the experimental and control groups were conducted by the researcher. The researcher introduced proverbs and idioms directly to the control group, while utilizing digital stories prepared by the researcher for the experimental group, depicting the origin and meaning of these proverbs and idioms. To achieve this, six distinct digital stories were created using diverse digital storytelling applications. These stories were designed based on the incorporation of idioms and

proverbs found in the 2nd-grade curriculum books specified by the Ministry of National Education. Digital story texts were taken from the story books approved by the R.T. Ministry of Culture and Tourism and with the International Control Book Number (ISBN) and found in line with the expert opinions. Attention was paid to integrating the texts with digital story technology, being understandable according to the level, and having the required characteristics in terms of text structure. In designing digital stories used as course material, images that were suitable for the selected texts were provided by the researcher, taking into account copyright concerns. Missing or faulty points in the pictures and videos in the book were corrected by making the final controls of the visuals, voice recordings, multimedia materials, and all the final controls placed in the stories by the consultant, designer, and researcher. Expert opinions were sought to analyze the story texts and digital stories, and the texts and digital stories were finalized in line with their opinions. An example of a digital story used in the study along with its visuals is provided below:

> **Idiom**: Letting The Goats Escape
> **URL Address of The Digital Story**: https://www.storyjumper.com/book/read/122924502
> **Origin Story of The Idiom**:
>
> *One day, a shepherd was grazing his goat flock in the mountains. He got sleepy in the noonday heat. He let the goats loose and lay down under the shade of a tree to take a nap. When the shepherd woke up, what did he see? The goats were nowhere in sight! He thoroughly searched the surroundings but couldn't find the goats.*
>
> *'Oh no,' he said, 'What will I tell the owner of the flock? My goodness! Where could an entire herd go, and how could they disappear?'*
>
> *The bewildered shepherd continued searching for his goats. Eventually, the goats, feeling both overheated and thirsty, all together went to a nearby cave where nobody was aware of their presence yet.*
>
> *Running here and there, the shepherd lamented, 'I couldn't fulfill my duty as a shepherd. I let the goats escape.'*
>
> *In this state, he hastened to the village. He began muttering to anyone who came before him, 'I let the goats escape, what will I do now?'*
>
> *The villagers, curious, went up the mountain to search for the goats. Meanwhile, the goats, after quenching their thirst and cooling off from the small pools inside the cave, came out and started grazing where the shepherd had left them. The villagers were astonished when they found the herd safe and sound. They counted one by one, and all were there. In this situation, they believed the poor shepherd had gone mad. They handed over the goat herd to another shepherd. But after a few days, the same thing happened to the new shepherd. He, too, ran to the village exclaiming, 'I let the goats escape.' Then, a wise shepherd emerged, found the cave, and the truth was revealed.*" (Gündüzalp, 2016, p. 23).

Figure 1: Some Images Used in the Digital Story of the "Letting The Goats Escape Idiom"

The digital stories were presented to the students on the smart boards in the classrooms in the quasi-experimental application. During the application process of the study, the lesson plans were prepared by considering the Turkish Course plans of the 2nd grade of primary school.

Data Analysis

The analysis of the data obtained from the "Proverb and Idiom Achievement Test" and the "Child Information Form", which were used as pre-test and post-test, was made using statistical package programs in the study. Power analysis was performed in the G-power program to determine the sample. The SPSS 22.0 program was used for other statistical evaluations. Firstly, the normal distribution of the data was evaluated with skewness and kurtosis coefficients, and the range of +2 and -2 was used as the limit value (George & Mallery, 2019). Reliability analyses of the measurement tools were made by using Kuder-Richardson's Formula (KR-20). It is recommended that the KR-20 reliability approach be used in measurement tools whose answers are characterized in the form of "correct/incorrect" and only correct answers are scored. A KR-20 reliability coefficient of 0.70 and above is considered adequate for the reliability of the measurement tool (Can, 2018, p. 388; Büyüköztürk et al., 2018, p. 183). The demographic characteristics of the students in the experimental and control groups were compared by using the Chi-Square and Independent Samples *t*-test. The Dependent Groups *t*-test was used to compare the pre-test and post-test scores of the students in the experimental and control groups. The Independent Groups *t*-test was used for the comparisons between the groups. The effect size of the significant differences found as a result of the test was evaluated with Cohen's *d* Analysis, which is the effect size coefficient obtained when continuous data is used and differences between means are found. The *d* coefficient, which can take any value, is considered a small effect power with a value of 0.2, a moderate effect power of 0.5, and a large effect power of 0.8 (Cohen, 1988; Karagöz, 2019, p. 1245).

Findings

The pre-test mean scores of the experimental and control groups were compared in the first step of the study with the Independent Groups *t*-Test. The pre-test-post-test scores of the groups were compared regarding the sub-problems of the study. The findings obtained according to the research questions are given below.

Is there a significant difference in terms of pre-test scores between the students in the experimental group where digital story-based proverb and idiom teaching was applied and the students in the control group where teaching based on the Turkish Course Curriculum was applied?

Before the digital story application, the Proverb and Idioms Achievement Test-pretest mean score of the students in the control group ($\bar{X}$=9.23, SD=2.61) was found to be higher than the mean score of the students in the experimental group ($\bar{X}$=8.41, SD=1.60) (Table 1). No statistically significant differences were detected between the Proverb and Idioms Achievement Test pre-test total score averages of the groups (t(84)=-1.738, p=0.086). In this respect, the experimental and control groups were equivalent to each other in terms of the Proverbs and Idioms Achievement Test pre-test scores.

Table 1.
The Comparison of Proverbs and İdioms Achievement Test-Pretest Scores of The Experimental and Control Groups

Variable	Group	N	$\bar{X}$	SD	df	t	p
Proverbs and Idioms Success Test (Pre-test)	Experimental	43	8.41	1.60	84	-1.738	0.086
	Control	43	9.23	2.61			

Is there a significant difference in terms of pre-test and post-test scores between the students in the experimental group where digital story-based proverb and idiom teaching was applied and the students in the control group where teaching based on the Turkish Course Curriculum was applied?

Proverbs and Idioms Achievement Test post-test mean score (X̄= 10.65, SD= 1.46) of the students was higher in the experimental group than the pre-test mean score (X̄=8.41, SD=1.60). According to the results of the dependent group *t*-test that was performed in the experimental group, it was found that the mean score (X̄=-2.24) and standard deviation (SD=1.36) of the students increased at statistically significant levels after teaching digital story-based proverbs and idioms (t (42)=-10.765, p=0.000) (Table 2). The effect size that was calculated as a result of the test (d=-1.6) showed that this increase was at a very high level. In this respect, it was found that teaching digital story-based proverbs and idioms had a wide impact on students' understanding of proverbs and idioms.

Table 2.
The Dependent Sample T-Test Results Regarding The Proverbs and İdioms Achievement Test Pretest-Posttest Scores of The Experimental Group

Proverbs and Idioms Achievement Test	N	X̄	SD	df	t	p	d
Pre-test-Post-test	43	-2.24	1.36	42	-10.765	0.000	-1.6

Is there a significant difference between the pre-test and post-test results of the control group students, to whom the instruction based on the Turkish Course Curriculum was applied, regarding the proverb and idiom teaching activities?

Proverbs and Idioms Achievement Test post-test mean score (X̄= 9.41, SD= 2.38) of the students in the control group was found to be higher than the pre-test mean score (X̄=9.23, SD=2.61). According to the results of the dependent group *t*-test performed in the control group. After the narration, the mean score (X̄=-1.10) and standard deviation (SD=0.17) of the students increased (t(42)=-1.112, p=0.272); however, it was found that this increase was not statistically significant (Table 3).

Table 3.
The Dependent Samples t-Test Results of the Control Group's Proverbs and Idioms Achievement Test Pre-Test-Post-Test Scores

Proverbs and Idioms Achievement Test	N	X̄	SD	df	t	p	d
Pre-test-Post-test	43	-1.10	0.17	42	-1.112	0.272	-

Is there a significant difference in terms of post-test scores between the students in the experimental group where digital story-based proverb and idiom teaching was applied and the students in the control group where teaching based on the Turkish Course Curriculum was applied?

Proverbs and Idioms Achievement Test-posttest score average was found to be X̄=10.65, SD=1.46 for the students in the experimental group after the digital story application, and as X̄=9.41, SD=2.38 for the students in the control group after the direct narration method (Table 4). It was found that the post-test mean score of the students in the experimental group was higher than the students in the control group. A statistically significant difference was detected between the Proverbs and Idioms Achievement Test post-test mean scores of the two groups (t(84)=2.891, p=0.005). The effect size (d=0.6) calculated as a result of the test showed that this increase was moderate. In this respect, it was found that digital story-based proverb and idiom teaching had a moderately significant effect on students' level of understanding of proverbs and idioms compared to the plain expression method.

Table 4.
The Comparison of Proverbs and Idioms Achievement Test-Post-Test Scores of Experimental and Control Groups

Variable	Group	N	$\bar{X}$	SD	df	t	p	d
Proverb and Idioms Success Test Experiment (Post-test)	Experimental	43	10.65	1.46	84	2.891	0.005	0.6
	Control	43	9.41	2.38				

Considering the results of the use of digital stories in the teaching of proverbs and idioms, it was found that the average score of the students in the experimental group increased at significant levels (t (42)=-10.765, p=0.000) and this increase had a great effect (d=1.6). It was also found that the post-test scores of the students in the experimental group to which the digital story application was used were higher at significant levels than the post-test scores of the students in the control group who had direct narration (t(84)=2.891, p=0.005) and this difference had a moderate effect (d=0.6).

Results and Discussion

In the present study, the effects of digital story-based proverbs and idiom teaching on the success of second-grade primary school students in making sense of proverbs and idioms were examined. The results can be listed as follows. It was found after the digital story-based proverb and idiom teaching that the post-test scores of the Proverb and Idioms Achievement Test of the experimental group were at significant levels higher than the control group, which shows that digital story-based teaching has positive effects on student success in understanding proverbs and idioms. Statistically, this effect was evaluated as moderate level. Also, it was found that the post-test scores of the experimental group were at significant levels higher than the pre-test scores, and digital story-based proverb and idiom teaching had a wide impact on the student's level of understanding proverbs and idioms. Based on this, it was found that the positive effect of digital story-based proverb and idiom teaching studies on student teaching continues in the group.

According to the results of the present study, it was found that the use of digital stories in teaching proverbs and idioms enabled students to learn and understand the subjects better. It is aimed during the education process to raise individuals who have the competencies of the age. In this context, the use of digital story applications that include virtual elements, augmented reality, and multimedia applications in educational processes is gaining importance with each passing day (Dolan & Aydın, 2020; Özerbaş & Öztürk, 2017). Although there are no studies in the literature in which digital story-based applications are used in teaching proverbs and idioms, it was found that there are studies that examined the effects of different applications. One study examined the effects of augmented reality applied to 2nd-grade primary school students on their idiom learning levels. As a result of the study, which was conducted with an experimental model with 29 students, it was reported that augmented reality had a significant effect on teaching idioms (Şahin, 2019). It was found in the study conducted by Kaban and Bulut (2020) that teaching proverbs and idioms to preschool students with multimedia materials enabled them to understand and learn proverbs and idioms better. In the study that was conducted in 2017 by Khonbi and Sadeghi, who reported that idioms are important parts of communication and have an important place in foreign language education, the instructional effects of idiom teaching on students' idiomatic competence in four modes (short film clip, sentence use, definition, and role-playing) were examined. Researchers, who found that teaching methods played important roles in learning idioms, said that the order of effectiveness was first role-playing, then movie, sentence, and definition (Khonbi & Sadeghi, 2017). As a result of the literature review, it can be argued that technology is among the most important elements in increasing the efficiency of education and that it must be used as qualified teaching material in concretizing abstract subjects in language skills courses. The study, however, reached parallel results with the literature data by presenting an experimental study that provided the intelligibility required by proverbs and idioms with the digital story method. When it is considered that the abstract and metaphorical meanings of proverbs and idioms make it difficult to employ correctly and actively at the level of primary school students, the study provided reliable results with various analyses by combining the teaching of

proverbs and idioms with the application of digital stories to program creators, practitioners in education and scientific settings.

There is a limited number of studies in the literature regarding teaching proverbs and idioms that examined the effects of technological applications, as well as the examination of different methods and techniques. In this context, it was reported in the study conducted by Özbay and Akdağ in 2013 that the use of active learning in teaching idioms enriched students' language development and they enjoyed the lesson. In another study, Batur and Yavaşça (2018) taught with the animation technique. In the present study, in which activities related to 10 proverbs were performed, it was found that students' learning of proverbs with drama activities improved. In their study aiming to reveal the effect of using the demonstration technique on the success of teaching idioms in Turkish Course s, Yaman and Gülcan (2009) found that the demonstration technique was more effective in teaching idioms compared to the traditional method. Varışoğlu et al. (2014) examined the effects of cartoons on understanding idioms and proverbs. Based on the data obtained in their study which was conducted in a quasi-experimental design, it was found that the use of cartoons was more effective than the proverbs and idioms taught in Turkish curricula.

There is a lot of literature on the place of digital applications in children's lives from different perspectives. Gözüm and Kandır (2020), who worked with 643 parents in their study aiming to develop a scale that includes parents' mediation strategies during children's digital games, found that a valid and reliable scale was formed in a factor structure consisting of active co-playing, technical and laissez faire mediation strategies. Gözüm (2022), who also took her place in the literature with her research examining digital games and family involvement strategies, conducted an educational examination of STEM-content digital games played by 60-72-month-old children using the document analysis technique. As a result, she found that the children of parents who used the active co-playing strategy played at least one STEM game.

Augmented reality applications have been widely preferred digital applications in the educational field. When the literature is examined, studies on augmented reality are also seen. In their study aiming to determine the effects of augmented reality applications on learning outcomes in teaching animals, Yılmaz and Gözüm (2023) conducted the research with 37 kindergarten students and 2 teachers. As a result of the research, it was determined that augmented reality applications had a positive effect on children's recognition of animals.

There are also studies in the literature to reveal the profiles of teachers, the practitioners of digital applications in education, on this issue. One of them is a qualitative case study conducted by Aldemir Engin (2023) with four secondary school mathematics teachers studying for a master's degree at a state university in Turkey. The study presents reflections from the online Digital Storytelling Workshop. According to the results of the study, which used content analysis to analyze the data, it was determined that the participants had the most difficulty in creating a dramatic question and adding multimedia. While evaluating the sample digital stories, it was observed that the participants paid more attention to the dramatic question, sound and music elements. The digital stories prepared at the end of the workshop were analyzed and it was determined that all participants improved in preparing digital stories in accordance with mathematical rules.

The effects of digitalization have been investigated not only in Turkish lessons but also in different fields. In the study where digital storytelling in early mathematics education was investigated, 30 preschool teachers were provided to continue Digital Mathematics Stories Training and to reveal their experiences. At the end of a one-week theoretical and practical training with 0 teachers, it was determined that teachers' self-confidence increased, they turned towards creativity and production, and their ability to integrate mathematics and technology increased (Ulutaş, Çakmak, Akıncı Coşgun, Bozkurt Polat, Aydın Bölükbaş, Engin, Kayabaşı & Özcan, 2022, p. 393). Again, in a study investigating digital storytelling in the field of mathematics, studies on digital storytelling between 2005-2019 were compiled. As a result, the study revealed the increasing importance of digital storytelling with the digital age. In addition, digital reveals that storytelling enables students to learn actively by exploring, helps them develop creative and critical skills, and provides an opportunity to learn by doing (Demirbaş & Şahin, 2020).

As a result of the literature review, it was found that there was a common opinion on the importance of learning and using proverbs and idioms. Also, when both national and international literature were reviewed, methods, techniques, and materials for teaching proverbs and idioms were revealed. There was a study that made suggestions with both textual and visual approaches, and there were also studies in digital approaches, that pointed out the requirements of the age. However, experimental studies that combine the necessity of teaching proverbs and idioms, the importance of stories as teaching material in Turkish Course s, and the use of digital story applications in the light of technological developments, as in the present study, are quite limited. Technology has numerous characteristics e.g., saving the teaching process from abstraction and making it more accessible in terms of time, space, and economy. The digital story has these advantages as well. It is possible in a digital story to make a plot visible and interactive with multimedia materials. It was concluded in the study that digital story-based proverb and idiom teaching studies increased the skills of understanding and using proverbs and idioms. In this context and in line with the results of the present study, the use of digital stories can be expanded in Turkish Course s to expand the use of digital stories in education and to increase the presence of proverbs and idioms in students. Future studies can be conducted with larger study groups and for longer periods. In this regard, more generalizable and reliable results can be achieved. Seminars or in-service training can be organized for teachers about the "Digital Story" technology, which is new and not used widely in education so that they can employ it in their classes. The study was conducted in a semi-experimental design. studies with a mixed design and a combination of qualitative and quantitative evaluation can be conducted in the future.

References

Batur, Z., & Yavaşça, H. (2018). Dinle atasözünü oyna öğren özünü: Atasözü öğretimi. *Araştırma ve Deneyim Dergisi*, 3(2), 93-117.

Bulut, M. (2013). Türkçe eğitimi ve öğretiminde dil ve kültür aktarimi araci olarak atasözleri ve deyimlerin önemi. *Electronic Turkish Studies*, *8*(13), 559-575.

Büyüköztürk, Ş., Kılıç Çakmak, E., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2018). *Eğitimde bilimsel araştırma yöntemleri* (25 b.). Ankara: Pegem Akademi.

Can, A. (2018). *Spss ile bilimsel araştırma sürecinde nicel veri analizi* (4 b.). Ankara: Pegem Akademi.

Ciğerci, F. M., & Gültekin, M. (2019). Dijital hikâyelerin dinlemeye yönelik tutuma etkisi. *Harran Maarif Dergisi*, *4*(2), 45-73. doi:10.22596/2019.0402.45.73

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. The United States of America: Lawrence Erlbaum Associates.

Coştu, B., & Ünal, S. (2007). Günlük yaşamdaki olaylarin fen bilimleri öğretiminde kullanilmasi. *Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi (KEFAD)*, *8*(1), 197-207.

Davis, E. (2021). *Quantifying proverb dynamics in books, news articles, and tweets*. The Faculty of the Graduate College of The University of Vermont.

Demirbaş, I., & Şahin, A. (2020). A systemic analysis of research on digital storytelling in Turkey. *International Journal of Progressive Education*, *16*(4), 45-65.

Dolan, N., & Aydın, İ. S. (2020). Dijital öykü yazarliğinin çeşitli değişkenlere göre incelenmesi. *Dil Eğitimi ve Araştırmaları Dergisi*, *6*(1), 17-34.

Duran, E., & Ertan Özen, N. (2017). Dijital öyküler ve Türkçe öğretiminde kullanimi. *Avrasya Dil Eğitimi ve Araştırmalar Dergisi*, *1*(1), 76-105.

Engin, R. A. (2023). A digital storytelling workshop with Mathematics teachers. *e-Kafkas Journal of Educational Research*, *10*(2), 333-352.

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G*power 3: a flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*(2), 175-191. doi:10.3758/bf03193146

George, D., & Mallery, P. (2019). *IBM Spss statistics 25 step by step a simple guide and reference*. New York and London: Routledge.

Gözüm, A. İ. C., & Kandır, A. (2020). Developing a parental mediation scale of digital games for children. *International Journal of Curriculum and Instruction*, *12*(2), 336-358.

Gözüm, A. İ. C., & Kandir, A. (2020). Okul öncesi çocuklarin dijital oyun oynama sürelerine göre oyun eğilimi ile konsantrasyon düzeylerinin incelenmesi. *Atatürk Üniversitesi Kazım Karabekir Eğitim Fakültesi Dergisi*, (41), 82-100.

Gözüm, A.İ.C. (2022). *Digital games for STEM in early childhood education: Active co-playing parental mediation and educational content examination.* In: Papadakis, S., Kalogiannakis, M. (eds) STEM, Robotics, Mobile Apps in Early Childhood and Primary Education. Lecture Notes in Educational Technology. Springer, Singapore. https://doi.org/10.1007/978-981-19-0568-1_21

Gündüzalp, S. (2016). *Deyimler ve öyküleri* (38 b.). Zafer Yayınları.

Kaban, A., & Bulut, A. (2020). Atasözü ve deyimlerin çoklu ortam materyalleriyle somutlaştırılmasının okul öncesi eğitime etkisi. *Uluslararası Toplum Araştırmaları Dergisi*, *16*(30), 2684-2709. doi:10.26466/opus.776956

Karagöz, Y. (2019). *Spss - Amos - Meta uygulamali istatistiksel analizler* (2 b.). Ankara: Nobel Akademik Yayıncılık.

Khonbi, Z. A., & Sadeghi, K. (2017). Improving English language learners' idiomatic competence: does mode of teaching play a role? *Iranian Journal of Language Teaching Research*, *5*(3), 61-79. doi:10.30466/ijltr.2017.20305

MEB. (2019). *Türkçe dersi öğretim programi*. Ankara, Türkiye.

Özbay, M., & Akdağ, E. (2013). Deyimlerin öğretiminde aktif öğrenmenin etkisi. *Ana Dili Eğitimi Dergisi*, *1*(2), 46-54.

Özerbaş, M. A., & Öztürk, Y. (2017). Türkçe dersinde dijital hikâye kullaniminin akademik başari, motivasyon ve kalicilik üzerine etkisi. *TÜBAV Bilim Dergisi*, *10*(2), 102-110.

Sayekti, G. (2023) An Analysis of Idiom in the Script "Toy Story 4" Movie Produced by Pixar Animation Studios. Undergraduate (S1) thesis, IAIN Ponorogo.

Şahin, S. (2019). *Artırılmış gerçeklik uygulamalarinin ilkokul 2. sınıf öğrencilerinin deyimleri öğrenme düzeylerine etkisi*. (Yayınlanmamış Yüksek Lisans Tezi). Eskişehir: Anadolu Üniversitesi.

Ulutaş, I., Kılıç Çakmak, E., Akıncı Coşgun, A., Bozkurt Polat, E., Aydın Bölükbaş, F., Engin, K., Kayabaşı, E & Özcan, S. (2022). *Digital storytelling in early mathematics education.* In STEM, Robotics, Mobile Apps in Early Childhood and Primary Education: Technology to Promote Teaching and Learning (pp. 393-413). Singapore: Springer Nature Singapore.

Varışoğlu, B., Şeref, İ., Yılmaz, İ., & Gedik, M. (2014). Deyim ve atasözlerinin öğretilmesinde görsel bir araç olarak karikatürlerin başariya etkisi. *Karadeniz Araştırmaları* (41), 226-242.

Yaman, H., & Gülcan, F. (2009). Sözcük dağarcığını zenginleştirme etkinliği olarak deyim öğretimi: Gösteri tekniği uygulamasi. Sakarya Üniversitesi Fen Edebiyat Dergisi, 11, 59-71.

Yılmaz, Z. A., & Gözüm, A. İ. C. (2023). Augmented reality app in pre-school education: Children's knowledge about animals. *Southeast Asia Early Childhood Journal*, *12*(2), 130-151.

An Investigation of TPACK-Practical for Teaching English as a Foreign Language[1]

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Abstract

Technological Pedagogical Content Knowledge (TPACK) has been a common subject for different educational purposes from the planning of teaching process to testing and assessment practices. The term "*TPACK-Practical*" refers to a framework based on teachers' knowledge and experience that takes into account the theoretically described TPACK model's structure and the process of teaching practice. The present study aims to describe the nature of technology integration among Turkish EFL in-service instructors by exploring their skill levels to implement their TPACK-Practical in their classroom practices, and by explaining the relationships between these skill levels and some demographic variables. The research was conducted in the contexts of the Schools of Foreign Languages at various universities in Turkey at the end of the second term of 2022/2023 academic year. All EFL instructors teaching at the university level are the study's target population; however, the convenience sample chosen for the study on a voluntary basis only included 155 EFL instructors from these schools who responded to the questions on the data collection instrument (TPACK-Practical scale developed by Yeh et al., 2014). To comprehensively understand the participant profile and collect data to analyze the relations between the variables, the participants' demographic characteristics were also considered. The study has a quantitative research design that employs descriptive statistics to describe the demographic information and scale results; and correlation analysis, independent sample t-test, and ANOVA test to explain the relationships between the variables. Results of the study have revealed that EFL instructors generally use their TPACK-Practical skills in classroom applications at a *"sufficient"* level (at the lowest level in the *Assessments* area and at the highest level in the *Subject Content* area), and that demographic variables have no significant effect on their technology integration skills.

Keywords: TPACK, TPACK-Practical, EFL, technology integration.

Introduction

In today's modern and dynamic society, students are exposed to cutting-edge technological environments in both their personal and professional lives due to the rapid progress of technology and internet connectivity. Information and Communication Technologies (ICT) serves a crucial role in education, fulfilling four key functions: integration into the curriculum, delivery of instruction, support of instruction and enhancement of the learning process as a whole (Raja & Nagasubramani, 2018).

Nowadays, teachers are playing a larger role in the development and delivery of technology-enhanced classes. The purpose of technology-enhanced learning (TEL), which uses ICT in a variety of educational processes, is to design, develop and describe ICT applications for those processes (Ivanovic et al., 2018). Teachers must combine their technological knowledge (TK), pedagogical knowledge (PK), and content knowledge (CK) to create technology-integrated classes, which Mishra and Koehler (2006) refer to as Technological Pedagogical Content Knowledge (TPACK). Shulman's (1986) Pedagogical Content Knowledge theory forms the foundation of the TPACK framework developed by Koehler and Mishra (2009), outlining the necessary knowledge and skills for teachers to effectively incorporate technology into their teaching.
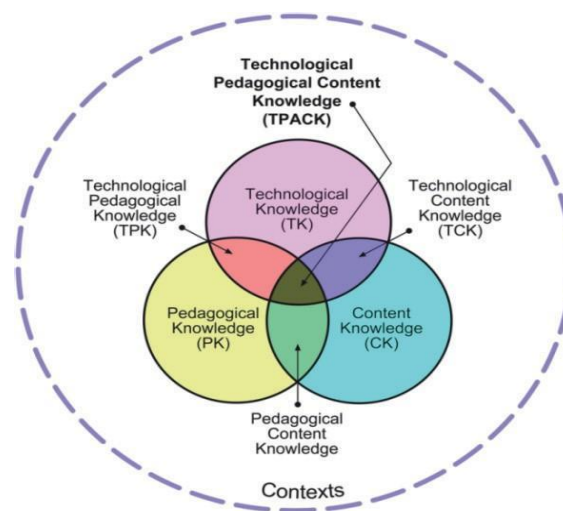
Figure 1. Knowledge Constructs in the TPACK Framework (Adapted from Koehler & Mishra, 2009).

The framework proposed by Koehler and Mishra (2009) as a seven-construct framework contains three interconnected constructs of teachers' knowledge, as shown in Figure 1: Contextual knowledge frames content knowledge (CK), pedagogical knowledge (PK), and technological knowledge (TK).

Having knowledge of technology and knowing how to incorporate it into educational environments are two separate types of expertise, as highlighted by Mitchell et al. (2019). Being proficient with technology is essential, yet it is not enough to utilize technology effectively for educational purposes. Meaningful technology integration occurs when educators improve their critical thinking and digital literacy skills through practical experience in utilizing and assessing digital resources. This experience enables them to apply their expertise to lifelong learning activities responsibly and intelligently (Falloon, 2020).

When teaching, the teacher's practical knowledge and pedagogical content knowledge are utilized to organize and achieve teaching objectives using appropriate methods. It is important to understand that pedagogical content knowledge is not a static concept, but rather a dynamic one, which is often misunderstood by most people who interpret it as a fixed set of "knowledge". Based on the literature, Yeh et al. (2014) introduced a TPACK-Practical framework (Figure 2) that incorporates knowledge, experience, teaching practice and the theoretical structure of the TPACK model. Figure 2 presented below is directly taken from Yeh et al. (2014, p. 714).
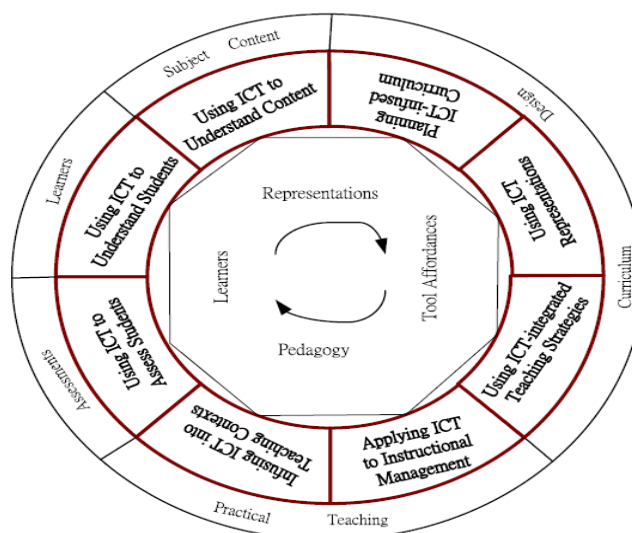
Figure 2: The Framework of TPACK-Practical.

TPACK-Practical framework comprises of eight knowledge dimensions in five pedagogical areas. These pedagogical areas are *Learners, Subject Content, Curriculum Design, Practical Teaching,* and *Assessments*. The knowledge dimensions of these pedagogical areas are *using ICT to understand students, using ICT to understand content, planning ICT-infused curriculum, using ICT representations, using ICT-integrated teaching strategies, applying ICT to instructional management, infusing ICT into teaching contexts, and using ICT to assess students*.

Significance of the Study

This study is significant because it shed light on such a subject that has received little attention. The application of digital technologies in the teaching of English as a foreign language (EFL) has rarely been mentioned in the literature (Ahmed, & Tümen Akyıldız, 2022). From this background, Tondeur et al. (2013) noted that more in-depth information is required regarding the methods and justifications used by teachers to incorporate technology into the lessons they have prepared for their students. As the study involved 155 Turkish EFL instructors who work in various universities across various provinces in Turkey, this study is significant also in terms of determining the overall profile of Turkish EFL teachers' TPACK skills through their self-reporting of actual teaching practices for integrating modern technology.

Furthermore, findings of this study may help explain the considerable contributions that each knowledge component made to the creation of TPACK-Practical and may have implications for teacher education programs that emphasise the integration of technology, and for professional development programs by identifying the needs and opportunities for professional development required to improve teachers' technology integration in the classroom. With a greater awareness and better understanding of the extent to which foreign language teacher education programs are effective in developing teachers' skills in integrating technology into the curriculum, school districts and administrators may benefit from this study to shape teacher training, which will result in better and more targeted professional development.

Purpose of the Study and Research Questions

The purpose of this study is to describe the nature of technology integration among Turkish EFL in-service instructors by exploring their skill levels to implement TPACK-Practical in their teaching practices (a), and by explaining the relationships between their TPACK-Practical skill levels and some demographic variables such as age (b), gender (c), level of education (d), major of study at the university (e), type of working institution (f), years of teaching experience (g) and the level they are teaching (h). The researcher created the following research questions for this quantitative study with these purposes in mind.

Main Research Question:
What are the EFL instructors' TPACK-Practical skill levels, and the relationships between their TPACK-Practical skill levels and the demographic variables discussed in the study?
Sub-Research Questions:
SRQ1. What are the EFL instructors' TPACK-Practical skill levels?
SRQ2. Do the EFL instructors' TPACK-Practical skill levels differ significantly according to age variable?
SRQ3. Do the EFL instructors' TPACK-Practical skill levels differ significantly according to gender variable?
SRQ4. Do the EFL instructors' TPACK-Practical skill levels differ significantly according to level of education variable?
SRQ5. Do the EFL instructors' TPACK-Practical skill levels differ significantly according to major at the university variable?
SRQ6. Do the EFL instructors' TPACK-Practical skill levels differ significantly according to the type of working institution variable?
SRQ7. Do the EFL instructors' TPACK-Practical skill levels differ significantly according to the years of teaching experience variable?

Literature Review

TPACK in Various Educational Environments

The TPACK framework is being seriously explored by scholars and practitioners, since it aims to define the complicated interactions between technology, pedagogy, and content knowledge. The fact that the TPACK framework is referenced in more than 471 scholarly publications on the Web of Science gives evidence of its growing popularity in both research and education (Soler-Costa et al., 2021). The successful integration of technology into education necessitates a thorough understanding of the complex relationships between various types of knowledge, such as content, pedagogy, technology, and context (Koehler et al., 2007). The relationships between various types of knowledge are being investigated to see how effectively to educate preservice teachers for the technological integration that international standards demand. The term *'technological pedagogical content'* refers to professional knowledge in today's classrooms – that is, the ability to correlate and integrate technology into teaching, which may include knowing how to utilize a specific technology, generating materials and activities with that technology, and teaching with technology (Angeli et al., 2016).

In 2018, Willermark conducted a study to identify the common characteristics of TPACK studies in different educational settings. The research analyzed 107 empirical investigations published between 2011 and 2016. The findings indicated that almost half of the studies (47.7%) did not specify the subjects. Among the subject-specific studies, science (15.9%), language (12.1%), mathematics (6.5%) and social studies (2.8%) were the most common areas investigated for TPACK. In this analysis, self-reporting accounted for 71.8% while instructional activity performance made up 28.2% of the TPACK identification. According to a study by Pittman and Gaines (2015); age, level of education and years of teaching experience had little effect on the amount of technology used in the classroom. In contrast to these results, Mailizar et al. (2021) investigated the impact of demographic variables on teachers' TPACK and discovered that teachers' level of education and gender had a significant potency on their TPACK. It was found that teachers with higher education levels had TPACK that was distinctively higher than teachers with lower education levels. According to other studies in the literature, a teacher's level of teaching experience may be extremely important to their TPACK (Hsu et al., 2017; Nazari et al., 2019; Hsu et al., 2021).

TPACK in ESL/EFL Settings

Previous studies conducted in ESL/EFL settings have found that the use of Information and Communication Technology (ICT) in English classes have substantial reflections on teaching and learning of the English language. Additionally, these studies have shown that English language teachers are generally proficient in using their Technological Pedagogical and Content Knowledge (TPACK) in classroom practices (Malik et al., 2019; Pangket, 2022). According to Mirici and Demirbaş (2013), policymakers and universities should take steps to establish and enhance alternative

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forms of assessment in language teacher education. This would help to shift the focus away from traditional methods and towards more innovative and effective alternatives, even if this requires additional time and effort. According to a research study, English language teachers were found to be less proficient in using technology as compared to their knowledge of pedagogy and subject content (Alqurashi & Samarin, 2015). As EFL/ESL classes focus on multi-sensory experiences to ensure lasting and engaging learning, a modern EFL/ESL teacher should be adept at using appropriate technology and online teaching tools to create real-life situations for their learners (Biletska et al., 2021).

As per the recommendation of Mirici and Kavaklı (2017), language teachers should possess sufficient ICT skills to develop digital materials that align with the CEFR objectives and reference levels, which are globally accepted standards for modern English Language Teaching. Teachers need to assess their students' cognitive abilities to learn and use a particular technology tool without getting overwhelmed. In doing so, they should emphasize the importance of learning how to learn. Because it gives students more control over their learning process, improves learning outcomes and creates a more individualized experience, the idea of "autonomy" is vital for successful language learning and teaching (Şentürk & Mirici, 2019). Language teachers should concentrate particularly on playing the roles of a mentor, organizer, consultant, prompter, resource, participant or an investigator rather than a supervisor, corrector and assessor. That way, they will have a better chance to interact with their students and encourage learning. Given the crucial role that ICT plays in teaching English, language teachers must be technologically savvy to plan and execute their lessons.

Method

Research Design

The Statistical Package for Social Sciences (SPSS) was used as a data processing tool in the study's quantitative research design to implement descriptive statistics so as to describe demographic data and scale results. Correlation analysis, independent sample t-tests and ANOVA tests were also employed to shed light on the relationships between the variables. Data were presented and described using descriptive statistics, such as the mean, median, mode, minimum and maximum scores, range, variance, standard deviation, etc. (Larson- Hall & Plonsky, 2015). Descriptive statistics were used to organize and explain the characteristics of a sample or population (Salkind, 2013). Descriptive studies seek to describe the current distribution of variables, without exploring causal relationships or other hypotheses. As many researchers agree, they are quite useful for population monitoring, planning and hypothesis generation. Descriptive analysis is capable of standing on its own as a research output when it reveals phenomena or patterns in data that were previously unknown (Queirós et al., 2017). It is critical to remember that descriptive analysis cannot establish a causal relationship in which one variable influences the other. There may be correlations between some variables, but without additional research and analysis, it is impossible to say with absolute certainty that one is the cause of the other. However, quantitative description is frequently a component of a larger study that also includes causal analysis. Because it describes current conditions similarly to how correlational research does, causal research is frequently viewed as a type of descriptive research (Apuke, 2017). To gain a comprehensive understanding of why a specific intervention has a causal effect, it is imperative to utilize both causal and descriptive analysis. A robust causal analysis can assist in assessing the direct impact of the intervention, while an efficient descriptive analysis can aid in identifying the vital characteristics of the population, application and context that are most significant in interpreting results. By combining these two methods, the researcher could gain a deeper understanding of how the intervention affected the target population and created more potent solutions to the underlying problems at hand. Researchers can better apprehend a phenomenon they are interested in by achieving causal and descriptive research. They can then use this understanding to specify potential causal mechanisms, materialize hypotheses and intervention strategies, interpret the findings of their researches, identify issues for practitioners and policymakers to address, and even discover new cases to scrutinize (Loeb et al., 2017). The researcher has explored how the independent variables are reflected by the dependent variables using cause-and-effect relationships between variables. It attempts to pinpoint the causes or factors contributing to the current state of matters (Mohajan, 2020).

This kind of research can be incredibly beneficial in a variety of fields and can offer insightful information that would be challenging to learn through other channels.

Research Population and Sample

The study's target population includes all EFL instructors who work in state or private universities in Turkey and teach English at all levels. Most researchers choose convenience sampling for their studies because, in most cases, it is not practical to include the entire population in every type of research (Etikan et al., 2016). The convenience sample chosen for the study only included 155 voluntary EFL instructors who work in various state or private universities in Turkey. After receiving ethical approval for the study, the researcher contacted the directors of the schools of foreign languages at the state and private universities where the data would be gathered. The frequency and percentage values of the participant demographic variables are shown in Table 1.

Table 1.
Descriptive Statistics on the Demographic Variables

Variable	Category	f	%	Variable	Category	f	%
Gender	Male	104	67,10	Type of Institution	Private University	19	12,30
	Female	50	32,30		State University	136	87,70
	Prefer not to answer	1	0,60	Teaching Experience	1-5 years	19	12,30
Level of Education	BA	23	14,80		6-10 years	23	14,80
	MA	86	55,50		11-15 years	45	29,00
	PhD	46	29,70		16-20 years	35	22,60
Major at the University	ELT	19	12,30		More than 21 years	33	21,30
	Linguistics	93	60,00	The Level of Teaching	A1	55	16,03
	English Language and Literature	26	16,80		A2	70	20,41
	Translation and Interpretation	5	3,20		B1	101	29,45
	American Culture and Literature	7	4,50		B2	75	21,87
	Other	5	3,20		C1	30	8,75
Age	$\bar{x} \pm ss$	38,40±7,96			C2	12	3,50

Reviewing Table 1, it can be seen that 67.10% of the participants are men while 32.30% are women, indicating that the gender variable consists of twice as many men as women. Furthermore, the education level variable shows that 14.80% of the participants have Bachelor's Degrees, 55.50% have master and 29.70% are with Phds. The vast majority of the participants in the study held master degrees. Based on the distribution of participants' majors at the university, we can observe that 12.30% of participants studied English Language Teaching (ELT), 60.00% studied Linguistics, 16.80% English Language and Literature, 3.20% Translation and Interpretation, 4.50% American Culture and Literature, and 3.20% graduated from other departments. It's worth noting that over half of the participants hold degrees in Linguistics as their major field of study. As for the workplace type, 87.70% are employed in state universities, while 12.30% are in private universities. Upon analyzing the distribution of participants based on their years of teaching experience, it seems that the rate of participants with 1–5 years of experience is 12.30%, participants with 6–10 years of experience is 14.80%, with 11–15 years of experience is 29.00%, with 16–20 years of experience is 22.60%, and with 21 years or more of experience is 21.30%. The results show that the participants are distributed among various levels of teaching, with 16.30% at Level A1, 20.41% at Level A2, 29.45% at Level B1, 21.87% at Level B2, 8.75% at Level C1, and 3.50% at Level C2. It is important to note that the instructors made multiple marks for this question, resulting in a sum of frequency numbers greater than the number of samples. When analyzing the distribution of participants by age, the arithmetic mean of their ages was found to be 38.40, with a standard deviation of 7.96.

Data Collection

All the voluntary EFL instructors employed in the foreign language programs at various universities were given the TPACK-Practical scale by the researcher either in person or via a link to Google Forms, one of the most popular survey distribution tools available today. Yeh et al. (2014) developed and validated a 5-point Likert-type scale to assess teachers' capacity to apply their technological pedagogical content knowledge in the classroom. The scale is divided into two parts. The first section contains demographic questions aiming at gathering descriptive information about the participants' characteristics. This data is used to examine the relationship between the scale results and the demographic variables being studied. The second section of the scale consists of 22 indicators across eight knowledge dimensions in five pedagogical areas.

A review of the studies employing the TPACK-Practical framework in their work was done in order to confirm the validity and reliability of the scale to be used in the current study (Ay et al., 2015; Aktaş & Özmen, 2022). Results of one of the studies revealed a Cronbach's alpha of 0.89, demonstrating overall reliability. In the other study, the Kendall's W coefficient—which measures the degree of agreement between the researchers' results—was determined to be 0.962.

Data Analysis

The demographic information and scale results collected in this study were analyzed using descriptive statistics via the Statistical Package for Social Sciences (SPSS) as a data processing tool. Correlation analysis, independent sample t-test and ANOVA test were applied to explain the relationships between the variables. The scoring procedures provided by the designers of the scale were followed by the researcher. The level of in-class application of TPACK-Practical skills by the English instructors was assessed using the average scores for the five pedagogical areas of the scale. When interpreting the average scores from the pedagogical areas identified as Learners (three indicators), Subject Content (two indicators), Curriculum Design (eight indicators), Practical Teaching (six indicators), and Assessments (three indicators), the score ranges prepared on the basis of the theoretical framework ascertained in Table 2 are used as a guide. Since 1 (strongly disagree) was the lowest score and 5 (strongly agree) was the highest on the Likert-type scale, the range value for their scores was resolved to be 4 (5-1), and the grade range was determined to be 0.8 (4/5) points by dividing the range value by the number of participants.

Table 2.
Scoring Ranges of the TPACK-Practical Skill Levels

Scoring Ranges	Lower and Upper Limits
(1) Insufficient	1.00 - 1.79
(2) Very little sufficient	1.80 - 2.59
(3) Slightly sufficient	2.60 - 3.39
(4) Sufficient	3.40 - 4.19
(5) Very sufficient	4.20 - 5.00

The independent sample t-test was employed to correspond the two groups, and the ANOVA test was utilized to compare more than two groups, to establish whether there is a statistically significant difference between the average scores conveyed from the pedagogical areas identified as Learners, Subject Content, Curriculum Design, Practical Teaching and Assessments, and demographic variables (Schober, Boer and Schwart, 2018).

The Pearson Product-Moment Correlation coefficient was used to traditionally explore the relationships between the variables. Hence, using the observed correlation coefficient's absolute magnitude, a correlation coefficient between 0.00-0.10 was considered negligible, 0.10-0.39 weak, 0.40-0.69 moderate, 0.70-0.89 strong, and 0.90 and 1.00 indicated a quite strong correlation (Schober, Boer, and Schwart, 2018).

Limitations

1. The context of study is limited to EFL instructors at the university level and excludes K12 teachers in public education. To enable more comprehensive generalizations of the findings, further research should be conducted with a larger sample size in diverse contexts.

2. Even though the study investigates the instructors' technology integration skills, it might not be possible to entirely explore all aspects since the main emphasis is on their skills and the relationships between the variables.

3. It's worth noting that the use of convenience sampling could potentially lead to a biased sample, as it may only attract participants who are particularly knowledgeable or interested in the subject at hand.

Findings

The purpose of the study is to seek for the answer to the main research question; *"What are the EFL instructors' TPACK-Practical skill levels, and the relationships between their TPACK-Practical skill levels and the demographic variables discussed in the study?".* A number of sub-research questions were developed based on the main research question. The study's findings are presented under each sub-research question as follows.

Findings Based on the First Sub-Research Question

Descriptive statistics were used to assess the TPACK-Practical skill levels of the EFL instructors in their classroom practices for addressing the first sub-research question (SRQ-1) of the study; *"What are the EFL instructors' TPACK-Practical skill levels?".* As a result, Table 3 provides descriptive statistics for the average scores obtained from the pedagogical areas identified as *Learners, Subject Content, Curriculum Design, Practical Teaching,* and *Assessments*.

Table 3.
Descriptive Statistics of the EFL instructors' TPACK-Practical Skill Levels

Variable	N	$\bar{x}$	Sd	Mode	Median	Skewness	Kurtosis	Min.	Max.
Learners	155	3,66	0,78	3,67	3,67	-0,82	0,66	1,33	5,00
Subject Content	155	3,96	0,83	4,00	4,00	-1,19	2,27	1,00	5,00
Curriculum Design	155	3,72	0,73	3,50	3,75	-0,99	1,77	1,13	5,00
Practical Teaching	155	3,74	0,79	3,67	3,83	-0,95	1,16	1,00	5,00
Assessments	155	3,44	0,87	3,33	3,66	-0,69	0,69	1,00	5,00
Total	155	3,70	0,70	3,68	3,72	-1,15	2,34	1,09	4,91

In the first area defined as *Learners* of 155 English instructors, the arithmetic mean was calculated as 3,96 ($\bar{x}$=3,96) and the standard deviation was determined as 0.78 in Table 3. The level of information and communication technologies (ICT) used by the instructors in understanding their students was found to be between 3.40 and 4.19, and as a result, it was considered "*sufficient*" based on this result. The central tendency measures were discovered to be quite close to each other in the *Learners* area, where the lowest score was 1.33 and the highest was 5.00. The coefficients for skewness (-0.82) and kurtosis (0.66) were also observed to be in the range of ±1.00. The arithmetic mean was calculated as 3,96 ($\bar{x}$=3,96) and its standard deviation was calculated using descriptive statistics to assess the extent to which ICT, the second area of the scale, was used to comprehend the subject content. In light of this finding, it was resolved that the instructors' use of ICT to comprehend the subject content ranged from 3.40 to 4.19, and as a result, it was considered *"sufficient"*. The *Subject Content* area had a range of scores from 1.00 to 5.00, and it was found that the measures of central tendency for the median (4.00) and mode (4.00) were remarkably similar. The skewness (-1,19) and kurtosis (2.27) coefficients were also seen to be slightly outside the range of ±1.00. For the third area of the scale, or the level of using ICT in *Curriculum Design*, the arithmetic mean was determined as 3.72 ($\bar{x}$=3.72) and standard deviation was 0.73. The level of ICT used by the instructors in *Curriculum Design* was found to be

between 3.40 and 4.19, which was considered *"sufficient"* based on this result. The lowest and highest scores for the *Curriculum Design* area were 1.13 and 5.00, and it showed that the median (3.75) and mode (3.50) measures of central tendency were remarkably similar. It was also seen that the skewness (-0.99) and kurtosis (1.77) coefficients were slightly out of the range of ±1.00. Among the descriptive statistics obtained to determine the level of *Practical Teaching* use of ICT, the fourth area of the scale, the arithmetic mean was calculated as 3.74 ($\bar{x}$=3.74), and its standard deviation was determined as 0.79. According to this result, it was specified that the level of use of ICT by the instructors in *Practical Teaching* was in the range of 3.40-4.19, and therefore it was considered *"sufficient"*. In the *Practical Teaching* area, the lowest score was 1.00 while the highest was 5.00, which indicated that the median (3.83) and mode (3.67) of the central tendency measures were quite close to each other. In addition, the skewness (-0.95) and kurtosis (1.16) coefficients turned out to be slightly out of the range of ±1.00. From the descriptive statistics obtained to specify the level of using ICT, the fifth and last area of the scale, *Assessments* of students, the arithmetic mean was calculated as 3.44 ($\bar{x}$=3.44) and its standard deviation was 0.87. This showed that the level of use of ICT by the instructors in the evaluation of students was in the range of 3.40-4.19 and *"sufficient"*. The lowest and highest scores for the *Assessments* area were 1.00 and 5.00, and the median (3.66) and mode (3.33) measures of central tendency were found to be very close to one another. The skewness (-0.69) and kurtosis (0.69) coefficients were also in the range of ±1.00.

When the total scores from the TPACK-Practical scale were taken into account, the arithmetic mean was calculated as 3.70 ($\bar{x}$=3,70) and its standard deviation was found to be 0.70. This has led to the conclusion that English instructors generally use their technological pedagogical content knowledge in classroom applications at a *"sufficient"* level. Additionally, it was found that the central tendency measures related to the scores acquired from the scale had a median (3.72) and a mode (3.68) that were relatively close to each other. Accordingly, it has been demonstrated that the scores from the TPACK-Practical scale and its pedagogical ares have a normal distribution, and that parametric analysis techniques should be employed to test any differences in the demographic variables identified within the study's scope. The histogram graph obtained to determine the EFL instructors' TPACK-Practical skill levels is shown in Figure 3.
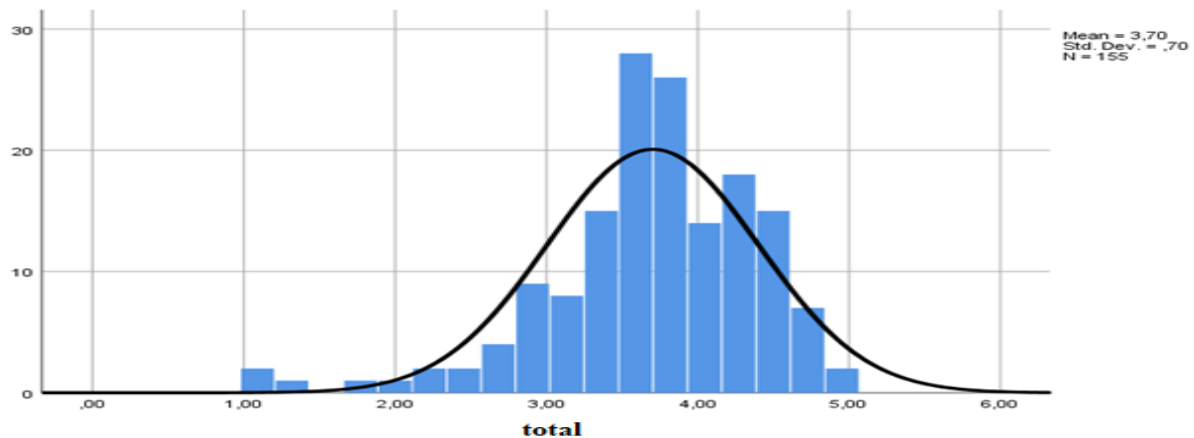
Figure 3. The histogram Graph Related to the EFL Instructors' TPACK-Practical Skill Levels

When the distribution of the scores from the TPACK-Practical scale, used to assess the levels of the TPACK-Practical skills of the EFL instructors, is examined in Figure 3, it is clearly seen that this distribution does not significantly deviate from the normal distribution. It is therefore specified that the scores obtained from the TPACK-Practical Scale show a normal distribution in light of the results obtained from both descriptive statistics and graphical methods.

Table 4.
Descriptive Statistics of the Dimensions and Indicators in the TPACK-Practical Scale

Dimension	Indicator	SD	D	N A/D	A	SA	$\bar{x}$	Sd	Min	Max.
A. Using ICT to understand students	A1	4	9	28	73	41	3,89	0,95	1,00	5,00
	A2	6	19	46	64	20	3,47	0,99	1,00	5,00
	A3	1	15	47	70	22	3,62	0,86	1,00	5,00
B. Using ICT to understand subject content	B1	3	12	20	78	42	3,92	0,94	1,00	5,00
	B2	4	6	24	75	46	3,98	0,91	1,00	5,00
C. Planning curriculum –> Planning ICT-infused curriculum	C1	3	17	43	66	26	3,61	0,95	1,00	5,00
	C2	2	20	28	69	36	3,75	0,99	1,00	5,00
	C3	3	16	49	65	22	3,56	0,92	1,00	5,00
D. Representations –> Using ICT representations to present instructional representations	D1	2	12	36	73	32	3,78	0,90	1,00	5,00
	D2	4	10	30	77	34	3,81	0,93	1,00	5,00
	D3	4	11	27	79	34	3,82	0,94	1,00	5,00
E. Teaching strategies –> Employing ICT-integrated teaching strategies	E1	3	17	44	64	27	3,61	0,96	1,00	5,00
	E2	2	10	30	86	27	3,81	0,84	1,00	5,00
F. Instructional management –> Applying ICT to instructional management	F1	3	8	37	77	30	3,79	0,88	1,00	5,00
	F2	4	16	41	60	34	3,67	1,01	1,00	5,00
G. Teaching practices –> Infusing ICT into teaching contexts	G1	3	18	25	74	35	3,77	0,99	1,00	5,00
	G2	4	10	24	81	36	3,87	0,93	1,00	5,00
	G3	3	15	32	80	25	3,70	0,92	1,00	5,00
	G4	2	21	38	65	29	3,63	0,98	1,00	5,00
H. Assessments –> Using ICT to assess students	H1	7	29	50	52	17	3,27	1,03	1,00	5,00
	H2	8	15	38	64	30	3,60	1,06	1,00	5,00
	H3	7	16	54	55	23	3,45	1,01	1,00	5,00

 * Strongly Disagree: SD   Disagree: D   Neither Agree/Disagree   Agree: A   Strongly Agree: SA

Looking at Table 4, it is seen that a total of 155 English instructors expressed their opinions in the B2 coded expression *"I am able to identify the subject topics that can be better presented with ICT",* which is the second indicator of the dimension of *"using ICT to understand the subject content"* at the highest level. The arithmetic mean and standard deviation for the related indicator were calculated to be 3.98 and 0.91, respectively. The instructors' scores on the indicator are deemed to be *"sufficient"* based on the average since they fall between 3.40 and 4.19. They were found to have expressed their opinions in the B1 coded statement *"I am able to use ICT to better understand the subject content"* in the same dimension as the scale's second-highest average. The arithmetic mean and standard deviation for the related indicator were calculated to be 3.92 and 0.91, respectively. The instructors' scores on the indicator were *"sufficient"* based on the average since they were between 3.40 and 4.19. When the findings are considered collectively, it can be concluded that English instructors utilize ICT to the fullest extent possible. The H1 coded statement *"I know the types of technology-infused assessment approaches"* in the dimension of *"using ICT to assess students"* in the area of *Assessments* was found to have the lowest average among the scale's indicators. The related indicator's arithmetic mean was 3.27 while the standard deviation was 1.03. The scores of the instructors on the the indicator range from 2.60 to 3.39, so it is considered *"slightly sufficient"* based on the average that was obtained. The H3 coded statement *"I am able to use ICT to assess students' learning progress"* in the same dimension was found to have the second-lowest average on the scale. The related indicator's arithmetic mean was 3.45, and its standard deviation was 1.01. The instructors' scores on the indicator seem to be

"sufficient" based on the average since they are between 3.40 and 4.19. When the data is combined, it can be said that English instructors only use ICT at the lowest level in the *Assessments* area.

Findings Based on the Second Sub-Research Question

In the second sub-research question (SRQ-2) of the study, it is investigated whether the scores obtained from the five pedagogical areas of the TPACK-Practical Scale show a significant difference according to the age variable. Table 5 displays the correlation matrix that details the findings of the correlation analysis between the age variable and the average scores obtained from the entire scale and its pedagogical areas.

Table 5.
Correlation Analysis Results

		1	**2**	**3**	**4**	**5**	**6**	**7**
TPACK-Practical Skills	1.Learners	1						
	2.Subject Content	.623**	1					
	3.Curriculum Design	.744**	.738**	1				
	4.Practical Teaching	.728**	.717**	.855**	1			
	5.Assessments	.551**	.448**	.695**	.709**	1		
	6.Total	.821**	.788**	956**	.943**	.790**	1	
	7.Age	-.145	-.094	-.114	-.036	-.097	-.103	1

** The correlation coefficient is significant at the 0.01 level; *. The correlation coefficient is significant at the 0.05 level.

Analysing Table 5, it is seen that there were negative correlations between the ages of the instructors and the pedagogical areas of *Learners, Subject Content, Curriculum Design, Practical Teaching* and *Assessments*, respectively. It was settled that there was a weak negative and statistically insignificant relationship between the age variable and understanding learners (r=-0.145; p>.05). It was also established that there was a negative, insignificant and statistically insignificant relationship between the age variable and the subject content (r=-0,094; p>.05). Furthermore, the age variable and curriculum design were found to have a weakly negative and statistically insignificant relationship (r=-0.114; p>.05). The relationship between the age variable and practical teaching was found to be negative, insignificant, and statistically insignificant (r=-0.036; p>.05). The relationship between the age variable and *Assessments* was also found to be negative, insignificant, and statistically insignificant (r=-0,097; p>.05). All in all, the total scores obtained from the scale were found to have a weakly negative and statistically insignificant relationship with age (r=-0.103; p>.05). When all of the results are taken into account, it can be concluded that there is no relationship between the age variable and the scale scores, or, in other words, that age has no effect on the scale scores. This result is consistent with those of another study, which found that participants' knowledge levels were not significantly impacted by participants' age (Hsu, & Chen, 2018).

Findings Based on the Third Sub-Research Question

In the third sub-research question (SRQ-3) of the study, it is investigated whether the scores obtained from the five pedagogical areas of the TPACK-Practical Scale show a significant difference according to the gender variable. The analyses were conducted on 154 participants because one participant did not make any mark on the gender variable. An independent sample t-test was conducted to see if there was a statistically significant difference between the scores obtained from the five pedagogical areas of the TPACK-Practical Scale according to the gender variable. Table 6 provides the analysis results.

Table 6.
T-test Results According to the Gender Variable

Variable	Gender	N	$\bar{x}$	Sd	t	df	p
Learners	Male	104	3,68	0,67	0,46	152	.644
	Female	50	3,62	0,98			
Subject Content	Male	104	3,99	0,68	0,80	152	.424
	Female	50	3,88	1,08			
Curriculum Design	Male	104	3,77	0,59	1,32	152	.188
	Female	50	3,61	0,95			
Practical Teaching	Male	104	3,81	0,65	1,55	152	.121
	Female	50	3,60	1,01			
Assessments	Male	104	3,48	0,77	0,77	152	.438
	Female	50	3,36	1,05			
Total	Male	104	3,75	0,56	1,27	152	.205
	Female	50	3,60	0,92			

Following the analysis of Table 6, it was concluded that although male instructors ($\bar{x}$=3,68) had higher scores than female instructors ($\bar{x}$=3,62) in the *Learners* area, this disparity was not statistically significant ($t_{(152)}$=0,46; p>.05). This finding indicates that English instructors' skills to use their TPACK-Practical to understand students is unaffected by the gender variable. According to the findings of the study, there were no significant discrepancies in scores between male and female instructors in the *Learners* area. However, in the second area of the scale, *Subject Content*, male instructors were found to have slightly higher scores compared to their female counterparts ($\bar{x}$=3.99 and $\bar{x}$=3.88, respectively). Nonetheless, this difference was not deemed statistically significant ($t_{(152)}$=0,80; p>.05). The study findings indicate that gender does not impact the English instructors' proficiency in utilizing their Technological Pedagogical Content Knowledge to understand the subject content. In simpler terms, it can be inferred that male and female instructors scored similarly in the *Subject Content* area. Although male instructors scored slightly higher ($\bar{x}$=3,77) than female instructors ($\bar{x}$=3,61) in the *Curriculum Design* area, this difference was not statistically significant ($t_{(152)}$=1,32; p>.05). Therefore, the gender of English instructors does not have an impact on their ability to use their TPACK-Practical in the *Curriculum Design* area. In conclusion, both male and female instructors scored similarly in the *Curriculum Design* area. Despite male instructors scored higher ($\bar{x}$=3.81) than female instructors ($\bar{x}$=3.60) in the fourth area, *Practical Teaching*, the difference was considered statistically insignificant ($t_{(152)}$=1.55; p>.05). This suggests that gender does not affect the ability of English instructors to apply their TPACK-Practical skills in *Practical Teaching*. Essentially, both male and female instructors scored similarly in this area. Although male instructors scored higher ($\bar{x}$=3.48) than female instructors ($\bar{x}$=3.36) in the *Assessments* area of the scale, statistical analysis ($t_{(152)}$=0.77; p>.05) indicated that this difference was not significant. So, the gender of English instructors does not affect their ability to use Technological Pedagogical Content Knowledge during assessments. In other words, both male and female instructors performed similarly in the *Assessments* area. While male instructors ($\bar{x}$=3.75) scored higher on the TPACK-Practical Scale than their female counterparts ($\bar{x}$=3.60), the difference was considered statistically insignificant ($t_{(152)}$=1.27; p>.05). As such, it was resolved that gender did not have a significant impact on the TPACK-Practical Scale or its pedagogical areas, as determined by the total scores obtained from the scale. The study's finding aligns with other research studies (Cai et al., 2017; Sariçoban et al., 2019) which also found no significant difference between gender and technology usage. However, males generally tend to have more positive attitudes and self-confidence towards technology use.

Findings Based on the Fourth Sub-Research Question

In the fourth sub-research question (SRQ-4) of the study, it is investigated whether the scores obtained from the five pedagogical areas of the TPACK-Practical Scale show a significant difference according to the level of education variable. To determine whether the scores obtained from the TPACK-Practical Scale, which consists of a total of 22 indicators in five pedagogical areas, show a significant difference according to the level of education variable (bachelor's-BA, master's-MA, and doctorate-PhD), a One-Way Analysis of Variance was applied and the analysis results are shown in Table 7.

Table 7.
ANOVA Test Results According to the Level of Education Variable

Variable	Level of Education	N	$\bar{x}$	Sd	F	df	Sig.	Difference
Learners	1.BA	23	3,36	0,99	2,24	154	.110	−
	2.MA	86	3,75	0,62				
	3.PhD	46	3,65	0,91				
Subject Content	1.BA	23	3,87	1,10	0,24	154	.715	−
	2.MA	86	4,01	0,68				
	3.PhD	46	3,91	0,94				
Curriculum Design	1.BA	23	3,41	0,79	2,86	154	.061	−
	2.MA	86	3,81	0,63				
	3.PhD	46	3,71	0,85				
Practical Teaching	1.BA	23	3,53	0,93	1,00	154	.370	−
	2.MA	86	3,76	0,69				
	3.PhD	46	3,80	0,89				
Assessments	1.BA	23	3,00	1,05	3,95	154	**.021**	1−3
	2.MA	86	3,48	0,79				
	3.PhD	46	3,60	0,87				
Total	1.BA	23	3,42	0,82	2,25	154	.108	−
	2.MA	86	3,76	0,57				
	3.PhD	46	3,73	0,82				

Table 7 reveals that instructors with master's degree ($\bar{x}$=3.75) scored higher in understanding *Learners* area compared to PhD graduate instructors ($\bar{x}$=3.65) and instructors with Bachelor's degree ($\bar{x}$=3.36). Nevertheless, the difference was not statistically significant ($F_{(2-154)=}2.24$; p>.05). Therefore, it was inferred that the instructors with BA, MA, and PhD degrees had a similar level of proficiency in using ICT to understand students. In terms of using ICT, the second area of the scale, to understand the *Subject Content*, MA instructors ($\bar{x}$=4.01) had higher scores than PhD instructors ($\bar{x}$=3.91) and BA instructors ($\bar{x}$=3.87). The difference was found to be statistically not significant, though ($F_{(2-154)}$=0,24; p>.05). In other words, in terms of the scores obtained in the dimension of "*using ICT to understand the subject content*", it was concluded that the instructors at every degree were at a similar level. It was resolved that MA instructors ($\bar{x}$=3.81) had higher scores than PhD instructors ($\bar{x}$=3.71) and BA instructors ($\bar{x}$=3.41), respectively. In other words, in terms of the scores obtained in the area of using ICT in *Curriculum Design*, it was concluded that the instructors at every degree were at a similar level. In terms of using ICT, the fourth area of the scale, in *Practical Teaching*, PhD instructors ($\bar{x}$=3,80) had higher scores than MA ($\bar{x}$=3,76) and BA instructors ($\bar{x}$=3.53). However, it was again concluded that the difference was not statistically significant ($F_{(2-154)}$=1,00; p>.05). In other words, it was determined that the instructors at every degree were at a similar level in terms of the scores obtained in the area of using ICT in *Practical Teaching*. The number of MA ($\bar{x}$=3.48) and PhD instuctors ($\bar{x}$=3,60) were found to have higher scores than BA instructors ($\bar{x}$=3,00) when it comes to the *Assessments*, which is the fifth area of the scale. It was determined that this score disparity was statistically significant ($F_{(2-154)}$=3,95; p<.05). The difference between instructors with a master's degree and those with Phd in this area was found to be significant (I-J=0.60; p.05) after the Bonferroni multiple comparison test, which was used to determine from which groups this difference between instructors teaching English at different education levels, was conducted. In other words, it was discovered that instructors with a PhD degree used ICT in the *Assessments* area noticeably more often than instructors with master's degree. Additionally, it was found that there was no significant difference between the total scores on the scale and education level ($F_{(2-154)}$=2,25; p>.05).

Findings Based on the Fifth Sub-Research Question

In the fifth sub-research question (SRQ-5) of the study, it is investigated whether the scores obtained from the five pedagogical areas of the TPACK-Practical Scale show a significant difference according to the major of study at the university variable. For this reason, a One-Way Analysis of Variance (ANOVA) was conducted to see if there was a significant difference between the pedagogical areas of the TPACK-Practical Scale, which has a total of 22 indicators in five pedagogical areas, and the scores

obtained from it. English Language Teaching (ELT), Linguistics, English Language and Literature, Translation and Interpretation, American Culture and Literature, and Other make up the major of study at the university. Table 8 displays the findings of the analysis.

Table 8.
ANOVA Test Results According to the Major at the University Variable

Variable	Major at the University	N	$\bar{x}$	Sd	F	df	Sig.	Difference
Learners	English Language Teaching (ELT)	19	3,63	0,74	1,31	154	.261	−
	Linguistics	93	3,67	0,79				
	English Language and Literature	26	3,62	0,77				
	Translation and Interpretation	5	3,00	1,11				
	American Culture and Literature	7	4,14	0,66				
	Other	5	3,80	0,38				
Subject Content	English Language Teaching (ELT)	19	3,97	0,61	0.71	154	.613	−
	Linguistics	93	3,94	0,87				
	English Language and Literature	26	3,94	0,88				
	Translation and Interpretation	5	3,50	1,12				
	American Culture and Literature	7	4,36	0,63				
	Other	5	4,20	0,57				
Curriculum Design	English Language Teaching (ELT)	19	3,90	0,56	1,11	154	.358	−
	Linguistics	93	3,68	0,77				
	English Language and Literature	26	3,71	0,62				
	Translation and Interpretation	5	3,28	1,06				
	American Culture and Literature	7	4,11	0,63				
	Other	5	3,88	0,70				
Practical Teaching	English Language Teaching (ELT)	19	3,89	0,75	1,76	154	.124	−
	Linguistics	93	3,72	0,79				
	English Language and Literature	26	3,69	0,81				
	Translation and Interpretation	5	2,93	1,03				
	American Culture and Literature	7	4,14	0,60				
	Other	5	4,07	0,57				
Assessments	English Language Teaching (ELT)	19	3,56	0,65	0,45	154	.811	−
	Linguistics	93	3,41	0,93				
	English Language and Literature	26	3,49	0,89				
	Translation and Interpretation	5	3,13	0,96				
	American Culture and Literature	7	3,76	0,46				
	Other	5	3,27	0,95				
Total	English Language Teaching (ELT)	19	3,82	0,54	1,28	154	.274	−
	Linguistics	93	3,68	0,74				
	English Language and Literature	26	3,68	0,63				
	Translation and Interpretation	5	3,15	1,01				
	American Culture and Literature	7	4,10	0,57				
	Other	5	3,86	0,53				

According to Table 8, instructors in American Culture and Literature scored the highest in the understanding *Learners* area ($\bar{x}$=4.14) while instructors in Translation and Interpretation scored the lowest ($\bar{x}$=3.00). The ANOVA test, which was used to see if there was a difference between the groups in how well the university's instructors from various majors used ICT to understand their students, concluded that there was not a statistically significant difference between the groups ($F_{(2-154)}$=1,31; p>.05). In other words, it was concluded that the instructors who graduated from different majors were at a similar level in terms of the scores obtained in the dimension of "*using ICT to understand students*". Instructors at American Culture and Literature received the highest score on the *Subject Content* area of the scale ($\bar{x}$=4.36), while instructors at Translation and Interpretation received the lowest score ($\bar{x}$=3.50). The ANOVA test was used to define whether there was a statistically significant difference between the groups in terms of how university instructors from various majors used ICT to comprehend the subject content. The results showed that there was not a statistically

significant difference between the groups ($F_{(2-154)}$=0,71; p>.05). In other words, it was concluded that the instructors who graduated from different majors were at a similar level in terms of using ICT to understand the subject content. In the area of *Curriculum Design*, the third area of the scale, American Culture and Literature graduates got the highest score ($\bar{x}$=4.11), while the lowest score was obtained by Translation and Interpretation graduates ($\bar{x}$=3.28). As a result of the ANOVA test accomplished to determine whether the instructors in different majors of study at the university show a significant difference in terms of using ICT in *Curriculum Design*, it was concluded that the difference between the groups was not statistically significant ($F_{(2-154)}$=1,11; p>.05). In other words, it was determined that the instructors from various majors of study are on par in terms of their use of ICT in *Curriculum Design*. Graduates of American Culture and Literature scored the highest on the *Practical Teaching* area of the scale ($\bar{x}$=4.14) while those of Translation and Interpretation scored the lowest ($\bar{x}$=2.93). The ANOVA test was used to determine whether there was a statistically significant difference between the groups in how the university instructors in various majors of study used ICT in *Practical Teaching*. The results showed that there was not ($F_{(2-154)}$=1,76; p>.05). The study found that instructors across different majors demonstrate a similar level of proficiency in using ICT for *Practical Teaching*. Among the pedagogical areas of the scale, Instructors graduated from American Culture and Literature scored highest ($\bar{x}$=3.76) in *Assessments*, while instructors graduated from Translation and Interpretation scored lowest ($\bar{x}$=3.13). An ANOVA test was conducted to discern if there was a significant difference in ICT use for evaluating students among instructors in different majors at the university. However, the test results showed that there was no statistically significant difference between the groups ($F_{(2-154)}$=0,45; p>.05). In other words, it was determined that the instructors from various majors had similar levels of proficiency in using ICT to assess students. Additionally, it was found that there was no significant difference between the total scores on the scale and major of study at the university variable ($F_{(2-154)}$=2,25; p>.05).

Findings Based on the Sixth Sub-Research Question

In the sixth sub-research question (SRQ-6) of the study, it is investigated whether the scores obtained from the five pedagogical areas of the TPACK-Practical Scale show a significant difference according to the type of working institution variable. An independent sample t-test was conducted to determine whether there is a significant difference in the scores obtained from the TPACK-Practical Scale, which has a total of 22 indicators in five pedagogical areas, depending on the variable of the type of working institution. Findings of the analysis are shown in Table 9.

Table 9.
T-test Results According to the Type of Working Institution Variable

Variable	Institution	N	$\bar{x}$	Sd	t	df	p
Learners	Private University	19	4,00	0,53	2,02	153	**.044**
	State University	136	3,62	0,80			
Subject Content	Private University	19	4,39	0,61	2,48	153	**.014**
	State University	136	3,90	0,84			
Curriculum Design	Private University	19	3,86	0,56	0,84	153	.400
	State University	136	3,70	0,75			
Practical Teaching	Private University	19	3,82	0,74	0,43	153	.662
	State University	136	3,73	0,80			
Assessments	Private University	19	3,49	0,73	0,24	153	.807
	State University	136	3,44	0,89			
Total	Private University	19	3,86	0,55	1,06	153	.287
	State University	136	3,68	0,72			

Upon analyzing Table 9, it was revealed that instructors at private universities ($\bar{x}$=4.00) scored higher than those at state universities ($\bar{x}$=3.62) in the *Learners* area and this difference was found to be statistically significant ($t_{(152)}$=2,02; p<.05). This finding indicates that English instructors' capacity to use technological pedagogical content knowledge to understand learners is significantly influenced by the variable of the working institution. In other words, it has been determined that the levels of the

instructors at the state university and the private university differ in terms of the results obtained in the *Learners* area. In a similar vein, it was found that instructors employed by private universities received higher *Subject Content* scores than those employed by state universities ($\bar{x}$=4.39 vs. $\bar{x}$=3.90) and that this difference was statistically significant ($t_{(152)}$=2,48; p<.05). This finding suggests that the type of institution variable has a significant impact on English instructors' ability to apply their Technological Pedagogical Content Knowledge to understand the subject content. In other words, it was determined that the instructors employed at the state university and the private university were at different levels based on the scores received in the *Subject Content* area. Although instructors employed by private universities received higher scores than those employed by state universities ($\bar{x}$=3.70), it was ascertained that this difference was not statistically significant for the third area of the scale, *Curriculum Design* ($t_{(152)}$=0,84; p>.05). This finding indicates that English instructors' ability to use their technological pedagogical content knowledge when designing the curriculum is unaffected by the type of working institution variable. In other words, the instructors at state and private universities performed similarly in terms of the scores obtained in the area of *Curriculum Design*. It was also found out that although instructors employed by private universities ($\bar{x}$=3.82) outperformed those employed by state universities ($\bar{x}$=3.73) in terms of *Practical Teaching*, this difference was not statistically significant ($t_{(152)}$=0,43; p>.05). According to this result, it is safe to say that the type of institution variable does not have any effect on the ability of English instructors to use their Technological Pedagogical Content Knowledge in the *Practical Teaching* area. In other words, in terms of the scores obtained in the *Practical Teaching* area, it was concluded that the instructors of both types of instutions were at a similar level. For the *Assessments*, the fifth area of the scale, it was concluded that although instructors working at private universities ($\bar{x}$=3.49) had higher scores than their colleagues at state universities ($\bar{x}$=3.44), this difference was not statistically significant ($t_{(152)}$=0,24; p>.05). According to this result, it can be said that the type of working institution variable does not have any effect on the ability of English instructors to use their Technological Pedagogical Content Knowledge in the *Assessments* area. In other words, in terms of the scores obtained in the *Assessments* area, the instructors at both types of instutions were at a similar level. According to the total scores obtained from the scale, although instructors working at private universities ($\bar{x}$=3.86) had higher scores than their counterparts at state universities ($\bar{x}$=3.68), this difference was not statistically significant ($t_{(152)}$=1,06; p>.05). According to this result, it was determined that the variable of the type of working institution did not cause a significant difference in the TPACK-Practical Scale used in the study and the areas of the scale.

Findings Based on the Seventh Sub-Research Question

In the seventh sub-research question (SRQ-7) of the study, it is investigated whether the scores obtained from the five pedagogical areas of the TPACK-Practical Scale show a significant difference according to the years of teaching experience variable. For this reason, One-Way Analysis of Variance (ANOVA) was conducted to determine whether the scores obtained from the TPACK-Practical Scale, which consisted of a total of 22 indicators in five pedagogical areas, ascertained a significant difference according to the variable of years of teaching experience. The years of teaching experience consist of five categories: 1-5 years, 6-10 years, 11-15 years, 16-20 years and over 21 years. ANOVA test results are shown in Table 10.

Table 10.
ANOVA Test Results According to the Years of Teaching Experience Variable

Variable	Experience	N	$\bar{x}$	Sd	F	df	Sig.	Difference
Learners	1-5 years	19	3,58	0,82	1,68	154	.157	−
	6-10 years	23	3,86	0,82				
	11-15 years	45	3,69	0,66				
	16-20 years	35	3,80	0,64				
	More than 21 years	33	3,39	0,98				
Subject Content	1-5 years	19	4,05	0,88	0.73	154	.568	−
	6-10 years	23	4,11	0,92				
	11-15 years	45	3,90	0,78				
	16-20 years	35	4,04	0,68				
	More than 21 years	33	3,79	0,96				
Curriculum Design	1-5 years	19	3,59	0,78	0,92	154	.454	−
	6-10 years	23	3,88	0,85				
	11-15 years	45	3,79	0,69				
	16-20 years	35	3,76	0,62				
	More than 21 years	33	3,56	0,78				
Practical Teaching	1-5 years	19	3,47	0,85	0,84	154	.502	−
	6-10 years	23	3,91	0,85				
	11-15 years	45	3,79	0,77				
	16-20 years	35	3,74	0,66				
	More than 21 years	33	3,71	0,89				
Assessments	1-5 years	19	3,40	0,90	0,44	154	.776	−
	6-10 years	23	3,48	0,79				
	11-15 years	45	3,54	0,95				
	16-20 years	35	3,48	0,69				
	More than 21 years	33	3,28	0,99				
Total	1-5 years	19	3,57	0,74	0,82	154	.509	−
	6-10 years	23	3,85	0,81				
	11-15 years	45	3,75	0,66				
	16-20 years	35	3,75	0,57				
	More than 21 years	33	3,56	0,78				

Analyzing Table 10, it is seen that the highest score in the understanding *Learners* area was received by instructors with 6-10 years of experience ($\bar{x}$=3.85), while instructors with 21 years or more of experience ($\bar{x}$=3.39) obtained the lowest score. As a result of the ANOVA test carried out to determine whether the instructors with different years of teaching experiences show a significant difference in terms of using ICT to understand learners, it was concluded that the difference between the groups was not statistically significant ($F_{(4-154)}$=1,68; p>.05). In other words, it was resolved that instructors with different years of teaching experiences were at a similar level in terms of the scores obtained in the area of using ICT to understand learners. In the second area of the scale, *Subject Content*, instructors with 6-10 years of experience have the highest score ($\bar{x}$=4.10), while instructors with 21 years and more experience ($\bar{x}$=3.78) have the lowest. As a result of the ANOVA test, carried out to determine whether the instructors with different years of teaching experience at the university show a significant difference in terms of using ICT to understand the *Subject Content*, it was concluded that the difference between the groups was not statistically significant ($F_{(4-154)}$=0,73; p>.05). To put it another way, it was ascertained that instructors with different years of teaching experience are at a similar level in terms of using ICT to understand the subject content. In the area of *Curriculum Design*, the third area of the scale, the highest score was acquired by instructors with 6-10 years of experience ($\bar{x}$=3.87), while the lowest score was by instructors with 21 years or more of experience ($\bar{x}$=3,56). As a result of the ANOVA test carried out to determine whether the instructors with different years of teaching experience at the university show a significant difference in terms of using ICT in *Curriculum Design*, it was concluded that the difference between the groups was not statistically significant ($F_{(4-154)}$=0,92; p>.05). In other words, instructors with different years of teaching experience were at a similar level in terms of using ICT in *Curriculum Design*. In the area of

Practical Teaching, the fourth area of the scale, the highest score was obtained by instructors with 6-10 years of experience ($\bar{x}$=3.90), while the lowest score was by instructors with 21 years or more of experience ($\bar{x}$=3, 71). As a result of the ANOVA test, it was seen that the difference between the groups was not statistically significant ($F_{(4-154)}$=0,84; p>.05). Instructors with different years of teaching experiences are at a similar level in terms of using ICT in *Practical Teaching*. In the fifth area of the scale, in the area of *Assessments*, the highest score was obtained by instructors with 11-15 years of experience ($\bar{x}$=3.54), while the lowest score was by instructors with 21 years or more of experience ($\bar{x}$=3.28). As a result of the ANOVA test conducted to determine whether the instructors with different years of teaching experiences at the university show a significant difference in terms of using ICT in assessing students, it was concluded that the difference between the groups was not statistically significant ($F_{(4-154)}$=0,44; p>.05). In other words, it was concluded that instructors with different years of teaching experiences were at a similar level in terms of using ICT to assess students. In addition, it was determined that the total scores obtained from the scale did not differ significantly according to the years of teaching experience ($F_{(4-154)}$=0,82; p>.05).

Discussion, Conclusion, and Suggestions

In this study, TPACK-Practical skill levels of Turkish in-service EFL instructors, and the relationships between their TPACK-Practical skill levels and the demographic variables discussed in the study were investigated. As stated in the findings, results indicated that EFL instructors generally use their TPACK-Practical skills in classroom applications at a *"sufficient"* level. When the total scores from the TPACK-Practical scale were taken into account, the participants' scores ranged between 1,09 and 4,91. The arithmetic mean of total scores was calculated as 3.70 ($\bar{x}$=3,70) and its standard deviation was found to be 0.70. The central tendency measures related to the scores acquired from the scale had a median (3.72) and a mode (3.68) that were relatively close to one another. Accordingly, it has been demonstrated that the scores from the TPACK-Practical scale and its pedagogical areas have a normal distribution, and that parametric analysis techniques should be employed to test any differences in the demographic variables identified within the study's scope. The findings of the study are congruent with the findings of some previous studies which report that English language teachers are generally competent in using their TPACK in classroom practices (Malik et al., 2019; Pangket, 2022).

When the data is combined, it can be concluded that EFL instructors use ICT at the lowest level in the *Assessments* area and at the highest level in the *Subject Content* area. This finding could be taken to mean that EFL intsructors consider themselves the most skilled users of ICT in their subject content in English language. The finding that *Subject Content* is the area where instructors use technology at the highest level agrees with the findings of Alqurashi and Samarin (2015) which revealed that English language teachers' knowledge of technology use lagged behind their knowledge of pedagogy and subject content. It might also indicate an assumption that after many years of teaching, teachers gain confidence in their background knowledge of pedagogy and the content they naturally become accustomed to. The finding that *Assessments* is the area where instructors use technology at the lowest level supports Mirici and Demirbaş's (2013) assertion that policymakers and universities as practitioners should take action to create and develop alternative types of assessment in language teacher education in order to change the attitude toward assessment, regardless of how time-consuming or challenging it may be to try alternative assessment.

As stated in the findings, the level of ICT used by the instructors in *Curriculum Design* was found to be between 3.40 and 4.19, which was considered to be *"sufficient"* based on this result. This demonstrates that instructors tend to use ICT when creating digital materials, keeping in mind the goals and common reference levels established by the CEFR, an internationally recognized framework that serves as the foundation for current English Language Teaching practices, as suggested by Mirici and Kavaklı (2017). It could also indicate that teachers are taking on new responsibilities as curriculum designers and are now tasked with incorporating rapidly advancing technology into their lessons.

After revealing the TPACK-Practical skill levels of the participants, the present study also intended to explain the relationships between their TPACK-Practical skill levels and the demographic variables covered in the study. Contrary to expectations, no significant differences were observed between these

variables. The relation between the age variable and the scale scores was negative, or, in other words, that age has no significant effect on the scale scores. This result differs a little from the common belief that younger teachers will typically possess more technological knowledge. However, this finding of the study is compatible with the findings of another study which revealed that age made no significant difference to the knowledges of participants (Hsu, & Chen, 2018). Future studies might be needed to widen the age gap to diversify the ages of the participants, which could lead to different results.

The statistical analysis for the relationship between the gender variable and the scale scores revealed no significant relationship between these variables. The analyses were conducted on 154 participants because one participant did not make any mark on the gender variable. The participants of the study consisted of 104 male and 50 female Turkish in-service EFL teachers from various universities in Turkey. Although male instructors ($\bar{x}$=3.75) scored higher on the TPACK-Practical Scale than their female counterparts ($\bar{x}$=3.60), the difference was considered statistically insignificant ($t_{(152)}$=1.27; p>.05). The study's findings are in line with some other studies in the literature (Cai et al., 2017; Sarıçoban et al., 2019). Cai et al. (2017) examined gender and attitudes toward technology use and identified a total of 50 articles from 1997 to 2014 to be used in their meta-analysis. The results of these studies indicated that no statistically significant difference was observed between gender and technology usage although males in general tend to have more positive attitudes and self-confidence toward technology use. The researchers of these studies conclude that the difference resulting from gender is no longer significant due to the more widespread use of ICT by nearly every member of society.

It was found that there was no significant difference between the total scores on the scale and the level of education ($F_{(2-154)}$=2,25; p>.05). However, instructors with PhD degrees used ICT in the *Assessments* area noticeably more often than instructors with master's degrees. This does not support the widely held belief that the quality of a teacher is significantly influenced by their level of education. This result also conflicts with a study by Mailizar et al. (2021) that examined the impact of demographic factors on teachers' TPACK and found that teachers' level of education significantly influences their TPACK. It revealed that teachers with higher education levels have TPACK that is noticeably higher than teachers with lower education levels.

The instructors from different majors of study at the university had similar levels of proficiency in using ICT in all areas. In other words, the difference between the total scores on the scale and major of study at the university was insignificant ($F_{(2-154)}$=2,25; p>.05). When it comes to the relationship between the type of working institution variable and the scale scores, instructors working at private universities ($\bar{x}$=3.86) had higher scores than instructors working at state universities ($\bar{x}$=3.68); however, this difference was not statistically significant ($t_{(152)}$=1,06; p>.05). According to this result, it was determined that the variable of the type of working institution did not cause a significant difference in the TPACK-Practical Scale used in the study and the areas of the scale.

With reference to the relationship between the years of teaching experience variable and the scale scores, it was determined that the total scores obtained from the scale did not differ significantly according to the years of teaching experience ($F_{(4-154)}$=0,82; p>.05). This result is consistent with those of a different study that found no appreciable differences between teachers' TPACK and levels of teaching experience (Mailizar et al., 2021). It also backs up the findings of another study by Pittman and Gaines (2015), who discovered that factors like age, level of education, and years of teaching experience had little impact on how much technology was used in the classroom. This result of the present study, however, contradicts earlier findings that level of teaching experience might play a critical role in teachers' TPACK (Hsu et al., 2017; Nazari et al., 2019; Hsu et al., 2021).

Based on the findings of the current study, it can be concluded that EFL instructors generally use their TPACK-Practical skills in classroom applications at a *"sufficient"* level (at the lowest level in the *Assessments* area and at the highest level in the *Subject Content* area), and that demographic variables have no significant effect on their technology integration skills. For further studies, direct observational data collected by the researchers themselves and interview data supported with the quantitative data, which have rarely been mentioned in TPACK studies, could be helpful in more

precisely determining the level of TPACK among teachers and the fairness of their choices on how to use technology in their teaching implementations.

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References

Ahmed, K. H., & Tümen Akyildiz, S. (2022). Determining the role of digital literacy in EFL teaching concerning the views of Turkish EFL Teachers. *RumeliDE Dil ve Edebiyat Araştırmaları Dergisi*, (29), 966–986. doi: 10.29000/rumelide.1164991

Alqurashi, E. & Samarin, S. (2015, October). *In-Service English Language Teachers' Knowledge of Technology Integration Into The Classroom*. Paper presented at the the 2015 International Business and Education Conference, Las Vegas, NV, USA. doi:10.13140/RG.2.1.3297.1924

Angeli, C., Voogt, J., Fluck, A., Webb, M., Cox, M., & Zagami, J. (2016). A K-6 Computational Thinking Curriculum Framework: Implications for Teacher Knowledge. *Journal of Educational Technology & Society*, *19*(3), 47–57. Retrieved from: https://www.jstor.org/stable/10.2307/jeductechsoci.19.3.47

Aktaş, İ., & Özmen, H. (2022). Assessing the performance of Turkish science pre-service teachers in a TPACK-practical course. *Education and Information Technologies*, *27*(3), 3495-3528. doi: 10.1007/s10639-021-10757-z

Apuke, O. D. (2017). Quantitative Research Methods: A Synopsis Approach. *Kuwait Chapter of Arabian Journal of Business and Management Review*, *6*(11), 40–47. doi:10.12816/0040336

Ay, Y., Karadağ, E., & Acat, M. B. (2015). The Technological Pedagogical Content Knowledge-practical (TPACK-Practical) model: Examination of its validity in the Turkish culture via structural equation modeling. *Computers & Education*, *88*, 97-108. doi: 10.1016/j.compedu.2015.04.017

Biletska, I. O., Paladieva, A. F., Avchinnikova, H. D., & Kazak, Y. Y. (2021). The Use of Modern Technologies by Foreign Language Teachers: Developing Digital Skills. *Linguistics and Culture Review*, *5*(2), 16–27. doi: 10.21744/lingcure.v5nS2.1327

Cai, Z., Fan, X., & Du, J. (2017). Gender and attitudes toward technology use: A meta-analysis. *Computers & Education*, *105*, 1–13. doi: 10.1016/j.compedu.2016.11.003

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of Convenience Sampling and Purposive Sampling. *American Journal of Theoretical and Applied Statistics*, *5*(1), 1–4. doi: 10.11648/j.ajtas.20160501.11

Falloon, G. (2020). From digital literacy to digital competence: The teacher digital competency (TDC) framework. *Educational Technology Research and Development*, *68*(5), 2449–2472. doi: 10.1007/s11423-020-09767-4

Hsu, C.-Y., Liang, J.-C., Chuang, T.-Y., Chai, C. S., & Tsai, C.-C. (2021). Probing in-service elementary school teachers' perceptions of TPACK for games, attitudes towards games, and actual teaching usage: A study of their structural models and teaching experiences. *Educational Studies*, *47*(6), 734–750. doi: 10.1080/03055698.2020.1729099

Hsu, C.-Y., Tsai, M.-J., Chang, Y.-H., & Liang, J.-C. (2017). Surveying In-Service Teachers' Beliefs about Game-Based Learning and Perceptions of Technological Pedagogical and Content Knowledge of Games. *Journal of Educational Technology & Society*, *20*(1), 134–143. Retrieved from: https://eric.ed.gov/?id=EJ1125881

Hsu, L., & Chen, Y.-J. (2018). Teachers' Knowledge and Competence in the Digital Age: Descriptive Research within the TPACK Framework. *International Journal of Information and Education Technology*, *8*(6), 455–458. doi: 10.18178/ijiet.2018.8.6.1081

Ivanović, M., Milićević, A. K., Aleksić, V., Bratić, B., & Mandić, M. (2018). Experiences and perspectives of Technology-enhanced learning and teaching in higher education–Serbian case. *Procedia Computer Science*, *126*, 1351-1359. doi: 10.1016/j.procs.2018.08.086

Koehler, M. J., & Mishra, P. (2009). What Is Technological Pedagogical Content Knowledge (TPACK)? *Contemporary Issues in Technology and Teacher Education*, *9*(1), 60–70. Retrieved from: https://www.learntechlib.org/primary/p/29544/

Koehler, M. J., Mishra, P., & Yahya, K. (2007). Tracing the development of teacher knowledge in a design seminar: Integrating content, pedagogy and technology. *Computers & Education*, *49*(3), 740–762. doi: 10.1016/j.compedu.2005.11.012

Larson- Hall, J., & Plonsky, L. (2015). Reporting and interpreting quantitative research findings: What gets reported and recommendations for the field. *Language Learning*, *65*(S1), 127-159. doi:10.1111/lang.12115

Loeb, S., Dynarski, S., McFarland, D., Morris, P., Reardon, S., & Reber, S. (2017). *Descriptive Analysis in Education: A Guide for Researchers* (NCEE 2017–4023). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance. Retrieved from: https://files.eric.ed.gov/fulltext/ED573325.pdf

Mailizar, M., Hidayat, M., & Artika, W. (2021). The effect of demographic variables on mathematics teachers' TPACK: Indonesian context. *Journal of Physics: Conference Series*, *1882*(1), 012041. doi: 10.1088/1742-6596/1882/1/012041

Malik, S., Rohendi, D., & Widiaty, I. (2019, February). *Technological Pedagogical Content Knowledge (TPACK) with Information and Communication Technology (ICT) Integration: A Literature Review*. Proceedings of the 5th UPI International Conference on Technical and Vocational Education and Training (ICTVET 2018), 299, 498–503. Bandung, Indonesia: Atlantis Press. doi: 10.2991/ictvet-18.2019.114

Mirici, İ. H., & Demirbaş, S. (2013). How to Turn the Epostl into an Electronic Setting: The E-epostl. *Procedia - Social and Behavioral Sciences*, *106*, 1368–1377. doi: 10.1016/j.sbspro.2013.12.152

Mirici, İ. H., & Kavaklı, N. (2017). Teaching the CEFR-oriented practices effectively in the MA program of an ELT department in Turkey. *International Online Journal of Education and Teaching (IOJET),* 4(1), 74-85. Retrieved from: http://iojet.org/index.php/IOJET/article/view/159/151

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers college record*, *108*(6), 1017-1054. Retrieved from: https://journals.sagepub.com/doi/abs/10.1111/j.1467-9620.2006.00684.x

Mitchell, C., Friedrich, L., & Appleget, C. (2019). Preservice teachers' blogging: Collaboration across universities for meaningful technology integration. *Teaching Education*, *30*(4), 356–372. doi: 10.1080/10476210.2018.1486815

Mohajan, H. K. (2020). Quantitative Research: A Successful Investigation in Natural and Social Sciences. *Journal of Economic Development, Environment and People*, *9*(4), 52–79. doi: 10.26458/jedep.v9i4.679

Nazari, N., Nafissi, Z., Estaji, M., & Marandi, S. S. (2019). Evaluating novice and experienced EFL teachers' perceived TPACK for their professional development. *Cogent Education*, *6*(1), 1632010. doi: 10.1080/2331186X.2019.1632010

Pangket, W. F. (2022). Technological Pedagogical and Content Knowledge (TPACK) of English Language Teachers and Their Teaching Practices. *Journal of Positive School Psychology*, *6*(2), 5302-5313. Retrieved from: https://journalppw.com/index.php/jpsp/article/view/3184

Pittman, T., & Gaines, T. (2015). Technology integration in third, fourth and fifth grade classrooms in a Florida school district. *Educational Technology Research and Development*, *63*(4), 539–554. doi: 10.1007/s11423-015-9391-8

Queirós, A., Faria, D., & Almeida, F. (2017). Strengths And Limitations Of Qualitative And Quantitative Research Methods. *European Journal of Education Studies*, *3*(9), 369–387. doi: 10.5281/zenodo.887089

Raja, R., & Nagasubramani, P. C. (2018). Impact of modern technology in education. *Journal of Applied and Advanced Research*, *3*(1), 33–35. doi: 10.21839/jaar.2018.v3iS1.165

Salkind, N. J. (2013). *Statistics for people who (think they) hate statistics: Excel 2010 edition.* Thousand Oaks, Calif: SAGE Publications.

Sarıçoban, A., Tosuncuoğlu, İ., & Kırmızı, Ö. (2019). A technological pedagogical content knowledge (TPACK) assessment of pre- service EFL teachers learning to teach English as a foreign language. *Journal of Language and Linguistic Studies*, *15*(3), 1122–1138. doi: 10.17263/jlls.631552

Schober, P., Boer, C., & Schwarte, L. A. (2018). Correlation Coefficients: Appropriate Use and Interpretation. *Anesthesia & Analgesia*, *126*(5), 1763–1768. doi: 10.1213/ANE.0000000000002864

Shulman, Lee S. (1986). Those Who Understand: Knowledge Growth in Teaching. *Educational Researcher*, *15*(2), 4–14. doi: 10.2307/1175860

Şentürk, B., & Mirici, İ. H. (2019). Does the ELP promote learning English as a foreign language at tertiary level? *Journal of Language and Linguistic Studies*, *15*(2), 695–718. doi: 10.17263/jlls.586815

Soler-Costa, R., Moreno-Guerrero, A.-J., López-Belmonte, J., & Marín-Marín, J.-A. (2021). Co-Word Analysis and Academic Performance of the Term TPACK in Web of Science. *Sustainability*, *13*(3), 1-20. doi: 10.3390/su13031481

Tondeur, J., Kershaw, L. H., R. Vanderlinde, R., & Van Braak, J. (2013). Getting inside the black box of technology integration in education: Teachers' stimulated recall of classroom observations. *Australasian Journal of Educational Technology*, *29*(3). doi: 10.14742/ajet.16

Willermark, S. (2018). Technological Pedagogical and Content Knowledge: A Review of Empirical Studies Published From 2011 to 2016. *Journal of Educational Computing Research*, *56*(3), 315–343. doi: 10.1177/0735633117713114

Yeh, Y., Hsu, Y., Wu, H., Hwang, F., & Lin, T. (2014). Developing and validating technological pedagogical content knowledge- practical (TPACK- practical) through the Delphi survey technique. *British Journal of Educational Technology*, *45*(4), 707–722. doi: 10.1111/bjet.12078

The Role of Self-Regulation Skills and Digital Game Addiction Tendencies in Predicting Preschool Children's Prosocial Behaviors

Burcu Bağcı-Çetin[1]

Abstract

In the study, the role of self-regulation skills and digital game addiction tendencies in predicting the prosocial behavior of preschool children were examined. The study group of the research, which was conducted using the correlational model, consisted of 255 children aged 5-6 years who were studying in the kindergartens of the primary schools affiliated to the Ministry of National Education in the Efeler district of Aydın province in the 2022-2023 academic year. The data of the study were collected through the General Information Form filled by their parents for their children, The Digital Game Addiction Tendency Scale, The Self-Regulation Skills Scale for 4-6 Years-Old Children-Mother Form and The Child Prosociality Scale-Teacher Form filled by their teachers for children. In the research findings, a negative significant weak relationship was determined between the prosocial behaviors of preschool children and the conflict and reflection sub-dimensions of digital game addiction tendencies. A positive and significant weak relationship was determined between pre-school children's prosocial behaviors and the sum of their self-regulation skills and sub-dimensions of attention, working memory, inhibitory control-emotion, and inhibitory control-behavior. As a result of regression analysis, it was determined that self-regulation skills and digital game addiction tendencies of 5-6 year old children together predicted prosocial behavior variability by 14%. The findings showed that the most powerful predictors of the child's prosocial behavior were self-regulation skills, attention and inhibitory control-behavior sub-dimensions, and the tendency for digital game addiction to be the conflict sub-dimension. The findings were discussed in the light of the literature, and suggestions were made to those concerned that prevention and intervention studies should be given importance to the negative effects of digital games that contain negative elements and are exposed for long periods of time, and that it would be effective to address self-regulation skills in interventions and programs aimed at encouraging children's prosocial behaviors.

Keywords: Digital game, self-regulation, prosocial behavior.

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Introduction

Play, which is considered to be the most important occupation of children, has a significant impact on the development of the child and supports many skills such as problem solving, discovery, creativity, and communication (Gözüm & Kandır, 2021; Kennedy-Behr, Rodger & Mickan, 2015; Lillard, Lerner & Hopkins et al., 2013). Today, in parallel with technological developments, children's games and play tools, even playgrounds, have changed and the concept of digital games has emerged and taken place in children's lives (Bird & Edwards, 2015; Gözüm & Kandır, 2020a; İnan & Dervent, 2016). In studies on the concept of digital games, which have increased in recent years, the frequency of children playing digital games (Akçay & Özcebe, 2012; Gözüm & Kandır, 2021; Işıkoğlu-Erdoğan, 2019;), game preferences (Tuğrul et al., 2014), game addiction (Ünsal, 2019), parents' views (Gözüm, 2022; Işıkoğlu-Erdoğan et al., 2019; Mercan-Uzun, Bütün-Kar & Özdemir, 2023; Yiğit & Alat, 2022), the effects of digital tools and games on their children's development (Gözüm & Kandır, 2020b; Taş & Güneş, 2019; Toksoy, 2018) are included. When these studies are examined, it is seen that the number of studies with children in the early childhood period is very limited and the study group of the studies generally consists of children aged six and over. However, it is known that digital games, which are increasingly preferred by all age groups, are also used in early childhood (Genç, 2014; Gözüm, 2022; Papadakis et al., 2022; Plowman, Stevenson, Stephen & McPake, 2012; Yılmaz & Gözüm, 2023). Research has revealed that the number of children online doubled between 2010 and 2015 in Türkiye, the age of using the internet decreased to two years old, and and the majority of children can access to their own mobile devices before the age of four (Aldemir-Engin, 2023; Aslan, 2016, cited in Avcı & Er, 2019; Radesky et al., 2020). The massive increase in the adoption and use of digital tools among children (Rideout & Robb, 2019, cited in Domoff, Borgen & Radesky, 2020) has raised concerns about excessive or problematic use for healthy child development (Common Sense Media, 2018, cited in Domoff, Borgen & Radesky, 2020; Gözüm & Kandır, 2020b). Because the increased interaction with digital games at an early age can increase the risk of digital game addiction (Bülbül, Tunç, & Aydil, 2018).

In the literature, there are studies reporting that digital games with educational content provide a desired learning environment for children (Plowman, Stevenson, Stephen & McPake, 2012), support children's problem-solving, attention skills and memory (Greenfield, 1996) and provide positive contributions to emotional discharge and relaxation (Prot, Anderson, Gentile et al., 2014; Young, 2009). However, long hours spent with digital tools are associated with loneliness (Wack & Tantleff-Dunn, 2009), depression and anxiety (Mentzoni et al., 2011), aggression (Adachi & Willoughby, 2011), violence tendency (Williams, Kennedy & Moore, 2011), low self-regulation (Hosokawa & Katsura, 2018), and a decrease in prosocial behaviors (Greitemeyer & Müge 2014) for young children. It is seen that the findings about the negative effects of violent digital games are remarkable. In the study of Anderson et al. (2010), it was detected that violent digital games increased violent thoughts, behaviors and physical impulses towards violence, depersonalization against violence increased, and empathic and social tendencies decreased. In the report made by the Ministry of Health (2018), it was emphasized that aggressive games negatively affected the development of prosocial behaviors such as helping, sharing, empathizing, protecting, and comforting. Holman, Hansen, Cochian, and Lindsey (2005) found regression in social development, low self-confidence, excessive anxiety in social relations and high level of aggressive behavior in children who spent most of their time with computer games. It is very important to support the social and emotional skills and development of children in the pre-school period. In this period, the child can see the effects of his own behavior by showing awareness of the feelings and behaviors of others as a result of the interactions he/she experiences with his/her environment. This socialization process, which becomes more complex over time, brings with it the risk of increasing problem behaviors. Reducing problem behaviors and encouraging prosocial behaviors make an important contribution to the development of social and emotional skills of children at an early age (Darling-Churchill & Lippman, 2016; Malti & Noam, 2016; San-Bayhan & Artan, 2009; Ülgen & Fidan, 2003). Prosocial behavior, which serves as an important factor in adaptation to the society in terms of psychological and socialization, is defined as a voluntary behavior aimed at providing benefit to others (Eisenberg & Mussen, 1997). Prosocial behaviors include behaviors such as cooperation, empathy, sharing, helping, inclusion, and comforting peers (Honig, 2004). Fisch, Truglio, and Cole (1999)

suggested that friendship, conflict resolution, cooperation, sharing, taking turns, and entering social groups are the most important aspects of social and emotional interactions. Playing digital games, which is one of the variables thought to affect the development of prosocial behavior, becomes a problem when individuals cannot control their desire to play, when they have difficulty in quitting playing and this situation begins to affect their lives (Young, 2009). Digital game addiction means excessive and compulsive use of digital games, causing emotional and social problems, but still not being able to stop playing games (Lemmens et al., 2011). Gökçearslan and Durakoğlu (2014) define digital game addiction as "incompatible and stubborn behavior towards playing games" (p.422). It is thought that digital game addiction may occur more in young children than adults. The self-control mechanism that develops with age can prevent adults from behaviors that will reveal addiction. However, without this control, children can play digital games for a long time whenever they have the opportunity (Alter, 2018). For this reason, children's acquaintance with the digital environment at a very early age brings the possibility of digital addiction. As a matter of fact, studies have revealed that the symptoms of internet and game addiction are also seen in preschool (Akçay & Özcebe, 2012; Ünsal, 2019) and primary school children (Bilgin, 2015). The fact that children in this age group are in a critical developmental period suggests that possible addiction symptoms may cause permanent behavioral problems in children. For this reason, early intervention and preventive services in early childhood have an important place in addiction studies.

Another developmental skill that is closely related to the prosocial behavior of children in the preschool period is self-regulation (Gözüm & Aktulun, 2021). It is stated as a multidimensional structure that expresses the ability to control self-regulation, emotions, cognition and behavior that begins to develop in the preschool period and affects all aspects of individuals' attitudes, behaviors and adaptations throughout life (Birgisdóttir, Gestsdóttir & Thorsdóttir, 2015; Eisenberg, Eggum, Sallquist & Edwards, 2010). Vallotton and Ayoub (2011) defined self-regulation as a critical social skill that supports children's ability to act prosocially with peers and adults, participate efficiently in learning activities, and adapt successfully to new or challenging situations. The role of self-regulation skills in both showing constructive behaviors and controlling negative social behaviors has been emphasized in many studies (Aras, 2015; Fındık-Tanrıbuyurdu & Güler-Yıldız, 2014; Gözüm & Aktulun, 2021; Montroy et al., 2016; Trommsdorff & Cole, 2011). Because, in order to exhibit prosocial behavior, children need to be able to regulate their own emotions and behaviors or exhibit actions that can help others regulate their emotions. Children with high self-regulation skills are able to focus their attention on the feelings and needs of others rather than their own negative emotions by regulating their emotional arousal levels, and thus exhibit prosocial behavior (Eisenberg, Fabes & Spinrad, 2006; Gözüm, 2020b). When the relevant literature is examined, it is found that the capacity to regulate children's negative emotions (Eisenberg et al., 1993) as well as their excessive emotions (Cole et al., 1994) is associated with aggressive behaviors and it is seen that high regulatory capacity supports cooperative behaviors by reducing the rate of exhibiting externalized behaviors (Gilliom et al., 2002) and increasing the level of social competence (Işıksolu-Aysel, 2020). There are research findings stating that the level of prosocial behavior is associated with low impulsivity and high self-regulation capacity (Bronson, 2019), and that self-regulation skill is a strong predictor of moral rules and social behaviors (Kochanska, 2002; Lewin-Bizan et al., 2010). It is stated that the self-regulation skills of children who can make effort without giving up in challenging tasks, are successful in tasks requiring attention, and show social behaviors such as sharing toys and waiting their turn more frequently are higher (Gözüm, 2020a; Vasseleu, Neilsen-Hewett, Ehrich, Cliff & Howard, 2021). Children's self-control as a feature of inhibitory control is frequently discussed as one of the positive social skills that should be taught to all children (Diamond, 2012; Gözüm, 2020a). Some researchers have stated that prosocial behavior includes features such as "following directions" and "controlling anger with peers" (Lane, Givner & Pierson, 2004, p.106). Considering the importance of regulating children's emotions and behaviors in their socialization processes and social relations in supporting prosocial behaviors in the preschool period, studies on these variables are important.

In the context of the perspective mentioned above, it is seen that playing digital games has an increasingly important place in children's lives and directly affects their lives (Kabakçı, Yurdakul, Dönmez, Yaman & Odabaşı, 2013). In this respect, it is thought that examining the variables that are causally related to the development of prosocial behavior revealed by literature studies will be beneficial

in terms of giving important clues about the process of supporting the development of prosocial behavior in preschool children. While there are many studies on the variables affecting the development of prosocial behavior (Aydın, 2021; Bağcı-Çetin & Öztürk-Samur, 2018; Coyne et al., 2017; Denham, 1986; Karaman & Dinçer, 2020; Ostrov, Gentile & Crick, 2006; Saygılı & Akkaynak, 2021) have not found any studies examining the co-predictive effect of self-regulation skills and digital game addiction tendencies. In this context, this study, which aims to determine the predictive role of pre-school children's self-regulation skills and digital game addiction tendencies, is expected to contribute to the literature, which has been found to have a limited number of studies in the conceptual framework.

Purpose (Sub-purposes)

In this study, the role of digital game addiction tendencies and self-regulation skills in predicting the prosocial behavior of preschool children was examined. In parallel with this aim, sub-objectives of the study were determined.

1. Is there a relationship between pre-school children's prosocial behaviors, self-regulation skills and digital game addiction tendencies?

2. Do preschool children's self-regulation skills and digital game addiction tendencies together predict their prosocial behavior?

Method

Research Model

In the study, the correlational model used to determine the existence and/or degree of change between two and more variables was applied (Karasar, 2015).

Participants

The population of the study consisted of children aged 5-6 years who were studying in the kindergartens of primary schools affiliated to the Ministry of National Education in Aydın in the 2022-2023 academic year. In the research, convenient sampling method, which allows easy access and application, was used (Büyüköztürk et al., 2018). The study group consisted of 255 children aged 5-6 years who volunteered to be participants from the study population. The distribution of the study group according to their demographic characteristics is presented in Table 1.

Table1.
Distribution of the Study Group by Demographic Characteristics

		N	%
Gender	Female	130	51
	Male	125	49
Number of siblings	Single child	16	6.3
	Has a sibling	116	45.5
	Has two or more siblings	123	48.2
Previous pre-school education status	Yes	40	15.7
	No	215	84.3
Family income level	Very low	8	3.1
	Low	65	25.5
	Middle	140	54.9
	Good	42	16.5
	Very good	0	0

When Table 1 is examined, it is seen that 51% of the sample group consists of girls and 49% of boys. It was determined that 6.3% of the children had only one child, 45.5% had a sibling, and 48.2% had two or more siblings. It is seen that 15.7% of the children have received pre-school education before, while 84.3% of them have not received pre-school education before. When the family income levels of the children are examined, it is seen that 3.1% of them are very low, 25.5% are low, 54.9% are medium, and 16.5% are good.

Data Collection Tools

In this section, the explanation of the measurement tools used in the research and the reliability data obtained within the scope of the current research are given.

General Information Form

The data on the gender of the children in the study group, the number of siblings, previous pre-school education status and family income level were collected through a personal information form created by the researcher.

Child Prosocialness Scale (CPS-Teacher Form)

The original scale consists of the Child Rating Questionnaire (Strayer, 1985) and the Prosocial Behavior Questionnaire (Weir, Stevenson, & Graham, 1980). Edited by Bower (2012). Adaptation to Turkish culture and validity, reliability study were conducted by Bağcı and Öztürk-Samur (2016). The scale is a five-point Likert scale. A high score from the scale indicates that children's prosocial behaviors are high. With the exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), it was determined that the CPS Teacher form was formed in a one-dimensional structure consisting of 22 items. The reliability coefficient of the Child Prosocialness Scale Teacher Form was calculated as .96. Accordingly, it is stated that the Child Prosocialness Scale is a valid and reliable measurement tool. The Cronbach Alpha reliability coefficient calculated for the scale within the scope of the study was found to be .95.

Digital Game Addiction Tendency Scale (DGAT)

The scale, which aims to determine the digital game addiction tendencies of preschool children, was developed by Budak and Işıkoğlu (2022). In the scale consisting of four sub-dimensions (breaking from life, conflict, constant playing and reflecting on life) and 20 items, each dimension can be evaluated within itself as well as the total score can be calculated. The five-point Likert scale does not have a reverse scored item. It is stated that as the total score obtained with the scale, which can be scored as the lowest "20" and the highest "100", increases, the digital game addiction tendencies of children increase. Expert opinion was taken to determine the content validity of the scale, and EFA and CFA techniques were applied in the process of determining the construct validity. As a result of the analyses made, the total variance rate of the scale was determined as 63.06%. The obtained model fit indices were determined to be sufficient. The total Cronbach Alpha reliability coefficient of the scale was calculated as .93, and for the sub-dimensions conflict .90, disconnection from life .88, reflection on life .70, continuous play .82. The Cronbach Alpha reliability coefficient calculated for the scale within the scope of the research was found to be .83 for the total digital game addiction tendency, and .76 for conflict, .74 for disconnection from life, .82 for reflection on life, and .80 for continuous play for the sub-dimensions.

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

The scale was developed by Erol and İvrendi (2018) to determine the self-regulation skills of children aged 4-6 based on parental views. Concurrent criterion validity, EFA and CFA techniques were used in the construct validity analyses of the scale. With EFA, it was observed that the scale was formed in 20 items and four sub-dimensions (attention, working memory, inhibitory control-emotion and inhibitory control-behavior), which explained 61% of the total variance. As a result of the CFA performed to validate the model obtained, the fit indices were found to be sufficient. The item-total correlations ranged from .36 to .70, and the Cronbach Alpha internal consistency coefficient of the scale was determined as .90. Concurrent validity was found to be .84 and test-retest reliability was found to be .77. In line with the findings, it is stated that the scale is a valid and reliable measurement tool for determining the self-regulation skills of children aged 4-6 based on the opinions of their mothers. The Cronbach Alpha reliability coefficient calculated for the scale within the scope of the study was found to be .81 for self-regulation skills, .73 for attention, .79 for working memory, .77 for inhibitory control-emotion, and .80 for inhibitory control-behavior.

Data Collection

The data were collected from the mothers and teachers of children aged 5-6 years studying in the kindergartens of primary schools affiliated to the Ministry of National Education in Aydın in the 2022-2023 academic year. After obtaining the permission of the research and ethics committee, the teachers and mothers of the children were reached through the school administration and informed about the study. Participants' files, which included an information note about the study, forms of data collection tools (Digital Game Addiction Tendency Scale, Self-Regulation Skills Scale for 4-6 Years-Old Children -Mother Form), personal information form and consent form, were distributed to families. The Child Prosocialness Scale-Teacher Form to be filled in by the children's teachers was delivered to the classroom teachers. The data of the children who volunteered to participate in the study were transferred to the SPSS program by the researcher and analyzed.

Analysis of Data

The research data were evaluated through the SPSS 22.00 statistical program. In the analysis of the data using the multiple linear regression analysis technique, first of all, the assumptions of normality, autocorrelation and multicollinearity related to the data set were examined. The normality of the variables was examined both graphically and statistically. In the normal Q-Q graph, which is one of the graphical methods, the observed values are on the X axis and the expected values are on the Y axis. It is interpreted that the deviations from the normal are not excessive as the values of the variables get closer to the line and gather close to the below, above and below (Mertler & Vannatta, 2005, akt. Çokluk, Şekercioğlu & Büyüköztürk, 2018). In this direction, it was seen that the Q-Q plot graphs examined showed a distribution close to the normal. According to the Skewness-Kurtosis normality test, which is one of the statistical options for evaluating normality, the values related to prosocial behavior scores were Skewness= -.542, Kurtosis= -.531; values for the sum of self-regulation skills Skewness= -.868, Kurtosis= .110. The values for the total score of digital game addiction tendency were determined as Skewness= .246, Kurtosis= -1.00.These values were found to be between +1.5 and -1.5, and based on this, it was determined that the data showed a normal distribution (Tabachnick & Fidell, 2015). The analysis of the relationship between the error terms was carried out using the Durbin Watson test. The value calculated as DW= 1.847 is between 1.5 and 2.5, which is an indication that there is no autocorrelation between the error terms. In the literature, it is stated that multicollinearity problem occurs when the correlation between independent variables is greater than .90 and the tolerance value is less than .10 (Çokluk et al., 2018). The correlation coefficients between the independent variables of the study were between -.326 and .013, and the tolerance values were between .16 and .63. According to the findings, there is no multicollinearity between the independent variables and the data set meets the necessary conditions. First of all, Pearson product-moment correlation coefficient was used in the analysis of the data. The coefficient obtained in correlational studies takes a value ranging from +1 to -1, and a value of +1 indicates a perfect relationship between the variables, while a value of 0 indicates no relationship. If this value is less than .30, it is interpreted as weak, if it is between .30 and .70, it is moderate, and if it is greater than .70, it is interpreted as a high level of relationship. A positive coefficient indicates that while an increase occurs in one variable, there is an increase in the other variable, while a negative coefficient indicates that there is an increase in one variable and a decrease in the other (Köklü, Büyüköztürk, & Çokluk, 2007).

Research Ethics Committee Approval

In the process of conducting the research, all ethical rules were followed during the data collection and analysis stages. In addition, ethical approval of the research was obtained from Adnan Menderes University Educational Research Ethics Committee with the date of 27.02.2023 and E-84982664-050.01.04-320578, 2023/2-XIII permission number.

Findings

The arithmetic mean, standard deviation, and minimum and maximum values of the children aged 5-6 years regarding the scores they got from the child prosocialness scale, the self-regulation skills scale, and the digital game addiction tendency scale are presented in Table 2.

Table 2.
Minimum, Maximum, Arithmetic Mean and Standard Deviation Values of Scores From Scales

		n	Min.	Max.	X̄	Sd
Prosocial Behavior		255	60	110	92.33	12.80
Self-regulation skills	Attention	255	9	30	21.26	5.06
	Working memory	255	10	25	21.48	3.45
	Inhibitory control-emotion	255	9	25	18.43	4.51
	Inhibitory control-behavior	255	7	20	13.29	2.90
	Self-regulation skills-total	255	40	94	74.47	12.77
Digital game addiction tendency	Detachment from life	255	7	27	14.16	5.62
	Conflict	255	5	24	12.48	4.66
	Continuous play	255	5	20	11.61	3.95
	Reflection on life	255	3	13	7.25	2.60
	Digital game addiction tendency-total	255	20	70	45.51	14.13

When Table 2 was examined, the mean scores of children aged 5-6 years from the child prosocialness scale were X̄ =92.33 (SD=12.80). When the arithmetic averages of the scores of the children from the self-regulation skills scale were examined; attention was calculated as X̄ =21.26 (SD=5.06), working memory X̄ =21.48 (SD=3.45), inhibitory control-emotion X̄ =18.43 (SD=4.51), inhibitory control-behavior X̄ =13.29 (SD=2.90), self-regulation skills-total X̄ =74.47 (SD=12.77). When the arithmetic averages of the scores they got from the digital game addiction tendency scale were examined; detachment from life was calculated as X̄ =14.16 (SD=5.62), conflict X̄ =12.48 (SD=4.66), constant playing X̄ =11.61 (SD=3.95), reflection on life X̄ =7.25 (SD=2.60), digital game addiction tendency total X̄ =45.51 (SD=14.33).

The correlation values between the child prosocialness scale, self-regulation skills scale and digital game addiction tendency scale scores of 5-6 year old children are given in Table 3.

Table 3.
Correlation Results of Preschool Children's Prosocial Behavior, Self-regulation Skills and Digital Game Addiction Tendency Variables

Variables	1	2	3	4	5	6	7	8	9	10	11
Prosocial behavior	1										
DGAT-Total	-.063	1									
DGAT-Detachment from life	.000	.898	1								
DGAT-Conflict	-.172*	.867	.662	1							
DGAT- Continuous play	.080	.785	.607	.570	1						
DGAT- Reflection on life	-.156*	.742	.603	.615	.409	1					
SS-Total	.230**	-.260	-.162	-.326	-.180	-.205	1				
SS-Attention	.281**	-.238	-.098	-.316	-.215	-.186	.886	1			
SS- Working memory	.132*	-.285	-.265	-.215	-.253	-.206	.761	.581	1		
SS- Inhibitory control-emotion	.161*	-.260	-.206	-.306	-.091	-.276	.773	.511	.467	1	
SS- Inhibitory control-behavior	.112*	.013	.095	-.150	.026	.096	.745	.664	.419	.398	1

*p<.05, **p<.001   DGAT= Digital Game Addiction Tendency,   SS= Self-regulation Skills

When Table 3 was examined, it was seen that there was a negative significant weak correlation between the prosocial behaviors of preschool children and the sub-dimensions of digital game addiction tendency conflict (r= -.172, p<.05) and reflection on life (r= -.156, p<.05). A positive significant weak correlation was determined between the sub-dimensions of self-regulainhibitory control-emotion (r= .161, p<.05), and inhibitory control-behavior (r= .112, p<.05), attention (r= .281, p<.001), working memory (r= .132, p<.05), and self-regulation skills-total (r= .230, p<.001) and preschool children's prosocial behaviors.

The results of multiple linear regression analysis regarding the prediction of prosocial behaviors of preschool children's self-regulation skills and digital game addiction tendencies are given in Table 4.

Table 4.
Multiple Linear Regression Analysis Results

		R	R^2	ΔR^2	β	B	Standard error	F	t	p
Predictor variables		.41	.16	.14		79.82	6.39	6.19	12.48	.00**
Self-regulation skills	Attention				.37	.94	.23		3.93	.00**
	Working memory				.03	.13	.29		.45	.64
	Inhibitory control-emotion				-.02	-.08	.20		-.40	.68
	Inhibitory control-behavior				-.18	-.82	.37		-2.20	.02*
Digital game addiction tendency	Conflict				-.36	-.99	.39		-2.53	.01*
	Continuous play				.21	.69	.38		1.80	.07
	Reflection on life				-.14	-.711	.50		-1.41	.15
	Detachment from life				.11	.25	.21		1.20	.22

*p<.05, **p<.001

According to Table 4, the regression model established based on the results of the multiple linear regression analysis was statistically significant ($F_{(8, 246)}$=6.19, p=.00). Accordingly, preschool children's self-regulation skills and digital game addiction tendencies together predict prosocial behavior variability by 14% (R=.41, R^2=.16, ΔR^2 =.14). Among self-regulation skills, attention (β=.37, p<.001) and inhibitory control behavior (β= -.18, p<.05) were significant predictors of the child's prosocial behaviors; working memory (β= .03, p>.05) and inhibitory control feeling (β= -.02, p>.05) were not significant predictors of the child's prosocial behavior. The conflict dimension of digital game addiction tendencies (β= -.36, p<.05) was a predictor of the child's prosocial behaviors, continuous playing (β= .21, p>.05), reflection on life (β= -.14, p> .05) and detachment from life (β= .11, p>.05) were not found to be significant predictors of the child's prosocial behavior.

According to the findings, attention, which is one of the self-regulation skills of preschool children, positively predicts their prosocial behavior, while inhibitory control behavior negatively predicts them. The conflict dimension of children's digital game addiction tendencies negatively predicts their prosocial behavior. One-unit change in attention level, one of the self-regulation skills of preschool children, creates a change of .94 units in their prosocial behavior, and a 1-unit change in the level of inhibitory control behavior creates a -.82-unit change in their prosocial behavior.

Discussion

In the study, the role of self-regulation skills and digital game addiction tendencies in predicting the prosocial behavior of preschool children was examined. For this, firstly, the relationship between children's digital game addiction tendencies, self-regulation skills and prosocial behavior levels was examined, then the predictive power of children's digital game addiction tendencies and self-regulation skills, and prosocial behaviors were tested by regression analysis. In the study, a statistically significant negative correlation was found between the prosocial behaviors of preschool children and the sub-dimensions of the tendency of digital game addiction to conflict and reflection on life. In the literature, it is seen that the studies examining the relations of the variables discussed in the research in the sample of preschool children are not sufficient, but the findings are in parallel with the research findings in the literature. The ever-expanding research literature on the concepts covered in this study has revealed many findings examining the positive and negative effects of digital games. It is seen that violent games attract the greatest attention regarding the negative effects of digital games. It is stated that the use of

such games by more and more individuals every day increases the tendency towards violence at the community level (Aydoğdu-Karaarslan, 2015). In the meta-analysis study of Anderson et al. (2010), it was found that violent digital games increase violent thoughts, aggressive behaviors and physical impulses towards violence, depersonalization towards violence, and decrease prosocial tendencies. Likewise, Anderson and Dill (2000) demonstrated the impulsive effects of violent elements in digital games on aggression. In addition, it is stated that playing digital games for a long time can lead to disruption of daily life activities, communication problems and insensitivity to social events (Ministry of Health, 2018). Digital games play an increasingly decisive role in children's lives and directly affect the physical and emotional environment of the child (Kabakçı, Yurdakul, Dönmez, Yaman & Odabaşı, 2013). In the study conducted by Holman, Hansen, Cochian and Lindsey (2005) to address the importance of this issue, it was determined that children spend most of their time on computer games and the Internet, as a result of which a significant regression in their social development, low self-confidence, excessive anxiety and aggression in social relations are observed. While Paulus et al. (2021) suggested that social skills were negatively affected by computers, mobile devices and video games, Canaslan-Akyar and Sevimli-Çelik (2022) associated the increase in time spent with digital media with low social self-regulation skills. In their research, Gözüm and Kandır (2020b) revealed that as the duration of digital game play of preschool children increased, their tendency to play and their concentration level decreased. Şenol, Şenol and Can-Yaşar (2023) found that digital game addiction tendencies increased and their social-emotional development was negatively affected due to the fact that children could not find the opportunity to open up to the environment during the Covid-19 pandemic.

In the current study, a statistically significant positive correlation was found between the prosocial behaviors of preschool children and the sum of their self-regulation skills and sub-dimensions of attention, working memory, inhibitory control-emotion, and inhibitory control-behavior. In the literature, the results of studies showing a significant relationship between self-regulation skills and prosocial behaviors show parallelism with the current research findings. Attention regulation skills, one of the sub-dimensions of self-regulation skills, are extremely important skills in terms of social skills (Williams & Berthelsen, 2017). Because the ability of an individual to voluntarily share his resources with others requires him to pay attention to the clues he conveys about the needs of others. In this regard, a study by Laible, Carlo, Murphy, and Augustine (2014) found that 4-year-olds with higher attention regulation and less emotional reactivity were rated more prosocial by their teachers compared to children with low attention regulation. Simonds, Kieras, Rueda, and Rothbart (2007) stated in their research that attention control was important in situations related to social relations. In the study conducted by Hughes, White, Sharpen, and Dunn (2000), it was determined that children with low empathy levels had low executive function controls. Inhibitory control skills are associated with behavioral problems in the preschool period (Schoemaker, Mulder, Dekovi´c, & Matthys, 2013). It has been determined that children with low inhibitory control skills have high levels of aggression (Raaijmakers et al., 2008), while children with low working memory skills exhibit less prosocial behavior (León, Dias, Martins, & Seabra, 2018). A meta-analysis study by Imuta et al. (2016) found a small but significant relationship between theory of mind development and children's helping, cooperating and comforting behaviors. Eke (2018) found that there was a statistically significant relationship between children's values, self-regulation skills and social behaviors. Pazarbaşı and Cantez (2019) found significant relationships between self-regulation skills and peer relationships in their research. Işıksolu-Aysel (2020) determined a positive low-level significant relationship between children's self-regulation and social competence skills and their self-regulation and problem-solving skills.

As a result of regression analysis, it was determined that preschool children's self-regulation skills and digital game addiction tendencies together predicted prosocial behavior variability by 14%. The findings showed that the most powerful predictors of the child's prosocial behavior were self-regulation skills, attention and inhibitory control-behavior sub-dimensions, and the tendency for digital game addiction to be the conflict sub-dimension. In predictive correlation studies, the relations between variables are examined and the unknown value of the other variable is tried to be determined by starting from the known value of one variable. It can be said that the higher the relationship between two variables, the more accurate this determination can be made (Fraenkel & Wallen, 2006). Various studies have been developed in the literature to determine whether the nature of digital gaming affects the formation of prosocial behaviors. Considering the effect of digital games, studies support the conclusion that violent

games tend to reduce prosocial behaviors (Anderson & Bushman, 2001; Anderson et al., 2010), playing games that include prosocial behaviors with the intention of helping another person in a situation other than gaming was also associated (Greitemeyer & Osswald, 2010). Cross-cultural and longitudinal studies reveal a relationship between the quantity and quality of game consumption and prosocial behavior (Anderson et al., 2010; Gentile et al., 2011; Prot, Anderson, Gentiler, Brown, & Swing, 2014). Accordingly, playing a game involving prosocial behavior patterns tends to reduce aggressive cognitions and increase accessibility to prosocial ones. Saleme et al. (2020) found that children exhibit prosocial behaviors by transferring their skills in digital games to real social interactions (Craig, Brown, Upright, & DeRosier, 2016; Sanchez, Brown, Kocher, & DeRosier, 2017). While research has highlighted the worrisome associations between the amount of digital gaming and emotional and behavioral problems in middle childhood, especially in boys (Mundy et al., 2017), well-designed digital games can help with self-regulation perspective (Williams & Berthelsen, 2017). It is stated that factors that support children's developing social skills, such as receiving and cooperation, also affect positively. For example; Multiplayer digital games encourage this behavior by requiring children to work towards a common goal with team members. This provides children with valuable experience working in groups and with others. Li and Zhang's (2022) research showed that children playing video games that involve positive social behavior for a short time increased their positive social thoughts and prosocial behaviors. The longitudinal study by Gentile et al. (2009) showed that while violent digital games increase aggressive thoughts and behaviors, prosocial game content increases prosocial thoughts and behaviors. Contrary to the findings of this study, it was stated that preschool children do not always realize the analogical connection between themselves and the fantastic (or animated) characters on the screen, or they cannot easily apply the prosocial behaviors learned through a game program to real-life social situations (Mares & Acosta 2008; Richert & Molly, 2017).

Since self-regulation includes both emotional regulation (Raver, 2002) and attention regulation (Blair, 2002), it is likely that children with high self-regulation skills have more capacity to exhibit prosocial behavior towards others (Eisenberg, Fabes & Spinrad, 2006). In the study conducted by Yurdakul, İlhan-Ildız and Tüm-Ayhan (2022), it was determined that the self-regulation skills of children aged 4-6 were a significant predictor of their prosocial behaviors. In addition, attention, working memory, and inhibitory control skills, which are the basic elements of self-regulation, were found to be positively related to the level of prosociality. In a longitudinal study on the development of prosociality, it was found that children who can effectively regulate their emotions at the age of two have a high level of prosocial behavior at the age of four (Scrimgeour, Davis, & Buss, 2016). Bierman, Nix, Greenberg, Blair and Domitrovich (2008), in their study with 4-year-old children, concluded that executive function skills positively affect children's prosocial behavior levels. In the study conducted by Rasmussen et al. (2019), it was found that children who played a game that focused on social and emotional competences used emotional regulation strategies more frequently than children in the control group who played an application that focused on teaching letters and numbers. In many studies, it is stated that children with high self-regulation skills are more competent in social skills (Yang & McGinley, 2022) and tend to avoid negative behaviors (Aydoğdu, 2022; Robson, Allen, & Howard, 2020). Gülbetekin and Yıldırım (2023) argued that there is a mutual interaction between self-regulation skills, behavioral problems and problematic internet use, and stated that as children's self-regulation skills increase, behavioral problems decrease, and as the level of problematic internet use increases, behavioral problems increase.

Conclusion and Suggestions

Considering the age range of the children constituting the study group of the current research, it is thought that they spend a significant part of the period that is important for their social-emotional development at home due to the Covid-19 pandemic. In this period, it is thought that the increase in children's playing habits by starting to play digital games with both parental guidance and imitation of the individuals around them continue after the pandemic. It is thought that the resulting excessive use of technology negatively affects children's acquisition of positive behavior patterns through social relations by reducing their interactions with their peers and their environment. In addition, looking at the research findings, it can be said that children tend to exhibit similar behaviors in their lives by being influenced by the examples of negative behaviors they encounter in digital games. It can be said that the determination of a positive relationship in the current study is in the expected direction, since the skills

required for the individual to be able to act prosocially towards the needs of others include the processes of directing attention, regulating emotions and behaviors. In this direction, it can be said that the development of self-regulation skills and playing digital games have important effects on the development of prosocial behaviors in terms of duration and content.

The rapid growth in research on digital games has important implications for increasing our understanding of both the positive and negative effects of digital games, public policy discussions, theory development, and planning possible intervention strategies. Considering the large proportion of children and adolescents playing these games, it is clear that prevention and intervention studies should be given importance to the negative effects of digital games that contain negative elements and are exposed for long periods of time. In this regard, it is recommended that families, who have an active role in meeting children with the digital world, actively participate in trainings conducted about the risks of excessive use of digital games and mediation strategies for prevention. Experts recommend that parents whose children are at risk should apply to psychological counseling services. However, traditional cultural views appear to be an important factor in ignoring this recommendation. It should be aimed to increase the active practical outputs of the studies and counseling centers carried out in order to combat this prejudice towards counseling and to provide the necessary treatment. It is important in terms of accessibility that consultancy services are carried out through public institutions and free of charge. Encouraging efforts should be initiated to create and use content that facilitates the control of digital games and their content by the necessary institutions and the emotional and attention regulation skills required to develop pro-social behaviors. In the research findings mentioned above, it was stated that self-regulation skills have a significant effect on prosocial behavior. At the same time, studies have revealed that awareness-based program practices for self-regulation skills provide positive gains in self-regulation and social-emotional skills. Regarding the findings and the literature, it is considered important to address self-regulation skills in interventions and programs to support children's prosocial behavior (Flook et al., 2015).

Limitations

The research is limited to 5-6 year old children who are studying in the kindergartens of primary schools determined in Aydın province Efeler district center in the 2022-2023 academic year. The research is limited to the data obtained through the Digital Game Addiction Tendency Scale, the Self-Regulation Skills Scale for 4-6 Years-Old Children-Mother Form, and the Child Prosociality Scale-Teacher Form.

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References

Adachi, P.J.C., & Willoughby, T. (2011). The effect of video game competition and violence on aggressive behavior: Which characteristic has the greatest influence? *Psychology of Violence, 1*(4), 259–274. https://doi.org/10.1037/a0024908

Akçay, D., & Özcebe, H. (2012). Okul öncesi eğitim alan çocukların ve ailelerinin bilgisayar oyunu oynama alışkanlıklarının değerlendirilmesi. *Çocuk Dergisi*, *12*(2), 66-71.

Alter, A. (2018). *Karşı konulmaz- bağımlılık yapıcı teknolojinin yükselişi ve bizim ona esir edilişimiz.* (çev. D. İrengün). İstanbul: Paloma Yayınevi.

Anderson, C.A., & Bushman, B.J. (2001). Effects of violent video games on aggressive behavior, aggressive cognition, aggressive affect, physiological arousal, and prosocial behavior: A meta-analytic review of the scientific literature. *Psychological Science, 12*(5), 353–359. https://doi.org/10.1111/1467-9280.00366

Anderson, C.A., & Dill, K.E. (2000). Video games and aggressive thoughts, feelings, and behavior in the laboratory and in life. *Journal of Personality and Social Psychology, 78,* 772-790.

Anderson, C.A., Shibuya, A., Ihori, N., Swing, E.L., Bushman, B.J., Sakamoto, A., & Saleem, M. (2010). Violent video game effects on aggression, empathy, and prosocial behavior in Eastern and Western countries: A meta-analytic review. *Psychological Bulletin, 136*(2), 151-173.

Aras, S. (2015). Promoting self regulation in early years: Tools of the mind. *Journal of Education and Future, 8*, 15-25.

Avcı, F., & Er, H. (2019). Investigation of tecaher views on digital addiction and suggestions for solution. *Language Teaching and Educational Research, 2*(2), 132-159. https://doi.org/10.35207/later.602235

Aydın, M.Ş. (2021). 13-70 aylık çocuklarda prososyal davranışlar: Doğal gözlem çalışması. *Psikoloji Çalışmaları, 41*(2), 673–709. https://doi.org/10.26650/SP2019-0096

Aydoğdu, F. (2022). The intermediary role of self-regulation skills in the correlation between peer relations and school adaptation in preschool children. *Education and Science, 47*(212), 177-195.

Aydoğdu-Karaaslan, İ. (2015). Dijital oyunlar ve dijital şiddet farkındalığı: Ebeveyn ve çocuklar üzerine yapılan karşılaştırmalı bir analiz. *Uluslararası Sosyal Araştırmalar Dergisi, 8*(36), 806-818.

Bağcı, B., & Öztürk-Samur, A. (2016). Çocuk ve yetişkin prososyallik ölçeklerinin geçerlik güvenirlik çalışması. *Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi, 17*(3), 59-79.

Bağcı-Çetin, B., & Öztürk-Samur, A. (2018). 60-72 aylık çocukların prososyal davranışları ile anne-babalarının prososyal davranışları arasındaki ilişkinin incelenmesi. *Erzincan Üniversitesi Eğitim Fakültesi Dergisi, 20*(1), 1-17. https://doi.org/10.17556/erziefd.286651

Bierman, K.L., Nix, R.L., Greenberg, M.T., Blair, C., & Domitrovich, C.E. (2008).Executive functions and school readiness intervention: Impact, moderation, and mediation in the Head Start REDI program. *Development and Psychopathology, 20*(03), 821-843.

Bilgin, H. C. (2015). *Ortaokul öğrencilerinin bilgisayar oyun bağımlılık düzeyleri ile iletişim becerileri arasındaki ilişki* (Yayınlanmamış yüksek lisans tezi). Pamukkale Üniversitesi Eğitim Bilimleri Enstitüsü, Denizli.

Bird, J., & Edwards, S. (2015). Children learning to use technologies through play: A digital play framework. *British Journal of Educational Technology, 46*(6), 1149-1160. https://doi.org/10.1111/bjet.12191

Birgisdóttir, F., Gestsdóttir, S., & Thorsdóttir, F. (2015). Behavioral self-regulation and the development of literacy: A two-year longitudinal study of Icelandic pre-school children. *Early Education and Development*, *26*(5), 1-22.

Blair, C. (2002). School readiness: Integrating cognition and emotion in a neurobiological conceptualization of children's functioning at school entry. *American Psychologist, 57,* 111–27.

Bronson, M.B. (2019). *Erken çocuklukta öz-düzenleme doğası ve gelişimi*. Ankara: Eğiten Kitap.

Budak, K.S., & Işıkoğlu, N. (2022). Dijital oyun bağımlılık eğilimi ve ebeveyn rehberlik stratejileri ölçeklerinin geliştirilmesi. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi, 55*(3), 693-740. https://doi.org/10.30964/auebfd.939653

Bülbül, H., Tunç, T., & Aydil, F. (2018). Üniversite öğrencilerinde oyun bağımlılığı: Kişisel özellikler ve başarı ile ilişkisi. *Ömer Halisdemir Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, *11*(3), 97-111. https://doi.org/10.25287/ohuiibf.423745

Büyüköztürk, Ş., Kılıç-Çakmak, E., Akgün, Ö.E., Karadeniz, Ş., & Demirel, F. (2018). Eğitimde bilimsel araştırma yöntemleri (25. baskı). Ankara: Pegem Akademi.

Canaslan-Akyar, B., & Sungur, S. (2022). Preschool children's digital media usage and self-regulation skill. *Turkish Journal of Education, 11*(2), 126-142. https://doi.org/10.19128/turje.889549

Cole, P.M., Zahn-Waxler, C., & Smith, K.D. (1994). Expressive control during a disappointment: Variations related to preschoolers' behavior problems. *Developmental Psychology*, *30*, 835–846.

Coyne, S.M., Stockdale, L., Linder, J.R., Nelson, D.A., Collier, K.M., & Essig, L.W. (2017). Pow! Boom! Kablam! Effects of viewing superhero programs on aggressive, prosocial, and defending behaviors in preschool children. *J Abnorm Child Psychol, 45*, 1523-1535. https://doi.org/10.1007/s10802-016-0253-6

Craig, A.B., Brown, E.R., Upright, J., & DeRosier, M.E. (2016). Enhancing children's social emotional functioning through virtual game-based delivery of social skills training. *J. Child Fam. Stud., 25,* 959–968.

Çokluk, Ö., Şekercioğlu, G., & Büyüköztürk, Ş. (2018). *Sosyal bilimler için çok değişkenli istatistik SPSS ve LISREL uygulamaları* (5. baskı). Pegem Akademi.

Darling-Churchill, K.E. & Lippman, L. (2016). Early childhood social and emotional development: Advancing the field of measurement. *Journal of Applied Developmental Psychology, 45*, 1–7. https://doi.org/10.1016/j.appdev.2016.02.002

Denham, S.A. (1986). Social cognition, prosocial behavior, and emotion in preschoolers: Contextual validation. *Child Development, 57*(1), 194-201.

Diamond, A. (2012). Executive functions. *Annual Review of Psychology, 64*, 135–168. https://doi.org/10.1146/annurev-psych-113011-143750

Domoff, S.E., Borgen, A.L., & Radesky, J.S. (2020). Interactional theory of childhood problematic media use. *Human Behav. & Emerg Tech, 2,* 343-353. https://doi.org/10.1002/hbe2.217

Eisenberg, N., & Mussen, P.H. (1997). *The roots of prosocial behavior in children* (4th ed.). U.S.A: Cambridge University Press.

Eisenberg, N., Eggum, N.D., Sallquist, J., & Edwards, A. (2010). Relations of self-regulatory/control capacities to maladjustment, social competence, and emotionality. In R.H. Hoyle (Ed.). *Handbook of personality and self-regulation* (ss. 21-47). UK: Wiley- Blackwell Publishing Ltd.

Eisenberg, N., Fabes, R.A., & Spinrad, T.L. (2006). Prosocial development. In W. Damon, R. M. Lerner (Series Eds.), & N. Eisenberg (Vol. Ed.). *Handbook of child psychology: Vol. 3: Social, emotional, and personality development* (ss. 646–718). USA: John Wiley & Sons, Inc.

Eisenberg, N., Fabes, R.A., Bernzweig, J., Karbon, M., Poulin, R., & Hanish, L. (1993). The relations of emotionality and regulation to preschoolers' social skills and sociometric status. *Child Development, 64*, 1418 –1438.

Eke, K. (2018). Okul öncesi dönem çocuklarında değerler, öz düzenleme becerileri ve sosyal davranışlar arasındaki ilişkinin incelenmesi. *ISOEVA*. Erişim tarihi: 29.07.2023.

Erol, A., & İvrendi, A . (2018). 4-6 yaş çocuklarına yönelik öz-düzenleme becerileri ölçeğinin geliştirilmesi (anne formu). *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi, 44*, 178-195.

Fındık-Tanrıbuyurdu, E., & Güler-Yıldız, T. (2014). Okul öncesi öz düzenleme ölçeği (OÖDÖ): Türkiye uyarlama çalışması. *Eğitim ve Bilim*, *39*(176), 317-328.

Fisch, S.M., Truglio, R.T., & Cole, C.F. (1999). The impact of Sesame Street on preschool children: A review and synthesis of 30 years' research. *Media Psychology, 1*(2)*,* 165–190. https://doi.org/10.1207/s1532785xmep0102_5

Flook, L., Goldberg, S.B., Pinger, L., & Davidson, R.J. (2015). Promoting prosocial behavior and self-regulatory skills in preschool children through a mindfulness-based Kindness Curriculum. *Developmental Psychology, 51*(1), 44-51. https://doi.org/10.1037/a0038256

Fraenkel, J.R., & Wallen, N.E. (2006). *How to design and evaluate research in education* (6th edition). Newyork: McGraw-Hill International Edition.

Genç, Z. (2014). Parents' perceptions about the mobile technology use of preschool aged children. *Procedia-Social and Behavioral Sciences*, *146,* 55-60.

Gentile, D.A., Anderson, C.A., Yukawa, S., Ihori, N., et al. (2009). The effects of prosocial video games on prosocial behaviors: International evidence from correlational, longitudinal, and experimental studies. *Personality and Social Psychology Bulletin, 35*(6), 752-63. https://doi.org/10.1177/0146167209333045

Gentile, D.A., Choo, H., Liau, A., Sim, T., et al. (2011). Pathological video game use among youths: A two-year longitudinal study. *Pediatrics, 127*(2), e319-29. https://doi.org/10.1542/peds.2010-1353

Gilliom, M., Shaw, D.S., Beck, J.E., Schonberg, M.A., & Lukon, J.L. (2002). Anger regulation in disadvantaged preschool boys: Strategies, antecedents, and the development of self-control. *Developmental Psychology, 38,* 222–235.

Gökçearslan, Ş., & Durakoğlu, A. (2014). Ortaokul öğrencilerinin bilgisayar oyunu bağımlılık düzeylerinin çeşitli değişkenlere göre incelenmesi. *Dicle Üniversitesi Ziya Gökalp Eğitim Fakültesi Dergisi, 23,* 419-435.

Gözüm, A.İ.C. (2020a). Okul öncesi dönem çocuklarında çalışma belleği ve engelleyici kontrol: Dikkatin aracı rolü. *Erken Çocukluk Çalışmaları Dergisi, 4*(3), 609-638.

Gözüm, A.İ.C. (2020b). Okul öncesi öğretmenlerin dikkat eksikliği ve hiperaktivite bozukluğuna yönelik metaforlarının belirlenmesi. *Erzincan Üniversitesi Eğitim Fakültesi Dergisi, 22*(3), 857-876. https://doi.org/10.17556/erziefd.803146

Gözüm, A.İ.C. (2022). Digital games for STEM in early childhood education: Active co-playing parental mediation and educational content examination. In: Papadakis, S., Kalogiannakis, M. (eds) *STEM, Robotics, Mobile Apps in Early Childhood and Primary Education. Lecture Notes in Educational Technology.* Springer, Singapore. https://doi.org/10.1007/978-981-19-0568-1_21

Gözüm, A.İ.C., & Aktulun, Ö.U. (2021). Relationship between Pre-Schoolers' self-regulation, language, and early academic skills: The mediating role of self-regulation and moderating role of gender. *Curr Psychol, 40,* 4718–4740. https://doi.org/10.1007/s12144-021-01699-3

Gözüm, A.İ.C., & Kandır, A. (2020a). Developing a parental mediation scale of digital games for children. *International Journal of Curriculum and Instruction*, *12*(2), 336-358.

Gözüm, A.İ.C., & Kandır, A. (2020b). Okul öncesi çocukların dijital oyun oynama sürelerine göre oyun eğilimi ile konsantrasyon düzeylerinin incelenmesi**.** *Atatürk Üniversitesi Kazım Karabekir Eğitim Fakültesi Dergisi, 41,* 82-100.

Gözüm, A.İ.C., & Kandır, A. (2021). Digital games pre-schoolers play: Parental mediation and examination of educational content. *Educ Inf Technol,* 26, 3293–3326. https://doi.org/10.1007/s10639-020-10382-2

Greenfield, P.M. (1996). Video games as cultural artifacts. In P. M. Greenfield & R. R. Cocking (Eds.), *Interacting with video* (pp. 85–94). Ablex Publishing. (Reprinted from "Journal of Applied Developmental Psychology," 15, 1994)

Greitemeyer, T., & Müge, D.O. (2014). Video games do affect social outcomes: A metaanalytic review of the effects of violent and prosocial video game play. *Pers Soc Psychol Bull, 40,* 578–589.

Gülbetekin, E., & Yıldırım, Z. (2023). Investigation of the relationship between screen usage habits, behavioral problems and self-regulation skills of children aged 4–6. *Journal of Pediatric Nursing,* https://doi.org/10.1016/j.pedn.2023.10.025

Holman, J.P., Hansen, C.E., Cochian, M.E., & Lindsey, C.R. (2005). Liar, liar: Internet faking but not freguency of use affect social skills, self-esteem, social anxiety, and aggression. *CyberPsychol Behavior*, *8*(1), 1-6.

Honig, A. (2004). How teachers and caregivers can help children become more prosocial. In E. Chesebrough, P. King, T. P. Gullotta, & M. Bloom (Eds.), *Issues in children's and families' lives series: A blueprint for the promotion of prosocial behavior in early childhood* (pp. 51–92). New York, NY: Kluwer Academic/Plenum Publishers.

Hosokawa, R., & Katsura, T. (2018). Association between mobile technology use and child adjustment in early elementary school age. *PLoS ONE, 13*(7), Article e0199959. https://doi.org/10.1371/journal.pone.0199959

Hughes, C., White, A., Sharpen, J., & Dunn, J. (2000). Antisocial, angry, and unsympathetic: "Hard-to-manage" preschoolers' peer problems and possible cognitive influences. *The Journal of Child Psychology and Psychiatry and Allied Disciplines, 41(2),* 169-179.

Imuta, K., Henry, J.D., Slaughter, V., Selcuk, B., & Ruffman, T. (2016). Theory of mind and prosocial behavior in childhood: A meta-analytic review. *Developmental Psychology, 52*(8), 1192–1205. https://doi.org/10.1037/dev0000140

Inan, M., & Dervent, F. (2015). Making a digital game active: Examining the responses of students to the adapted active version. *Pegem Journal of Education and Instruction, 6*(1), 113-32. DOI: https://doi.org/10.14527/pegegog.2016.007

Işıkoğlu-Erdoğan, N. (2019). Dijital oyun popüler mi? Ebeveynlerin çocukları için oyun tercihlerinin incelenmesi. *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi*, *46*, 1-17. https://doi.org/10.9779/pauefd.446654

Işıkoğlu-Erdoğan, N., Johnson, J.E., Dong, P.I., & Qiu, Z. (2019). Do parents prefer digital play? Examination of parental preferences and beliefs in four nations. *Early Childhood Education Journal, 47*, 131-142. https://doi.org/10.1007/s10643- 018-0901-2

Işıksolu-Aysel, Y. (2020). *60-72 aylık çocukların öz-düzenleme becerileri, sosyal yetkinlik davranışları ve problem çözme becerileri arasındaki ilişkinin incelenmesi* (Yayımlanmamış doktora tezi). Pamukkale Üniversitesi, Denizli.

Kabakçı-Yurdakul, I., Dönmez, O., Yaman, F., & Odabaşı, H.F. (2013). Dijital ebeveynlik ve değişen roller. *University of Gaziantep Journal of Social Sciences*, *12*(4), 883-896.

Karaman, N.N., & Dinçer, F.Ç. (2020). Okul öncesi dönem çocuklarının prososyal davranışlarının bazı değişkenler açısından incelenmesi. *Erken Çocukluk Çalışmaları Dergisi, 4*(3), 639-664. https://doi.org/10.24130/eccd-jecs.1967202043236

Karasar, N. (2015). *Bilimsel araştırma yöntemleri.* Ankara: Nobel Yayınları.

Kennedy-Behr, A., Rodger, S., & Mickan, S. (2015). Play or hard work: Unpacking well-being at preschool. *Res Dev Disabil., 38,* 30-8.

Kochanska, G. (2002). Committed compliance, moral self, and internalization: A mediational model. *Developmental Psychology, 38*(3), 339–351. https://doi.org/10.1037/0012-1649.38.3.339

Köklü, N., Büyüköztürk, Ş., & Çokluk, Ö. (2007). *Sosyal bilimler için istatistik* (2. Baskı). Ankara: Pegem Yayınları.

Laible, D., Carlo, G., Murphy, T., Augustine, M., & Roesch, S. (2014). Predicting children's prosocial and cooperative behavior from their temperamental profiles: A person centered approach. *Social Development, 23*(4), 734-752. https://doi.org/10.1111/sode.12072

Lane, K.L., Givner, C.C., & Pierson, M.R. (2004). Teacher expectations of student behavior: Social skills necessary for success in elementary school classrooms. *Journal of Special Education, 38*(2), 104–110.

Lemmens, J.S., Valkenburg P.M., & Peter, J. (2009). Development and validation of a game addiction scale for adolescents. *Media Psychology, 12*(1), 77-95.

León, C.B.R., Dias, N.M., Martins, G.L.L., & Seabra, A.G. (2018). Executive functions in preschool children: development and relationships with language and behavior. *Psicologia: Teoria e Prática*, *20*(3), 121-137. http://dx.doi.org/10.5935/1980-6906/psicologia.v20n3p121-137.

Lewin-Bizan, S., Doyle-Lynch, A., Fay, K., Schmid, K., Lerner, J.V., & Lerner, R.M. (2010). Trajectories of positive and negative behaviors from early-to middle-adolescence. *Journal of Youth and Adolescence, 39,* 751–763.

Li, H., & Zhang, Q. (2022). Effects of prosocial video games on prosocial thoughts and prosocial behaviors. *Social Science Computer Review, 41*(3). https://doi.org/10.1177/08944393211069599

Lillard, A.S., Lerner, M.D., & Hopkins E.J., et al. (2013). The impact of pretend play on children's development: A review of the evidence. *Psychol Bull., 139*(1), 1-34.

Malti, Y., & Noam, G.G. (2016). Social-emotional development: From theory to practice. *European Journal of Developmental Psychology, 13*(6), 652-665. https://doi.org/10.1080/17405629.2016.1196178

Mares, M.L., & Acosta, E.E. (2008). Be kind to three-legged dogs: Children's literal interpretations of tv's moral lessons. *Media Psychology, 11,* 377–99. https://doi.org/10.1080/15213260802204355.

Mentzoni, R.A., Brunborg, G.S., Molde, H., Myrseth, H., Joachim, K.M.S., & Pallesen, S. (2011) Problematic video game use: Estimated prevalence and associations with mental and physical health. *Cyberpsychol Behav Soc Netw, 14,* 591–596.

Mercan-Uzun, E., Bütün-Kar, E., & Özdemir, Y. (2023). Ebeveynlerin gözünden çocuklarının dijital oyun oynama alışkanlıklarının değerlendirilmesi. *Erzincan Üniversitesi Eğitim Fakültesi Dergisi, 25*(1), 9-22. https://doi.org/10.17556/erziefd.1111846

Montroy, J.J., Bowles, R.P., Skibbe, L.E., Mcclelland, M.M., & Morrison, F.J. (2016). The development of self-regulation across early childhood. *Dev. Psychol., 52,* 1744–1762.

Mundy, L.K., Canterford, L., Olds, T., Allen, N.B., & Patton, G.C. (2017). The association between electronic media and emotional and behavioral problems in late childhood. *Academic Pediatrics*, 17, 620–24. https://doi.org/10.1016/j.acap.2016.12.014.

Ostrov, J.M., Gentile, D.A., & Crick, N.R. (2006). Media exposure, aggression and prosocial behavior during early childhood: A longitudinal study. *Social Development, 15,* 612-627. https://doi.org/10.1111/j.1467-9507.2006.00360.x

Papadakis, S., Gözüm, A.İ.C., Kalogiannakis, M., & Kandır, A. (2022). A comparison of Turkish and Greek parental mediation strategies for digital games for children during the COVID-19 pandemic. In S. Papadakis & M. Kalogiannakis (Eds.), *STEM, robotics, mobile apps in early childhood and primary education. Lecture notes in educational technology.* Singapore: Springer. https://doi.org/10.1007/978-981-19-0568-1_23

Paulus, F.W., Möhler, E., Recktenwald, F., Albert, A., & Mall, V. (2021). Electronic media and early childhood: A review. *Klinische Pädiatrie, 233*(4), 157-172. https://doi.org/10.1055/a-1335-4936

Pazarbaşı, H., & Cantez, K.E. (2019). Anaokuluna devam eden 66 ayını doldurmuş çocukların öz-düzenleme becerileri ile akran ilişkileri arasındaki ilişkinin incelenmesi. *IBAD Sosyal Bilimler Dergisi, 5,* 267-283.

Plowman, L., Stevenson, O., Stephen, C., & McPake, J. (2012). Preschool children's learning with technology at home. *Computers & Education*, *59*(1), 30-37.

Prot, S., Anderson, C.A., Gentile, D.A., Brown, S.C., & Swing, E.L. (2014). The positive and negative effects of video game play. Jordan, A., & Romer, D. (Ed.), *Media and the well-being of children and adolescents* (s. 109-128). New York: Oxford University Press

Raaijmakers, M.A., Smidts, D.P., Sergeant, J.A., Maassen, G.H., Posthumus, J.A., Van Engeland, H., & Matthys, W. (2008). Executive functions in preschool children with aggressive behavior: Impairments in inhibitory control. *Journal of Abnormal Child Psychology*, *36*(7), 1097-1107. https://doi.org/10.1007/s10802-008-9235-7

Radesky, J.S., Weeks, HM., Ball, R., Schaller, A., Yeo, S., Durnez, J., …Barr, R. (2020). Young children's use of smartphones and tablets? *Pediatrics, 146*(1), e20193518. https://doi.org/10.1542/peds.2019-3518

Rasmussen, E.E., Gabrielle A., Strouse, J. Colwell, Johnson, C.R., Holiday, S., Brady, K., Flores, I., Troseth, G., & Wright, H.D., Rebecca L.D., & Norman, M.S. (2019). Promoting preschoolers' emotional competence through prosocial tv and mobile app use. *Media Psychology, 22,* 1–22.

Raver, C.C. (2002). Emotions matter: Making the case for the role of young children's emotional development for early school readiness. *Social Policy Report, 16*, 3–19.

Richert, R.A., & Molly, A.S. (2017). The role of fantasy-reality distinctions in preschoolers' learning from educational video. *Infant and Child Development, 26,* e2009. https://doi.org/10.1002/icd.2009.

Robson, D.A., Allen, M.S., & Howard, S.J. (2020). Self-regulation in childhood as a predictor of future outcomes: A meta-analytic review. *In Psychological Bulletin, American Psychological Association, 146*(4), 324–354. https://doi.org/10.1037/bul0000227

Sağlık Bakanlığı (2018). *Dijital oyun bağımlılığı çalıştay sonuç raporu.* Erişim adresi: https://sggm.saglik.gov.tr/TR,53949/dijital-oyun-bagimliligi-calistayi.

Saleme, P., Pang, B., Dietrich, T., & Parkinson, J. (2020). Prosocial digital games for youth: A systematic review of interventions. *Comput. Hum. Behav. Rep., 2,* 100039.

San-Bayhan, P., & Artan, İ. (2009). *Çocuk gelişimi ve eğitimi.* İstanbul: Morpa Kültür Yayınları

Sanchez, R., Brown, E., Kocher, K., & DeRosier, M. (2017). Improving children's mental health with a digital social skills development game: A randomized controlled efficacy trial of adventures aboard the SS GRIN. *Games Health J., 6,* 19–27.

Saygılı, N., & Akkaynak, M. (2021). 60-72 aylık ocukların ahlaki yargı düzeyleri ile prososyal davranışları arasındaki ilişkinin incelenmesi. *Akademik Tarih ve Düşünce Dergisi, 8*(1), 339-358.

Schoemaker, K., Mulder, H., Dekovi´c, M., & Matthys, W. (2013). Executive functions in preschool children with externalizing behavior problems: A meta analysis. *Journal of Abnormal Child Psychology, 41,* 457– 471. https://doi.org/10.1007/s10802-012-9684-x

Scrimgeour, M., Davis, E.L., & Buss, K.A. (2016). You get what you get and you don't throw a fit!: Maternal emotion socialization and child physiology during a disappointment jointly predict early prosocial development. *Developmental Psychology, 52*(1), 102-116. https://doi.org/10.1037/dev0000071

Simonds, J., Kieras, J.E., Rueda, M.R., & Rothbart, M.K. (2007). Effortful control, executive attention, and emotional regulation in 7-10 year old children. *Cognitive Development, 22(4)*, 474-488.

Şenol, Y., Şenol, F.B., & Can-Yaşar, M. (2023). Digital game addiction of preschool children in the Covid-19 pandemic: Social emotional development and parental guidance. *Current Psychology*, 1-9.

Tabachnick, B.G., & Fidell, L.S. (2015). *Çok değişkenli istatistiklerin kullanımı.* Nobel Akademik Yayıncılık.

Taş, İ., & Güneş, Z. (2019). 8-12 yaş arası çocuklarda bilgisayar oyun bağımlılığı, aleksitimi, sosyal anksiyete, yaş ve cinsiyetin incelenmesi. *Klinik Psikiyatri, 22*, 83- 92.

Toksoy, K. (2018). *Dijital medyanın 18 ay- 3 yaş arasındaki çocukların gelişimine etkisi* (Uzmanlık tezi). Gazi Üniversitesi Hastanesi, Ankara.

Trommsdorff, G., & Cole, P.M. (2011). Emotion, self-regulation, and social behavior in cultural contexts. In X. Chen & K.H. Rubin (Eds.), *Socioemotional Development in Cultural Context* (Pp. 131-163). New York: The Guilford Press.

Tuğrul, B., Ertürk, H.G., Özen-Altınkaynak, Ş., & Güneş, G. (2014). Oyunun üç kuşaktaki değişimi. *The Journal of Academic Social Science Studies, 27,* 1-16.

Ülgen, G., & Fidan, E. (2003). *Çocuk gelişimi* (10. Baskı). İstanbul: Milli Eğitim Basımevi.

Ünsal, A. (2019). *Okul öncesi dönem çocuklarının duygusal zekâsı ve dijital oyun bağımlılıklarının incelenmesi* (Yayınlanmamış yüksek lisans tezi). Gazi Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara

Vallotton, C., & Ayoub, C. (2011). Use your words: The role of language in the development of toddlers' self-regulation. *Early Childhood Research Quarterly, 26*(2), 169-181.

Vasseleu, E., Neilsen-Hewett, C., Ehrich, J., Cliff, K., & Howard, S. J. (2021). Educator beliefs around supporting early self-regulation: Development and evaluation of the self-regulation knowledge, attitudes and self-efficacy scale. *Frontiers in Education*, 6(3). https://doi.org/10.3389/feduc.2021.621320

Wack, E., & Tantleff-Dunn, S. (2009). Relationships between electronic game play, obesity, and psychosocial functioning in young men. *Cyberpsychol Behav., 12*(2), 241-4. https://doi.org/10.1089/cpb.2008.0151.

Williams, D., Kennedy, T.L.M., & Moore, R.J. (2011). Behind the avatar: The patterns, practices, and functions of role playing in MMOs. *Games and Culture, 6*(2), 171-200.

Williams, K.E., & Berthelsen, D. (2017). The development of prosocial behaviour in early childhood: Contributions of early parenting and self-regulation. *International Journal of Early Childhood, 49,* 73–94.

Yang, P.J., & McGinley, M. (2022). The associated effects of parent, peer and teacher attachment and self-regulation on prosocial behaviors: A person-and variable-centered investigation. *Journal of Social and Personal Relationships,* 02654075221095268. https://doi.org/10.1177/02654075221095268

Yılmaz, Z.A., & Gözüm, A.İ.C. (2023). Augmented reality app in pre-school education: Children's knowledge about animals. *Southeast Asia Early Childhood Journal, 12*(2), 130–151. https://doi.org/10.37134/saecj.vol12.2.8.2023

Yiğit, N., & Alat, K. (2022). Erken çocukluk dönemindeki çocukların dijital oyun oynama alışkanlıklarına ilişkin anne/baba görüşleri. *e- Kafkas Eğitim Araştırmaları Dergisi, 9,* 1026-1052. https://doi.org/10.30900/kafkasegt.1140899

Young, K. (2009). Understanding online gaming addiction and treatment issues for adolescents. *The American Journal of Famiy Therapy, 3*7(5), 355-372.

Yurdakul, Y., İlhan-Ildız, G., & Bütün-Ayhan, A. (2022). Okul öncesi dönem çocuklarında öz düzenleme becerileri ile prososyal davranışları arasındaki ilişkinin incelenmesi. *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi, 62,* 354-376.

How Does Mentoring Affect Self-Efficacy?: An Investigation on Turkish Principals

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Abstract

Mentoring is one of the professional development tools supporting school principals. Thanks to mentoring, principals can overcome the problems they confront and meet the expectations of different stakeholders. Thus, principals can perform more effectively in schools. Mentoring has become a formal process for principals in various countries for a long time. Moreover, several researchers from different countries focus on the various impacts of mentoring on principals. One of these is the self-efficacy of principals. Mentoring has the potential to enhance the principals' self-efficacy. However, it is difficult to note that mentoring and its influence on principals' self-efficacy have been analyzed thoroughly. In this context, this phenomenological study aims to overcome the current inadequacy. The study data was collected based on criterion and snowball sampling from eight principals working in Kahramanmaraş province. MAXQDA 2020 was utilized for data analysis. The results revealed that mentoring plays a critical role in the self-efficacy beliefs of principals. In other words, it develops principals' managerial, instructional, and ethical competencies. This finding significantly contributes to the literature on principals' professional development, professional learning, and self-efficacy. Several suggestions have been offered for policymakers and researchers about the formalization of mentoring and the details of its implementation.

Keywords: Mentoring, principal, self-efficacy, Türkiye.

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Introduction

Schools are among the most important institutions that play a role in developing countries. What is expected in these institutions is not only the students' attaining academic success but also teachers' giving quality service. However, many factors such as organizational ones (Özdemir, 2018) and educational policies (Aypay, 2015) affect these expectations. Although previous studies have focused on the relationship between these impacts on teachers, recent studies relatively prioritize school principals (Hallinger et al., 2020; Parylo & Zepeda, 2015; Spillane & Sun, 2022). The research that takes principals as an antecedent or mediator factor has revealed that principals could make meaningful contributions to the quality of education (Dhuey & Smith, 2014; Messer, 2019). On the other hand, studies highlighting leadership have shown that the functions of principals are mingled with their administrative skills (Davis & Darling-Hammond, 2012). According to Katz (1974), principals carry out their duties benefiting from their theoretical knowledge, technical skills, and competence in human relations. This draws on the principals and research based on them to the aspect of professional development. In fact, the gradual increase in the literature discussing the specialty and professional development of principals confirms this argument (Bakioğlu et al., 2010; Chu & Cravens, 2012; Gümüş & Ada, 2017; Parylo & Zepeda, 2015).

Various researchers make analyses and proposals for the professional development of principals (Balyer & Gündüz, 2011; Chu & Cravens, 2012; Lipke, 2019; Ng & Szeto, 2016; Özdemir & Kavak, 2019). All these reveal the significance of principals' professional specialization since it positively affects the school and learning experiences (Gümüş & Bellibaş, 2016). The value of principals' professional development could be well understood, especially when the problems they face are analyzed thoroughly (Arar, 2018; Meyer & Patuawa, 2022; Oplatka & Lapidot, 2017; Tahir et al., 2015). Thus, coaching or certificate programs, simulations, and graduate studies are offered to support newly appointed principals in various countries. At this point, mentoring is another method utilized in the professional development of principals (Bakioğlu et al., 2010; Geismar et al., 2000; Hayes, 2020; Lipke, 2019).

In the simplest terms, *mentoring* could be defined as a professional development relationship between an experienced principal and a novice one (Schechter, 2014). It helps novice principals manage their schools successfully (Jamison et al., 2020) and contribute to instructional endeavors (Hayes, 2019). Thus, decision-making (Augustine-Shaw & Hachiya, 2017), professional skills (Gümüş, 2019; Hayes, 2019; Jamison et al., 2020), leadership (Gimbel & Kefor, 2018; Hayes, 2020), and feeling of trust in school (Smith, 2007) could be strengthened thanks to mentoring. Moreover, Aravena (2018) and Tahir et al. (2015) assert that mentoring also contributes to the development of mentors. When the results of professional learning and development processes such as the development of quality relationships (Lipke, 2019), managerial support (Parylo et al., 2012), and job satisfaction (Özalp et al., 2016) are added to all these, benefits of mentoring for new principals become clearer. It is seen that mentoring supports principals' self-efficacy toward teacher and student success, especially by contributing to the instructional leadership skills of principals (Daresh, 2004; Hayes, 2019; Hayes, 2020; Helber, 2015). This makes self-efficacy a significant dependent variable in terms of mentoring.

Self-efficacy is an individual belief that one can do a job or task successfully (Bandura, 1977). As for principals, self-efficacy refers to their managerial roles and instructional and ethical leadership abilities (Özer, 2013). Empirical studies show that these abilities significantly affect principals' commitment (Federici & Skaalvik, 2011; Skaalvik, 2020) and burnout (Skaalvik, 2020) levels. In addition, it is seen that as the self-efficacy of principals increases, so does the collective competence of teachers (Hallinger et al., 2018). It is predicted that problems in a principal's self-efficacy may limit the effectiveness of schools (Versland & Erickson, 2017). The literature on the self-efficacy of principals draws attention to the professional development of principals, which suggests that it would be appropriate to examine mentoring specific to principals (Jugmohan & Muzvidziwa, 2017; Versland, 2016). Studies stating that principals' self-efficacy can be strengthened by mentoring (Tschannen-Moran & Gareis, 2007) also support this idea.

The literature shows findings displaying the significant effects of mentoring on principals' self-efficacy. For instance, Fox (2018) depicts that mentoring positively affects principals' self-efficacy regarding their management skills. Similarly, Helber (2015) states that the self-efficacy of principals who receive mentor support is higher than their colleagues, which can contribute to various elements ranging from

school districts to leadership programs. When all these are combined with the studies showing the advantages of mentoring (Augustine-Shaw & Hachiya, 2017; Eusanio, 2022; Oplatka & Lapidot, 2017; Tahir et al., 2015), it is thought that the relationships among the variables should be handled in a different context. In this sense, the current study examines the reflections of novice Turkish principals' mentoring experiences on their self-efficacy.

Mentoring and Türkiye Context

According to the statistics of 2020, there are about 100.000 educational administrators in Türkiye (Ministry of National Education [MoNE], 2022a). The professional development of these individuals, most of whom are school principals, is based on in-service training focusing on legislation (MoNE, 2022b). However, the benefits of this training are in question (Gümüş & Ada, 2017). In fact, mentoring is not a formal practice coordinated by MoNE in Türkiye. Nevertheless, it is clear that, like their colleagues in different countries (Arar, 2018; Hayes, 2019; Ng & Szeto, 2016), Turkish principals need support especially in the beginning of their career (Bozkurt & Özkan, 2021; Ereş, 2009; Hobson & Sharp, 2005; Searby, 2010), and thus get help from their experienced colleagues (Gündüz & Balyer, 2011; Turhan & Karabatak, 2015). Villani (2006) indicates this is a type of mentoring. In this sense, it is expected that this current study will make important contributions to the policies and analysis of the professional development of Turkish principals and the literature on the relationship between mentoring and self-efficacy.

Mentoring

Various researchers have made different definitions of mentoring. For instance, Schechter (2014) defines mentoring as a process by which an experienced person transfers their knowledge, skills, and abilities to a less experienced one. Likewise, Hansford and Ehrich (2006) define mentoring as a spontaneous and coordinated approach based on an individual and confidential relationship between mentor and mentee including professional development and personal support. Thus, Schechter (2014) and Hansford and Ehrich (2006) perceive mentoring as an integral course of the professionalization processes. In this respect, mentoring is also a professionalization tool for new school principals (Augustine-Shaw & Hachiya, 2017; Geismar et al., 2000). Mentoring can provide new principals with important opportunities in improving student achievement, supporting teachers, and empowering them professionally (Hobson & Sharp, 2005). Lipke (2019) regards mentoring as an important mechanism supporting inexperienced principals in times of change in the principalship. On the other hand, Aravena (2018) emphasizes that mentoring is one of the crucial tools that new principals can use to solve the problems they may encounter. In other words, principals and, thus, schools could eliminate the difficulties through mentoring.

Mentoring is also seen as a mechanism that reduces isolation, stimulates critical reflection on leadership behaviors, encourages a different view of school culture, and improves the links among schools (Service et al., 2018). It is argued that mentoring supports the transition of individuals into management and offers various benefits by facilitating the induction of new employees into organizations (Jugmohan & Muzvidziwa, 2017). One of the most important benefits of mentoring is self-awareness, as mentors and mentees can reflect on their abilities and potential throughout the process (Aravena, 2018). Therefore, they become more motivated to be successful and fulfill their profession's requirements (Tahir et al., 2015). Thus, individuals' self-efficacy and self-esteem levels can increase. Indeed, Bolam et al. (1995) consider mentoring as a supportive factor for obtaining new information, learning good and bad leadership practices, networking with colleagues, and continuing professional development. In this respect, it can be stated that mentoring is a learning-teaching process based on the win-win principle and is significantly related to principals' professional self-efficacy.

Principal Self-Efficacy

Self-efficacy, developed by Bandura, is defined as the belief in one's ability to change and control the events that affect their life (Eusanio, 2022). Self-efficacy beliefs determine whether behavior can be initiated, how long it can be sustained in the face of obstacles, and how much effort will be put in (Bandura, 1977). In this sense, self-efficacy, an essential element of social-cognitive theory, can potentially change the strength and level of individuals' actions. The effects of self-efficacy on leadership (Anselmus et al., 2022; Hallinger et al., 2020; Helber, 2015) make it a vital factor that can shape one's commitment, performance, and approach to events. Leaders/persons with low self-efficacy

are seen as stress-prone people, who give up when faced with challenges, personalize failure, and spend too much time learning a skill (Bennett, 2015). On the other hand, people with high self-efficacy do not underestimate their abilities, struggle, see failure as an opportunity, and continue striving (Owen, 2015). In this respect, it is possible to assert that individuals' self-efficacy perceptions significantly affect their cognitive, affective, daily, personal, and professional lives. Principals who lead schools are not exempt from this evaluation as individuals.

Tschannen-Moran and Gareis (2007) summarize the self-efficacy of the principals as planning, organizing, structuring, carrying out tasks, and evaluating the skills of managing school relations with people in the environment. These can also be considered the responsibilities of principals with a multidimensional and deep structure (Anselmus et al., 2022). Principals can sometimes be overwhelmed by the complexity of their responsibilities (Arar, 2018) and thus may lose confidence in themselves and show poor performance. Therefore, principals need to be well-prepared for the profession. Their self-efficacy needs should be professionally supported during their services, as self-efficacy is a principal's judgment about their ability to trigger change (Tschannen-Moran & Gareis, 2007). Researchers have linked principal self-efficacy with school innovation (Davis & Darling-Hammond, 2012) and learning quality (Dhuey & Smith, 2014). Therefore, principals' strong self-efficacy perceptions align with students' best interests (Kelleher, 2016). As a result, principals who increase their self-efficacy can lead the school effectively and maintain their positions (Mohanty, 2021).

Empirical studies on principals' self-efficacy are rising and reveal remarkable results (Federici & Skaalvik, 2011; Laouni, 2022; Özer, 2013; Versland & Erickson, 2017). For instance, Osterman and Sullivan (1996) consider principals with high self-efficacy to be determined, more willing, and flexible in achieving their goals, while principals with low self-efficacy blame others for failure. Lyons and Murphy (1994) emphasize that principals with high self-efficacy do not see it as a failure and remain calm when faced with problems. The authors state that principals with high self-efficacy tend to use their intrinsic power such as expertise, knowledge, and technical power to fulfill their roles. These abilities are shown among the basic characteristics of principals (Jamison et al., 2020). At this point, increasing principals' knowledge and skills is important to strengthen their self-efficacy perceptions. It is believed that it would be especially beneficial for new managers to work under the mentorship of experienced ones (Hayes, 2020; Oplatka & Lapidot, 2017). Because new principals benefit from the experiences of their mentors, they develop professionally and learn how to fulfill the responsibilities of their new duties (Aravena, 2018; Messer, 2019; Mohanty, 2021). Otherwise, educators who have difficulty getting used to their new duties in the first year of their principalships face serious problems such as resignation and difficulty in maintaining a work-life balance (Kelleher, 2016; Oplatka & Lapidot, 2017; Tahir et al., 2015).

School management is not seen as a professional career in Türkiye. Moreover, principals can be appointed even as teachers without leadership training. The personal and managerial competencies that principals are expected to possess are tried to be provided through in-service training. It is also stated that mentoring can significantly contribute to principals receiving support from their more experienced colleagues (Demirtaş & Özer, 2014). It is known that principals in Türkiye also benefit from this mechanism (Koç & Atmaca, 2022; Polat et al., 2018). However, the effects of this process on their self-efficacy have not been thoroughly analyzed. In this regard, the reflections of mentoring, utilized in many countries, on the self-efficacy of Turkish principals will be examined in the current study. Türkiye has significant potential for educational research with millions of students and thousands of principals. It is believed that the results can add a lot to the professional development of principals in Türkiye, the Middle East, and developing countries. In this regard, the participants were asked to answer the following questions (and sub-questions):

1. What does school management training mean to you?

   (*a*) Have you ever had management training before starting this career?

   (*b*) What do you think about the scope, adequacy, and contributions of this training?

2. How do you perceive the concept of mentoring? What you were learning from your mentor;

   (*a*) How does it affect your managerial competencies?

(*b*) How does it influence your instructional leadership?

(*c*) How does it contribute to your ethical leadership?

3. How would you evaluate getting support from a mentor before or as soon as you start school principalship?

Method

This qualitative study was designed with a phenomenological approach due to its very nature to reveal and analyze participants' views in detail (Özdemir, 2010, p. 334). Indeed, Patton (2015) argues that phenomenology is a proper design to discover and understand participants' experiences.

Work Group

The participants of this study were depicted through criterion and snowball sampling. Although mentoring is not practiced as a formal process within the frame of MoNE practices, the support that novice educators get from more experienced ones could be regarded as mentoring (Villani, 2006). Thus, the participants of this study consisted of experienced principals who voluntarily offer help to others and novice principals who get in touch with experienced ones closely, which composes the criterion sampling (Patton, 2015, p. 425). Subsequently, these principals were asked to assist researchers in identifying other potential novice principals who get mentoring, which constitutes the snowball sampling of the participants. As the interviews continued, the number of participants was adequate since the same principal names emerged (p. 122), and the participants' views repeated (Patton, 2015, p. 474). Thus and so, eight principals working in Kahramanmaraş province were interviewed, and Table 1 illustrates the details of these principals.

Table 1.

Descriptives about Participants

No.	Gender	Age	School	Education	Seniority	Code Name
1	Male	33	Middle School	Bachelor's	3	Principal-M1
2	Male	34	Primary School	Master	2	Principal-M2
3	Male	48	High School	Bachelor's	2	Principal-M3
4	Male	46	Primary School	Master	19	Principal-M4
5	Male	57	Middle School	Bachelor's	35	Principal-M5
6	Male	31	Middle School	Master	2	Principal-M6
7	Female	33	Primary School	PhD	8	Principal-F1
8	Female	40	High School	Master	3	Principal-F2

Note. * *= Years.*

Tablo 1 shows the basic demographic information about the participants. All the participants were coded as Principal-M1/F1 to ensure anonymity.

Tool and Data Collection

The study's data were collected through a semi-structured interview form generated by the researchers. This form was checked by three experts experienced in qualitative research and took its last version in line with their suggestions. Then, this tool was tested with a pilot scheme with two participants. Subsequently, the form was reviewed in terms of its clarity and functionality and found eligible to be used in data collection. The researchers recorded the interviews and took notes upon the participants' approval. However, the participants were informed that they could leave the interview whenever they wanted. The data collection was completed between December 2022 and January 2023.

Data Analysis

Data analysis started with transcribing the interview records and arranging the notes taken during the interviews. The inferences based on these notes were illustrated with "<<< >>>" symbols in the text. The researchers utilized the analysis approach developed by Miles and Huberman (1994/2019) and made use of MAXQDA 2020. For this purpose, the data were analyzed through descriptive coding, and the

codes were arranged to form themes. This approach was preferred as it is proper to interpret the phenomenological details (Tesch, 1990). In order to ensure clarity, we also used a code matrix, which illustrates which code is used, by whom, and how often (Kuckartz & Rädiker, 2019). Then, the analyzed data set was transformed into a scheme to attain a holistic picture. Lastly, the data in this scheme were interpreted thoroughly.

Trustworthiness and Rigor

We obtained ethics committee approval from the Ondokuz Mayıs University Ethics Committee of Social and Humanistic Sciences. We also got the approval of MoNE for the implementation of the study. Furthermore, the study's data collection was based on voluntary participation. After that, we made appointments with the participants and they were informed about the process. We assured the participants that they could end the interviews at any time. All the recordings and notes were kept safe and ready to be used upon proper request. We followed these steps not only to ensure reliability and validity but also to prevent possible partialities (Merriam, 2018). We did not interpret the findings without the permission of all participants. Therefore, after the interviews were completed, we informed the participants about our notes and a general summary of the recordings. At this point, our major goal was to assess the consistency between what the participants said and our analyses. Moreover, we used MAXQDA 2020 qualitative research software to strengthen the validity and reliability of the research during all these stages. In this way, we tried to eliminate possible biases that may occur in the construction of themes and analysis. Another factor that contributes to reliability and validity is coherence among codes (Miles & Huberman, 1994/2019). For this purpose, we developed new themes and combined some of them where necessary. During this process, we consulted the experts from whom we benefitted when we prepared the data collection tool.

Findings

We prepared a code matrix to answer the research questions. This matrix revealed that there are 130 codes. The theme that includes the most codes is mentoring on self-efficacy (48), and the one that consists of the least is mentoring perceptions (25). The school management training theme includes 30 codes, although the future practices theme comprises 27 codes, as shown in Figure 1.

Figure 1. Matrix of Codes

We obtained four themes and ten sub-themes at the end of our analysis as illustrated in Figure 2.
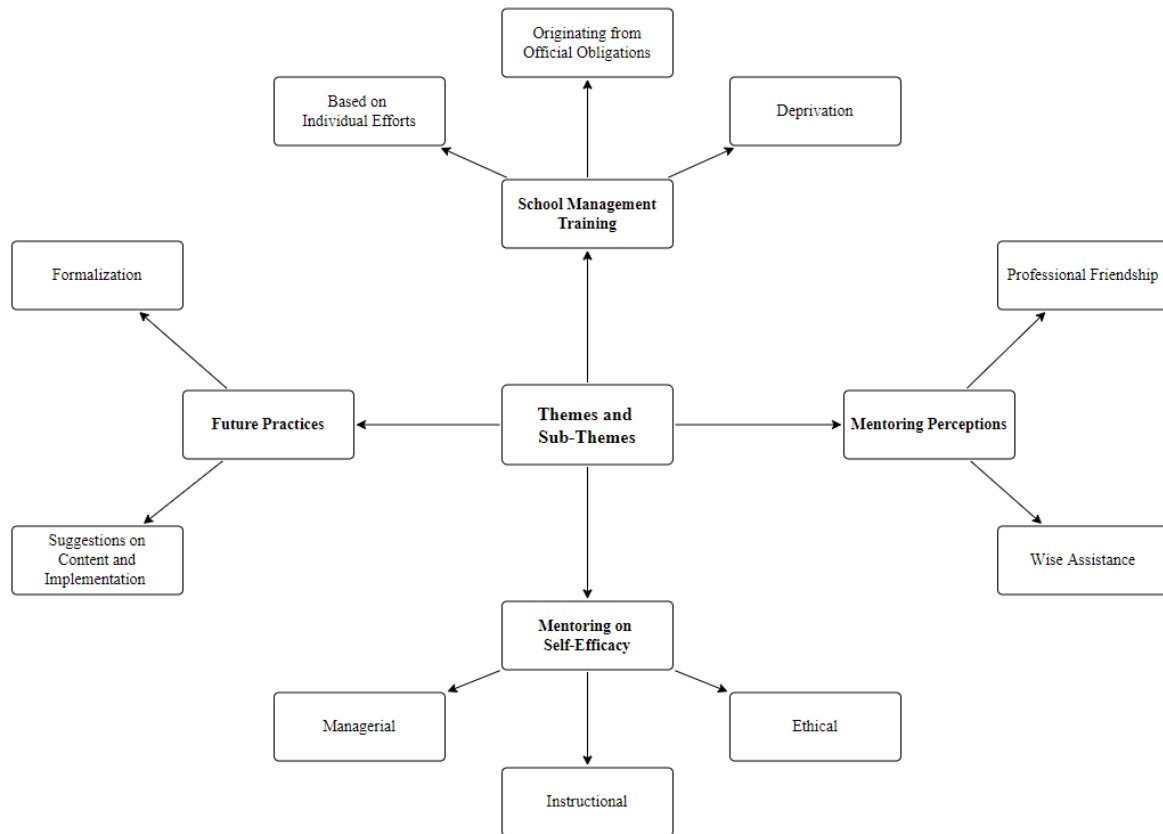
Figure 2. Themes and Sub-themes

Findings on School Management Training

In order to answer the first question of the study, "What does school management training mean to you?", the codes in the theme of school management training were analyzed. Here, it was seen that the participants' views were organized into three sub-themes. These sub-themes are *based on individual efforts*, *originating from official obligations*, and *deprivation*.

Based on individual efforts sub-theme signals that specialization in administration depends on individual efforts. In other words, to become a good principal, the participants need to solve some of their problems on their own and acquire the skills they need to gain in school management through their efforts. Principal-F2 states that there are different training opportunities on various platforms, and benefiting from them depends on the principal's efforts with the following sentence: "So, it is up to you to improve yourself at that point." At this point, the participants who are primary teachers consider themselves luckier than other principals. Those who had previously worked as classroom teachers at a school with unified classrooms stated that this position taught them a lot (e.g., correspondence, supervision, and school-environment relations). Principal-M4 and F1 reported that their master's degrees contributed significantly to their career. Principal-M1, on the other hand, stated that the readings he did provided him with essential benefits. However, it is seen that the participants do not find the training specific to school management/administration organized. Moreover, Principal-F2 harshly criticizes the general dissatisfaction that the appointment of school management is based on exam scores without any formation. Principal-M2 takes these criticisms one step further and argues that those who receive administrative training are positively differentiated from those who do not, even if appointed through an exam result.

Originating from the official obligations sub-theme reflects the view of MoNE's central or provincial/district level activities in the eyes of principals. The first content that stands out in this sub-theme is the low contribution of the training offered to principals by MoNE. This finding is also reflected in the "*based on individual efforts*" sub-theme. Thus, it can be concluded that the participant principals

find the school management and leadership activities planned and prepared by their organizations inadequate or boring. Principal-M1 considers these training initiatives that remain only on paper and have inadequate or problematic functions. While participants appreciated camp-type programs, they were more critical of salon-type or compulsory activities. Principal-F2 stated that the expertise of the individuals organizing the activities directly affected their enjoyment of the training. Principal-M2 declares that the training organized for managers is not always of poor quality:

> They always say we could not catch up, but they appointed principals through an exam in the nineties. Candidates who passed those exams were given in-service training. After the in-service training, they gave another exam and eliminated the inadequate candidates again. Many of the principals I know who passed that exam is very high quality. I mean, I like that practice, for example. I think they gave training for about a month. (...) For example, these principals are noticed more than others.

This participant does not regard the training organized by MoNE as a definitive solution. He also argued that the vice-principal position should be a prerequisite for becoming a principal instead of such activities where participation is compulsory.

The sub-theme of *deprivation* contains the most tragic findings of the *school management training* theme. This is because principals unanimously report that they did not receive perpetual and practical management training in the early years of their careers. Moreover, all participants indicated that they highly needed professional support during this period. Especially the principals who started their positions in rural areas are confident and clear. Principal-M2 expresses the lack of support for principals by drawing attention to the depth of the gap between educational theories and practices in Türkiye. According to him, what he learned during his undergraduate education was not enough to overcome the difficulties he encountered while practicing his profession. Principal-F1 supported Principal-M2 in explaining this deprivation of principals with the metaphor of feeling like a fish out of water. Principal-M4, who holds a master's degree, takes this finding further by stating that she did not receive any specific training on this issue during her undergraduate education. These findings display the relationship between the sub-theme of *deprivation* and the sub-theme *based on individual efforts*. Principal-M1, on the other hand, states that a lack of school management education leads to the loss of human resource potential. In other words, not specializing in school management results in the resignation of principals.

Findings on Mentoring Perceptions and Mentoring on Self-Efficacy

The second research question is, "How do you perceive the concept of mentoring?". While answering this question, two sub-themes (*professional friendship* and *wise assistance*) under the theme of *mentoring perceptions* and three sub-themes (*managerial, instructional,* and *ethical*) under the theme of *mentoring on self-efficacy* emerged. The findings related to these sub-themes are as follows:

Professional friendship is the sub-theme in which participants described mentoring as a professional friendship. The principals who were interviewed within the scope of the research regarded the experienced principals who mentored them as valuable friends and colleagues. On the other hand, all participants regarded the experienced principals who mentored them as the authorities they consulted to solve the problems they could not overcome by themselves. Principal-M3 states that the scope of this friendship includes principals working in the same school types. In other words, according to Principal-M3, a high school principal acquires new skills and tries to be more productive through their friendship with a principal from another high school. Principal-M1 clarifies his close relationship with his mentor as follows: "He <<<means his mentor>>> knows how to deal with parents or teachers. When I have a question, I ask him, and he shares all his experience with me. Moreover, he does this without expecting anything in return. So whatever you can think of...". Principal-M1 and F2 mentioned that they enjoyed sharing what they learned from their mentors with their colleagues working in different schools. According to these participants, supporting other principals <<<mentoring, so to speak>>> is joyful. However, Principal-F2 stated that he established this friendship not with the old-generation principals but with the ones who follow the innovations.

In the sub-theme of *wise assistance*, mentoring is explained by the participants in terms of receiving support from a wise person and benefiting from the vast knowledge of a master. In line with this sub-theme, Principal-M5, the oldest participant of the study, emphasizes the importance of sharing

experiences and considers mentoring as a facilitator for success. Principal-M5 was delighted that her mentor shared successful practices with her. In this sub-theme, the male participants' qualities should have described mentors as having sufficient professional knowledge/equipment (Principal-M1, M2, M4) and a certain maturity (Principal-M1). According to Principal-F1, one of the female participants, this quality has a certain seniority in management. Here, Principal-M6 conceptualizes her mentor and his wisdom with the following statements: "A person whose ideas are taken as a guide, as an adviser... Of course, the final decision <<<again>>> belongs to the person <<<i.e., the principal>>>; but a person who can say that it would be better if you do this <<<is mentor>>>. He is a person who opens up horizons, who applies the saying that wisdom is above reason." Principal-M1 sees mentoring as a professional process that does not make the mentee dependent on the mentor. This finding provides clues about the relationship between mentoring and self-efficacy in line with the purpose of the study. Principal-M1 thinks mentors help mentees become self-sufficient leaders and the participants approve of this. As a matter of fact, with the second question of the study, the reflections of mentoring on principals' self-efficacy were also evaluated. During the analysis, it was found that the effects of mentoring experiences on principals' self-efficacy were clustered in three sub-themes (*managerial, instructional,* and *ethical*) under the theme of *mentoring on self-efficacy.*

The *managerial* sub-theme focuses on the effects of the support principals receive from experienced colleagues on their administrative skills. Principal-M5 clarifies this as follows:

> The managerial effects of mentoring are manifested in the context of mobilizing potential power in the school. <<<I mean>>> mentoring has taught me how to put an idea into practice and support of turning a spark into a fire. (...) Field mentoring experiences reflect that a sense of justice is never left untouched. I do not act on my judgment when I evaluate teachers <<<and I carefully avoid it>>>. I try to treat everyone equally. Your employees should trust you. In this way, problems in communication within the school are eliminated.

Principal-M5 points to the contribution of mentoring to the people and action components of school management. Principal-M6, who reported that more than one experienced principal mentored him, stated that he could get their support on administrative issues even by phone. According to him, having access to a mentor at any time is vital for managerial competencies. Unlike Principal-M3, Principal-M6 declared that he could get this support from mentors working at different school levels. Principals-M1, M3, and F2 depicted paperwork, applications/procedures to be followed over the internet, and legal procedures as areas of managerial work facilitated by mentor support. Principal-M2 and M4 emphasize that their mentors support their capacity to lead the schools.

The *instructional* sub-theme consisted of codes related to the contributions of mentoring to principals. These codes include the interests of teachers and students. In this sub-theme, courses, field trips, curricula, supervision procedures, planning activities, and guidance services were listed among the benefits of mentoring. For example, Principal-M5 stated that his mentor supported him significantly in supervising teaching activities. This participant was perfectly satisfied with her mentor's support in classroom supervision. Similarly, Principal-M3 states that she increased her capacity to plan instructional activities thanks to her mentor. Principal-M3 adds that this process also involves teachers. Principal-F1 states that she received vital help from her mentor in nurturing her instructional leadership competence. Principal-F2 expresses that the support she received from her mentor extended her capacity beyond teachers and students with the following sentences: "I taught my vice principal everything. After a while, I realized he had started performing better than me. (...) This experience gives you happiness. It is good to teach someone something and be helpful." According to Principal-F2, the assistant principal acquired many skills thanks to her support. Principal-M6, the youngest participant of the study, stated that mentoring provided them with critical support in developing, preparing, and implementing projects. When all these statements are considered as a whole, it can be concluded that mentoring has positively contributed to principals' competencies and school life.

In the *ethical* sub-theme, it can be said that the participants summarized the support they received from their mentors in terms of communication, climate, attitudes, and decision-making. For example, Principal-M1 expresses his mentor's contributions to him on decision-making and attitudes with the following statements "In the past, I would have led with my chin, I would have done what I knew, but

decision making is very complicated <<<the participant points out the difficulty of the decision making here>>>. One of the best things I have learned is this... Then, when something bad happens <<<in case of failure of individual decisions>>>, the blame falls on your head. <<<When teachers are asked for their opinions on a school matter>>>, they are also pleased. Especially when their opinions are recognized, they feel valued." It would not be wrong to note that these statements also indicate the school climate. Principal-M3, similar to Principal-M1, states that the moral gains mentoring offers eliminate the unwarranted criticism of principals. Principal-M4 summarizes the potential of the gains mentoring offers principals as follows:

> If I had met with an experienced principal in the beginning, I could have been in a very different position now <<<here, he refers to a mentorship and regrets that he did not have a mentor at the beginning of his career>>>. I could have reached my 19 years of experience in maybe 9-10 years. <<<Pointing out the benefits of mentoring>>> organizational justice equals to employee. If you want to gain trust in a school, you should not equate employees who work with body and soul to those who do not. Treating every teacher with consistent and equal practices without a labor union, race, or opinion discrimination is necessary.

Moreover, Principal-M4, differing slightly from the other participants, stated that her mentor provided her with critical personal characteristics such as staying calm and being a good listener. Principal-M1 and F1, on the other hand, put forward relatively contradictory views about the contributions of mentoring to ethical leadership competencies. According to them, mentoring is a concept with benefits but not a perfect one. At this point, these participants point out that mentoring is not the only and absolute solution for principals' self-efficacy.

Findings on Future Practices

The last question of the study was about the participants' views on being matched with a mentor before or as soon as they start to work. Here, principals not only expressed their opinions on mentoring formation and process but also made some suggestions. The findings were clustered into two sub-themes under the *theme of future practic*e. These sub-themes are *formalization* and *suggestions on content and implementation*.

The sub-theme of *formalization* includes all principals' views on the formalization of mentoring and making it programmed. Principal-M4 strongly wants the mentor-mentee relationship to be professionalized. He sees this as a necessity and thinks that the school's success can be indirectly supported through mentoring. Principal-M5 argues that it is too late for this process in Türkiye, stating that mentoring for principals should have been implemented years ago. Principal-M6, whose administrative experience is relatively limited, expresses his opinion on this issue as follows: "<<<meaning the pairing of principals with a mentor>>>, maybe. They pair a newly appointed teacher with a <<<counselor>>> either in the first year or in the internship period. This <<<practice>>> can also happen in the principalship. New appointees can be paired with an experienced, well-performing principal <<<newly appointed principal>>>." Moreover, Principal-M6 supports this view arguing that mentoring could also contribute to students and teachers. Principal-M1 makes similar statements to Principal-M6. Principal-F2, on the other hand, asserts that formalizing the mentoring can prevent principals from resigning, prevent them from receiving administrative penalties, and contribute to professionalization in school management. Principal-F2 also stated that mentoring could be a resource for principals' professional learning.

When the codes of *suggestions on content and implementation* sub-theme are analyzed carefully, it is observed that participants want the mentoring process to have rich content such as psychology, crisis management, communication skills, critical thinking, and strategy development. At this point, principal-M2 refers to behavioral sciences while Principal-F2 finds the case study method a vital part of the mentoring process. Principal-F2 argues that mentors should be chosen among people who have proven themselves. Here, the details of a mentor's competencies and the application principles and content of mentoring are deciphered. Principal-F2 characterizes principals who have distinguished themselves in their profession of mentoring. Principal-M3 confirms this and says that the effect of mentoring also depends on the mentor. Principal-M4 believes that keeping calm in times of conflict <<<participant here refers to anger management skills>>> should be a possible part of mentoring. Regarding the

implementation time, all participants pointed to the early stages of their principalship careers with statements such as *before* or *as soon as they start their duties*. It is difficult to say that the participants agreed on the implementation period.

Discussion and Conclusions

This current study looks at the impacts of mentoring on school principals by consulting the principals working in various schools from different levels and school sizes. The results reflect principals' views on school management training, mentoring, and mentoring on self-efficacy and future practices.

The findings of the first research question of the study indicate that the participants are satisfied with the general training related to school management. However, participants continue their professional development mainly through their own opportunities. This finding contradicts the literature (Chu & Cravens, 2012; Gümüş, 2019; Ng & Szeto, 2016). It is possible to notice the practical problems and inadequacies of the curriculum followed at the faculties of education, which confirms the continuous learning and development expectation in school management (Daresh, 2004; Gümüş & Bellibaş, 2016; Ng & Szeto, 2016; Parylo & Zepeda, 2015). The participants reported that the training they were offered was generally compulsory. The criticism towards training structured in seminars plays an important role in this study. In this regard, the findings are compatible with the previous studies (Gümüş & Ada, 2017; Polat et al., 2018; Turhan & Karatabak, 2015). However, there are cases where the participants are partially satisfied with the training given by MoNE, which differentiates this study from others. The results reveal that principals lack professional support in principalship and management, especially in the early stages of their careers. Besides, the need for such training in Türkiye is at a high level as in developed countries (Bakioğlu et al., 2010; Bozkurt & Özkan, 2021; Ereş, 2009). Additionally, the findings revealed that the need mentioned above is among the causes of the resignation of principals, which makes this study profound in determining the stressors of being a principal. As a result, it can be concluded that the Turkish educational system, which pretends to be professional in the principalship, holds certain critical inconsistencies regarding educational strategies and practices.

The second research question of the study discusses what participants understand from mentoring. The results reveal that participants consider their mentors not only as friends but also as professionals. Namely, a mentor is a friendly authority consulted to overcome various problems. The participants of the study are grateful for their mentors. In this sense, the study confirms that the perceptions of Turkish principals about their mentors are similar to their colleagues in different countries (Bolam et al., 1995; Owen, 2015; Schechter, 2014; Smith, 2007). The view stating that the only requirement for mentoring is neither being a friend nor an experienced one is compatible with the nature of mentoring. This is because mentoring is a complicated field involving innovation and guidance that aims to make the mentee independent. According to the participants, mentors are wise people from whose experiences they benefit as this wisdom mediates their success. These results are compatible with the findings of previous research (Daresh, 2004; Fox, 2018; Gimbel & Kefor, 2018; Hansford & Enrich, 2006). In this sense, the present study characterizes the Turkish context of mentoring. According to the study results, mentoring provides principals with critical advantages, among which principals' self-efficacy is listed (Eusanio, 2022; Fox, 2018; Helber, 2015; Messer, 2019; Mohanty, 2021; Versland, 2016). The study's second question concerns mentoring's effects on principals' self-efficacy. The findings illustrated that mentoring contributed to principals' managerial, instructional, and ethical efficacy beliefs. Mentor support in school management, legal procedures, and leadership competencies were the competence topics with which the participating principals expressed their satisfaction. These are also frequently mentioned in the literature (Geismar et al., 2000; Jugmohan & Muzvidziwa, 2017; Özalp et al., 2016; Parylo et al., 2012; Service et al., 2018). Mentors also shape principals' instructional self-efficacy. The benefits of mentoring, especially in the field of curriculum and supervision, develop principals' instructional leadership roles. These self-efficacies, which also support teachers and students, confirm the school-level benefits of mentoring in Türkiye and underline its unique potential. Mentoring also contributes to the ethical leadership skills of principals. As was found in the present study and similar studies, mentoring strengthens participants' self-control and decision-making competencies (Aravena, 2018; Gimbel & Kefor, 2018; Searby, 2010). This suggests that the criticisms about the centralized identity of the Turkish education system (Gümüş & Ada, 2017; Özdemir, 2018) can be relatively optimized through mentoring. Principals report that their mentors make vital contributions to their

communication self-efficacy. In this respect, it is thought that communication problems (Arar, 2018; Gündüz & Balyer, 2011; Meyer & Patuawa, 2022; Osterman & Sullivan, 1996; Spillane & Sun, 2022), teachers frequently complain about and cite among the reasons for leaving their institutions, can also be alleviated through mentoring.

The third and last question of the study analyzed the participants' suggestions on the application and content of mentoring. MoNE aims to increase the professional development and learning of principals. For this reason, MoNE has been developing strategies for principal professional development practices for a long time (MoNE, 2022a; MoNE, 2022b; Özdemir, 2018). In this regard, it is thought that it would be appropriate to include mentoring within the scope of principal professional development and learning practices since all participants wish that mentoring should take a formal structure. This wish is compatible with the literature regarding the needs of principals (Bozkurt & Özkan, 2021; Ereş, 2009; Özalp et al., 2016). The critical research results include the formalization of mentoring and the clarification of mentors' qualifications. The participants listed competencies such as equipment, professional knowledge, maturity, and helpfulness among the characteristics of mentors. These qualities give policymakers and researchers valuable messages (Bolam et al., 1995). The contribution of mentoring to the development of principals into independent, self-efficacious individuals is integral to this message. When commenting on the mentoring curriculum, the participants did not mention legislative training or virtual platforms (e.g., MEBBIS). On the other hand, the participant principals found content such as communication, anger management, crisis management, and critical thinking essential for mentoring. In this sense, the research adds depth to previous studies on the competencies of principals (Demirtaş & Özer, 2014; Koç & Atmaca, 2022).

Implications, Limitations, and Future Research

This study carries important implications for clarifying the relationship between mentoring and self-efficacy. The results make valuable contributions to the literature on the functions of mentoring in supporting principals' self-efficacy. The study sets a theoretical framework on the content of mentoring and the qualifications of mentors for developing and non-western educational settings such as Türkiye. It is thought that this framework can be a guide for mentoring practices in the future. In Türkiye, mentoring is an informal professional development practice occasionally utilized in the private sector. One of the main implications of the current study is that it has the potential to provide evidence to the literature and researchers by addressing mentoring at this level. Its clear findings on the formalization of mentoring give this research a particular position in practice and policy development.

First, the current study reflects the mentoring practice in a limited way since, as mentioned above, mentoring has not become a formal mechanism in the research population. Thus, the findings mirror only the principals' views within the study's scope. Therefore, it is not easy to generalize the findings. Moreover, it is necessary to conduct quantitative studies to make clearer comments about the causality between mentoring and principal self-efficacy. Otherwise, the criticisms that mentoring can sometimes be dysfunctional in pulling a rabbit out of a hat will not be resolved.

In the future, it is suggested that the mentoring-principal self-efficacy relationship should be studied through cross-sectional or longitudinal techniques. In addition, qualitative studies can address the views of principals as to their mentor preferences. Thus, the process of mentoring, as well as mentoring, can be enriched. Finally, it is thought that it would be appropriate to propose a mentoring model to MoNE in which principal self-efficacy is considered.

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References

Anselmus D. Z., Wiyono, B. B., Imron, A., Burhanuddin, B., Supriyanto, A. & Daliman, M. (2022). Principal self-efficacy for instructional leadership in the perspective of principal strengthening training: Work engagement, job satisfaction and motivation to leave. *Cogent Education, 9*(1), 1-18.

Arar, K. (2018). How novice principals face the challenges of principalship in the Arab education system in Israel. *Journal of Career Development, 45*(6), 580-596.

Aravena, F. (2018). Mentoring novice school principals in Chile: What do mentors learn? *International Journal of Mentoring & Coaching in Education, 7*(3), 219-230.

Augustine-Shaw, D. & Hachiya, R. (2017). Strengthening decision-making skills of new school leaders through mentoring and service. *Servant Leadership: Theory & Practice, 4*(1), 32–52.

Aypay, A. (2015). *Eğitim politikası* (2nd ed.). Ankara: Pegem.

Bakioğlu, A., Hacıfazlıoğlu, Ö. & Özcan, K. (2010). The influence of trust in principals' mentoring experiences across different career phases. *Teachers & Teaching: Theory & Practice, 16*(2), 245-258.

Balyer, A. & Gündüz, Y. (2011). Değişik ülkelerde okul müdürlerinin yetiştirilmesi: Türk eğitim sistemi için bir model önerisi. *Kuramsal Eğitimbilim Dergisi, 4*(2), 182-197.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191-215.

Bennett, R. (2015). Facilitators and barriers to the assimilation of function-specific executives into senior management roles. *Career Development International, 20*(4), 315-338.

Bolam, R., McMahon, A., Pocklington, K. & Weindling, D. (1995). Mentoring for new headteachers: Recent British experience. *Journal of Educational Administration*, *33*(5), 29-44.

Bozkurt, K. & Özkan, M. (2021). Okul müdürlerinin kendi kariyer evrelerine ilişkin düşünceleri. *International Innovative Education Researcher, 1*(1), 42-51.

Chu, H. & Cravens, X. C. (2012). Principal professional development in China: Challenges, opportunities, and strategies. *Peabody Journal of Education*, *87*(2), 178-199.

Daresh, J. (2004). Mentoring school leaders: Professional promise or predictable problems? *Educational Administration Quarterly*, *40*(4), 495-517.

Davis, S. H. & Darling-Hammond, L. (2012). Innovative principal preparation programs: What works, and how we know. *Planning & Changing*, *43*, 25-45.

Demirtaş, H. & Özer, N. (2014). Okul müdürlerinin bakış açısıyla okul müdürlüğü. *Kastamonu Eğitim Dergisi*, *22*(1), 1-24.

Dhuey, E. & Smith, J. (2014). How important are school principals in the production of student achievement? *Canadian Journal of Economics*, *47*(2), 634-663.

Ereş, F. (2009). Okul yöneticilerinin yetiştirilmesinde mentorluk. *Kafkas Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *1*(3), 157-165.

Eusanio, J. A. (2022). *Novice principals' perspectives regarding in-service training and their self-efficacy* (No.: 29064850) [Doctoral dissertation, Fordham University], Proquest.

Federici, R. A. & Skaalvik, E. M. (2011). Principal self-efficacy, and work engagement: Assessing a Norwegian principal self-efficacy scale. *Social Psychology of Education, 14*(4), 575-600.

Fox, M. (2018). *Mentoring support and self-efficacy of public school principals: A correlational study* (No.: 10746468) [Doctoral dissertation, Northcentral University], Proquest.

Geismar, T. J., Morris, J. D. & Lieberman, M. G. (2000). Selecting mentors for principalship interns. *Journal of School Leadership, 10*, 233-247.

Gimbel, P. & Kefor, K. (2018). Perceptions of a principal mentoring initiative. *NASSP Bulletin, 102*(1), 22-37.

Gümüş, E. & Ada, S. (2017). Okul müdürlerinin katıldıkları mesleki gelişim faaliyetleri hakkındaki görüşleri: Türkiye ve ABD örnekleri. *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi, 0*(43), 176-208.

Gümüş, E. & Bellibaş, M. Ş. (2016). The effects of professional development activities on principals' perceived instructional leadership practices: Multicountry data analysis using TALIS 2013. *Educational Studies, 42*(3), 287–301.

Gümüş, E. (2019). Investigation of mentorship process and programs for professional development of school principals in the USA: The case of Georgia. *International Journal of Educational Leadership & Management, 7*(1) 2-41.

Gündüz, Y. & Balyer, A. (2011). Eğitim denetiminde alternatif yaklaşımlar. *Marmara Üniversitesi Atatürk Eğitim Fakültesi Eğitim Bilimleri Dergisi, 33*, 67-78.

Hallinger, P., Gümüş, S. & Bellibaş, M. Ş. (2020). 'Are principals instructional leaders yet?' A science map of the knowledge base on instructional leadership, 1940–2018. *Scientometrics, 122*(3), 1629-1650.

Hallinger, P., Hosseingholizadeh, R., Hashemi, N. & Kouhsari, M. (2018). Do beliefs make a difference? Exploring how principal self-efficacy and instructional leadership impact teacher efficacy and commitment in Iran. *Educational Management Administration & Leadership, 46*(5), 800-819.

Hansford, B. & Ehrich, L. C. (2006). The principalship: How significant is mentoring? *Journal of Educational Administration, 44*(1)*, 36-52.*

Hayes, S. D. (2019). Using developmental relationships in mentoring to support novice principals as leaders of learning. *Mentoring & Tutoring: Partnership in Learning, 27*(2), 190-212.

Hayes, S. D. (2020). Relational mentoring for developing novice principals as leaders of learning. B. J. Irby, J. N. Boswell, L. J. Searby, F. Kochan, R. Garza & N. Abdelrahman (Eds.), In *The Wiley International Handbook of Mentoring: Paradigms, practices, programs, and possibilities* (pp. 97-113). Wiley.

Helber, J. (2015). *Self-efficacy and instructional leadership: Does mentoring make a difference?* (No.: 3713571) [Doctoral dissertation, Eastern Michigan University], Proquest.

Hobson, A. & Sharp, C. (2005). Head to head: A systematic review of the research evidence on mentoring new head teachers. *School Leadership & Management, 25*(1), 25-42.

Jamison, K., Clayton, J. K. & Thessin, R. A. (2020). Utilizing the educational leadership mentoring framework to analyze intern and mentor dynamics during the administrative internship. *Mentoring & Tutoring: Partnership in Learning, 28*(5), 578-601.

Jugmohan, P. & Muzvidziwa, I. (2017). Mentoring and principal preparation: The case of Kwazulu-Natal women. *International Journal of Educational Sciences, 16*(1-3), 150-155.

Katz, R. (1974). *Skills of an effective administrator*. Massachusetts: Harward.

Kelleher, J. (2016). You're OK, I'm OK. *Phi Delta Kappan, 97*(8), 70–73.

Koç, E. & Atmaca, T. (2022). Okul müdürlerine göre okulda yönetmesi zor durumlar ve yönetme stratejileri. *Ulusal Eğitim Akademisi Dergisi, 6*(2), 175-193.

Kuckartz, U. & Rädiker, S. (2019). *Analyzing qualitative data with MAXQDA*. Springer.

Laouni, N. (2022). School principals' self-efficacy beliefs and level of technology integration in Moroccan public schools. *International Journal of Educational Leadership and Management, 11*(1), 1-37.

Lipke, T. B. (2019). Leveraging a handbook for principal mentoring: Pathways in a district context. *Journal of School Leadership, 30*(1), 84-100.

Lyons, C. A. & Murphy, M. J. (1994, April). *Principal self-efficacy and the use of power*. [Conference Presentation] Annual Meeting of the American Educational Research Association, New Orleans, Louisiana, United States.

Merriam, S. B. (2018). *Nitel araştırma: Desen ve uygulama için bir rehber* (S. Turan, Trans. Eds.; 3rd ed.). Ankara: Nobel.

Messer, K. (2019). *A phenomenological investigation into the impact of mentorship on the self-efficacy of novice principals* (No.: 22620674) [Doctoral dissertation, Creighton University], Proquest.

Meyer, F. & Patuawa, J. (2022). Novice principals in small schools: Making sense of the challenges and contextual complexities of school leadership. *Leadership & Policy in Schools, 21*(2), 167-184.

Miles, M. B. & Huberman, A. M. (1994/2019). Nitel veri analizi: Genişletilmiş bir kaynak kitap (3rd ed.). (S. A. Altun & A. Ersoy, Trans Eds.). Ankara: Pegem.

Mohanty, M. (2021). *The self-efficacy of first-year elementary principals: A case study* (No.: 28321769) [Doctoral dissertation, University of Nebreska], Proquest.

MoNE. (2022a). *2022 yılı performans programı*. Accessed on 24/10/2022 from https://sgb.meb.gov.tr/meb_iys_dosyalar/2022_04/04135921_1_nisan_PP2022.pdf.

MoNE. (2022b). *Yıllık hizmetiçi eğitim planı*. Accessed on 15/10/2022 from https://oygm.meb.gov.tr/d osyalar/planlar/2022_Plan.pdf.

Ng, S. W. & Szeto, S. Y. E. (2016). Preparing school leaders: The professional development needs of newly appointed principals. *Educational Management Administration & Leadership, 44*(4), 540-557.

Oplatka, I. & Lapidot, A. (2017). Novice principals' perceptions of their mentoring process in early career stage: The key role of mentor-protégé relations. *Journal of Educational Administration & History, 50*(3), 204-222.

Osterman, K. & Sullivan, S. (1996). New principals in an urban bureaucracy: A sense of efficacy. *Journal of School Leadership, 6,* 661-90.

Owen, H. (2015). Making the most of mobility: Virtual mentoring and education practitioner professional development. *Research in Learning Technology, 2015, 23*, 1-14.

Özalp, U., Yirci, R. & Kocabaş, İ. (2016). Müdür yardımcılarının iş doyumunun yordayıcısı olarak okul müdürlerinin mentorluk fonksiyonları. *Kalem Eğitim ve İnsan Bilimleri Dergisi, 6*(2), 455-494.

Özdemir, M. (2010). Nitel veri analizi: Sosyal bilimlerde yöntembilim sorunsalı üzerine bir çalışma. *Eskişehir Osmangazi Üniversitesi Sosyal Bilimler Dergisi, 11*(1), 323-343.

Özdemir, M. (2018). *Eğitim yönetimi: Alanın temelleri ve çağdaş yönelimler*. Ankara: Anı.

Özdemir, N. & Kavak, Y. (2019). *Akademik başarı kıskacındaki okul müdürleri* (2nd ed.). Ankara: Pegem.

Özer, N. (2013). Investigation of the primary school principals' sense of self-efficacy, and professional burnout. *Middle-East Journal of Scientific Research 15*(5), 682-691.

Parylo, O. & Zepeda, S. J. (2015). Connecting principal succession and professional learning: A cross-case analysis. *Journal of School Leadership*, *25*(5), 940-968.

Parylo, O., Zepeda, S. J. & Bengtson, E. (2012). The different faces of principal mentorship. *International Journal of Mentoring and Coaching in Education, 1*(2), 120-135.

Patton, M. Q. (2015). *Qualitative research & evaluation methods* (4th ed.). LA: Sage.

Polat, S., Uğurlu, C. T. & Aksu, M. B. (2018). Okul yöneticilerinin kendi mesleki gelişimleri ve okulu geliştirmeye yönelik liderlik davranışlarına ilişkin görüşleri. *Eğitimde Nitel Araştırmalar Dergisi*, *6*(1), 205-224.

Schechter, C. (2014). Mentoring prospective principals: Determinants of productive mentor-mentee relationship. *International Journal of Educational Reform, 23*(1), 52-6f5.

Searby, L. J. (2010). Preparing future principals: Facilitating the development of a mentoring mindset through graduate coursework. *Mentoring & Tutoring: Partnership in Learning*, *18*(1), 5-22.

Service, B., Dalgic, G. E. & Thornton, K. (2018). Benefits of a shadowing/mentoring intervention for New Zealand school principals. *Professional Development in Education*, *44*(4), 507-520.

Skaalvik, C. (2020). School principal self-efficacy for instructional leadership: Relations with engagement, emotional exhaustion and motivation to quit. *Social Psychology of Education*, *23*(2), 479-498.

Smith, A. A. (2007). Mentoring for experienced school principals: Professional learning in a safe place. *Mentoring & Tutoring, 15*(3), 277-291.

Spillane, J. P. & Sun, J. M. (2022). The school principal and the development of social capital in primary schools: The formative years. *School Leadership & Management*, *42*(1), 4-23.

Tahir, T., Mohd, S., Khadijah, D., Shafeeq, V. & Aqeel, K. (2015). The benefits of headship mentoring: An analysis of Malaysian novice headteachers' perceptions. *Educational Management Administration & Leadership, 44*(3), 420-450.

Tesch, R. (1990). *Qualitative research: Analysis types and software tools*. Falmer.

Tschannen-Moran, M. & Gareis, C. R. (2007). Cultivating principals' self-efficacy: Supports that matter. *Journal of School Leadership*, *17*(1), 89-114.

Turhan, M. & Karabatak, S. (2015). Okul liderlerinin web tabanlı yetiştirilmesinde problem temelli öğrenme: Teorik bir model önerisi. *Kuram ve Uygulamada Eğitim Yönetimi*, *21*(3), 395-424.

Versland, T. M. & Erickson, J. L. (2017). Leading by example: A case study of the influence of principal self-efficacy on collective efficacy. *Cogent Education*, *4*(1), 1-17.

Versland, T. M. (2016). Exploring self-efficacy in education leadership programs: What makes the difference? *Journal of Research on Leadership Education*, *11*(3), 298-320.

Villani, S. (2006). *Mentoring and introduction programs that support new principals*. Corwin.

Preschool - Aged Children's Media Use and Its Relationship to Their Prosocial and Aggressive Behavior

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Abstract

The present study, exploring media exposure of preschool age children using media diaries had three major goals. First goal was to examine whether there was a relationship between the duration of children's media use and their prosocial and aggressive behavior. Then, the second goal was to explore links between the content of media they use and children's prosocial and aggressive behavior. Finally, informed by displacement theory, we focused on exploring whether the time spent for developmentally enriching activities changed based on the time spent for media use. Parents of 52 preschool age children between the ages of 4 and 6 reported on their children's media use on a media diary filled out throughout a weekend and the teachers assessed the prosocial and aggressive behaviors of the same children. Findings showed that there is a positive correlation between the levels of aggressive behavior and the time spent for playing video games increased. Additionally, as displacement theory suggested, when children spent more time on video games, time they spent for engaging developmentally enriching activities decreased. The results of the study contributed to the field as it provided an in-depth exploration of factors associated with media use habits of children at home using media diaries providing duration, content and context of media use and their relationship to children's prosocial and aggressive behaviors.

Keywords: Children's Media, Prosocial Behavior, Aggression, Preschool Children, Digital Media

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Introduction

In today's world, media industry serves for people from all age groups including very young children. There were about 40 channels in Turkey that broadcast cartoons and other TV shows specifically targeting children as of 2017 (Özen & Kartelli, 2017). These TV channels broadcast mostly international programs or shows, dubbed in Turkish. The technology use of children aged between 6 and 15 was first researched in 2013 in Turkey by Turkish Statistical Institute (TURKSTAT) and the study was repeated in 2021 to monitor changes. In the former study carried out in 2013, results showed that while 48.7% of the children between the age of 6 and 15 years, watched television 0-2 hours a day and for 39.3% of the children within the same age group, the time doubled showing that these children watched TV between 3 and 4 hours a day. Of these children, 72.1% of them were reported to watch cartoons whereas 60.3% of them watched dramas and movies. However, because of rapid developments in technology, there are new media tools and channels such as tablets, more advanced consoles used both to play games and watch shows, or smartphones and video streaming channels such as Netflix, the later study examined children's Internet usage rather than limiting it to television use. While the Internet usage was 50.8% in 2013 for children aged 6-15, it became 82.7% in 2021. According to the statistics of 2021, 86.2% of these children used Internet for participating in online classes and 83.6% of them used it for homework or learning purposes. It is important to note however that, due to the COVID 19 pandemic, many schools continued to implement online teaching during that time. Yet the rate was still high for playing or downloading games as they were in the third place for the purpose children use the Internet with a percentage of 66.1. The statistics also showed that 61% of the children used Internet to watching videos on websites (TURKSTAT, 2021).

Children's media viewing, commonly defined as either viewing or playing by using a media device, have entered, and taken a major part of children's lives either by children actively choosing them or because adults around them are using them and children are being exposed (Calvert, 2015; Stiglic & Viner, 2019). As a result, in more recent years, media use, its causes and consequences have started to receive greater attention (Mares & Woodard, 2005; McHarg & Hughes, 2021). Although these studies all point to several key factors that should be considered while exploring the links between children's media viewing and child developmental outcomes, the effects of media cannot be explained by solely looking at the device or the amount of time spent without focusing on the content and the context the media device is used such as whether the content is violent and that promote aggressive behavior. Furthermore, the media acts as a replacement for other activities children could engage by taking time away from them. While there is research in this realm, because of the rapid growth of new technology, and the need to explore the complex dynamics of factors that lead to certain outcomes, it is possible to argue that research on the effects of media tools is "slow to catch up" (Hofferth, 2010) and lacks tapping into the dynamic effects of the factors associated with media usage on young children. Additionally, even though there is still not much consensus on the effects of media, much research focuses on the harmful effects, and more needs to be explored in terms of prosocial media content (McHarg & Hughes, 2021). Currently however, a growing body of research focuses on how parents monitor and regulate children's media viewing experiences, in other words, parental mediation, indicating that parent presence is very low in the context of young children's media use (Gözüm & Kandır, 2021).

Child media studies suggest that the time children spend using media plays a crucial role in child developmental outcomes (Anderson & Hanson, 2009; Bender et al., 2018; McHarg & Hughes, 2021; Gottschalk, 2019; Madigan, Browne, Racine, Mori, & Tough, 2019). The interest in examining how media influences developmental outcomes led brain researchers to examine the pathways and the studies suggested that the effects of media on the developing brain are complex and there is more to be understood. However, there is still evidence that excessive screen time impairs brain structure, its functions and executive functioning which plays a crucial role in problem behavior control (Dong & Lin, 2013; McHarg & Hughes, 2021; Paulus et al., 2019). These studies point that the damage is often found to be on the frontal lobe creating a major risk and perhaps deuteriations in the use of executive functions. Thus, the executive functioning skills that include controlling impulses, problem solving, recognizing emotions, and capability for empathy may all be negatively affected by excessive media use. Supporting these claims, Corkin et al. (2021), explored the effects of media use on young

children's executive functions and concluded that total exposure when children are two years of age is linked to poor executive functioning skills at the age of four and a half. Other studies provided evidence to support the claim that amount of media exposure is a risk factor for undesired developmental outcomes independent of the content or other factors. Tamana et al. (2019), based on their cohort study, argued that there is a positive relationship between increased screen time and inattention problems among preschool children. In another study, focusing on 3-year-old children and their parents, Manganello and Taylor (2009) reported that there was significant positive relationship between children's TV exposure and childhood aggression even after other factors such as maternal health and demographic characteristics were controlled. Similarly, Bender et al. (2018) reviewed studies using a range of methodological approaches and concluded that the amount of time children spends viewing media is associated with the increased levels of aggression.

Although the evidence suggested that the amount of media exposure was associated with aggression in children, and many studies focus on the negative effects, other studies in the area focused on exploring whether the content of the media children were exposed to was associated with some developmental gains and positive outcomes (Anderson & Bushman 2001; Gözüm, 2022; Rasmussen et al., 2016). Although evidence suggests that violent media was linked to increased levels of aggressive behavior (Huesman, Moise-Titus, Podolski, & Eron, 2003), other studies on the other hand found that there were positive effects of educational cartoons on children's cognitive development (Baydar et al., 2008; McHarg & Hughes, 2021) and positive effects of the prosocial media on children's positive social behaviors (de Leeuw & van der Laan, 2018; Mares & Woodard, 2005). For example, Greitemeyer and Mügge (2014) reported that playing violent video games increased aggression while playing video games with prosocial content increased prosocial skills.

Another question which has been investigated in the child media literature is whether children "miss" or are "deprived" while they spend time in front of the screen. *Displacement theory* proposes that the total amount of time children have is divided between media and other activities children have and when children spend time with media tools their time spent for developmentally enriching activities is reduced. These developmentally enriching activities are essential to foster children's development yet, engagement with media devices takes time away from other more stimulating activities (Huston, Wright, Marquis, & Green, 1999). Based on this perspective, the focus on media cannot be solely on what media introduces to the children or what the effects would be when the inappropriate media is consumed in amounts that produces negative effects. Rather, the focus should be on how much time is taken away from more developmentally stimulating engagements such as play, literacy, peer interaction, outdoor play, family time or cognitively stimulating activities   In Turkish Statistical Institute's study (2013), 35.9% of the children in the 6-15 age group reported that they spent less time reading books because they spent more time in front of the screen. Also 27.7% of these children stated that they spent less time with their family and 25.4% of them stated that they spent less time with their friends to meet face-to-face or play games because they spent more time for media use.

Children's Prosocial and Aggressive Behavior

Social cognitive theory explains how an individual learns in the context of social relationships by exposure and observation (Bandura, 2001). Considering that media use includes elements of exposure, observation, and engagement, it provides a unique setting to understand and explain how media influences children's behaviors in the light of social cognitive theory. As a result, many media studies implemented social cognitive theory and found it to be suitable to explore the links between media use and children's prosocial and aggressive behaviors (Bandura, 2001; Huesmann & Taylor, 2006). Social learning theory focuses on how learning of certain behaviors occurs as children develop an understanding of and acquire knowledge of rules, skills, beliefs, strategies, and attitudes by observing others and reproducing similar or novel behaviors based on learned content (Bandura, 1986). As illustrated in the classic BoBo Doll Experiments, Bandura and his colleagues reported that after observing adult models acting aggressively, young children would show aggressive behaviors (Bandura, Ross, & Ross, 1961). Intriguingly, the children would not be simply triggered to act aggressively or imitate the modeled behaviors, these children, when exposed to adult models acting aggressively would go beyond simply imitating the observed adults. They would demonstrate novel and sometimes even more complex aggressive behaviors. The findings of this famous BoBo doll

study improved our understanding of learning mechanisms of aggression and violent behaviors in a social context. Furthermore, media provides the perfect set up for modeling aggressive behaviors as it catches the "attention" of children, allows for "retention" as the children have many opportunities for repeated exposure, "production" because children play observed behaviors either with peers or on video games and finally "motivation" because games or videos can be stimulating and rewarding (Nabi, et al., 2021). More studies illustrating how observation, and in this case media viewing, is linked to aggressive behaviors following the original experiments of Bandura and his colleagues probably because of the increasing rates of aggressive behaviors in schools and in media over the past decades (Anderson & Dill, 2000; Neumann & Herodotou, 2020).

Violent media depicts individuals, including nonhuman cartoon characters, with intentional attempts to inflict damage on others (Anderson & Bushman, 2001). Consequently, all media components and outlets, including video games, TV programs, computer games, shows and movies have potential risks to increase the level of aggression as they can all include violence. In fact, years of research in the field, showed at least some evidence that even brief exposure to violent media, particularly violent video games, can be related to increases in aggressive behaviors, and that violent media is possibly a significant risk factor for violence among young children and youth (Anderson et al., 2003, Burkhardt & Lenhard, 2021; Prescott et al., 2018). In fact, other studies showed that there was a link between preschool children's media viewing habits and their social behaviors in the classroom. For example, Conners-Burrow et al., (2011) found that children who watched age-inappropriate content showed lower levels of social competence and illustrated poor social skills rated by their teachers.

In addition to the focus on aggressive behaviors, how media viewing influences children's positive behaviors is also examined in child media literature. Of these positive behaviors, prosocial behavior has received considerable attention and broadly defined as "any voluntary behavior intended to benefit another person" (Eisenberg et al., 2006). Prosocial behaviors include behaviors with altruistic intentions, delaying gratification in the benefit of others, friendly acts towards others, sharing, cooperation, sympathy, acceptance of others belonging in different groups, and higher capacity to imitate such positive behaviors (Bar-on, 2000; Wilson, 2008). If the content of media includes prosocial elements, called prosocial content, it is defined as having "the potential of fostering social interactions that are nonviolent and positive in tone" (Mares & Woodard, 2001). According to Mares and Woodard (2005) the amount of time spent engaging in prosocial media matters and when children watch more hours of TV programs with prosocial content, they behave more positively and have more positive attitudes than others who watch fewer hours of similar content. Similarly, in another study, De Leeuw and van der Laan (2018) found in their experimental study that children who watched a Disney clip in which the main character was illustrated to help a friend were more likely to help their own friends compared to the children who did not watch the clip. Thus, the researchers suggested that television viewing did not have to be only linked to violence and that given the right content and positive models, such as characters in the media helping others, would allow children to develop prosocial skills including helping others and understanding others' feelings.

Developmentally Enriching Activities and Media

Social learning theory helps explain the dynamics of how media tools promote prosocial behavior or expose and encourage children for aggressive behaviors depending on the content that the children are exposed of. However, the media takes time away from children to engage in more age appropriate and developmentally stimulating activities that are traditionally part of their everyday play. *Displacement theory* focuses on the risks that are brought onto children's lives when media steals time away from developmentally enriching activities including play and social interactions. In her book, Winn (1977), assumes that television viewing interferes with positive family and peer interactions of children and thus, it interferes with the healthy development of positive social behaviors and successful human relationships (Winn, 1977). Despite these assumptions, studies on the displacement hypothesis seem to be lacking and the little evidence is inconclusive as it is true that while people spend more time on media outlets, they spend less time on other activities; yet it is unclear if the media is not used, the alternatives people turn to would be high quality traditional engagements (Hall, Johnson, & Ross, 2018).

To conclude, this study focused on examining children's media use engagement and other activities at home over a period of a weekend where the children were at home with their parents. Because the focus was to capture media use in detail media diaries that also included time spent on other activities were used. Current studies suggest that media's presence in children's lives is undeniable and more comprehensive approaches need to be implemented capturing its negative and positive influences when studying its effects on children (Fitzpatrick et al., 2023). Thus, to explore both negative and positive aspects of media use to capture the dynamics of media use and how young children are influenced, the focus was on both aggressive and prosocial behaviors using teacher reports. It was expected that the teacher reports would be accurate sources to examine prosocial and aggressive behaviors of children as young children have opportunities at preschools to interact with their peers throughout the day during a week. Additionally, media use needs to be considered in context and how children may be lacking developmentally enriching activities in their home lives due to increased media exposure (Hurwitz et al., 2020).

Although there are several research questions explored in the study, the first goal of the study was to describe the media use behaviors of the parents and the children and to see whether boys and girls differed in their media habits. Additionally, even though the focus of the current study is not on age or gender related differences, their effects were explored for explorative and descriptive purposes as for young children, the content and the amount of time spent on media may vary based on age and child sex (Kucirkova et al., 2017). Following the descriptive explorations, the first research question of the present study was to investigate if there was a relationship between children's total screen time, which means total time spent engaging in media activities, and their prosocial and aggressive behaviors. Using diaries parents filled out over the weekend, the media children used were coded whether the content was prosocial or aggressive and the time spent by children on them was noted. Thus, the second research question in the study was to explore the links between children's aggressive and prosocial behaviors and the aggressive and the prosocial media that they viewed. Specifically, in this study, we proposed that while prosocial content would be associated with positive behaviors; aggressive or violent content would be associated with more aggressive behaviors. Finally, preschool children are still young and much of their time at home is spent for routine activities such as feeding, sleeping and bath. As a result, they have relatively fewer hours at home to be active, alert and engaging. In the light of displacement theory, we believe that media use will take time away from more developmentally appropriate activities such as play, arts and crafts, reading and social interactions with peers and family members. Therefore, the third research question focused on whether the time children spend for media use was related to the time they spend for developmentally enriching activities. We expected that the relationship would be negative and that while children spend more time engaging in screen either watching shows or playing video games, children would spend less time engaging in enriching and developmentally appropriate activities such as play, reading, interacting with others or outdoor play.

Methods

Design and Procedure

Integrating a mixed method approach, the current study incorporated both questionnaires, surveys and detailed diaries parents completed reporting on children's media viewing behaviors and their engagements in other activities. In the preparation phase of the study, although there would be concerns with generalizing the results, the authors carefully considered the options and implemented convenience sampling method as the data collection required somewhat rigorous involvement of the participants (Kanaki & Kalogiannakis, 2023). Additionally, as an exploratory study, two of the main purposes was to effectively rate all the media content and get a detailed picture of how the participating children were spending their time at home, rather than generalizing the results. Furthermore, ethical issues highlighted by Petousi and Sifaki (2021) were carefully followed. After receiving the ethical approval, directors of two preschools that the researchers had contact were contacted and data were collected in 2015. School staff including guidance teachers helped disseminate the announcements for the study at the participating schools. However, to protect the rights of the parents and not to burden them, the information for the study was sent over via routine announcements and those parents who were interested were contacted and the procedure was

explained to them in detail. Parents were given the opportunity to complete the media journals over a typical weekend, spanning two and a half days, from Friday evening through Sunday evening because children were at school and parents were at work during the weekdays. Each set of questionnaires was sent out in an individual envelope, and a unique identification number was assigned to each child to match the envelope with the Child Behavior Scale (CBS; Ladd & Profilet, 1996) form that teachers would later complete.

Parents of 90 children, all between the ages of 4 to 6 received the questionnaire packages in one of the schools and 34 complete sets of data were obtained during the data collection period of four weeks. In another preschool, parents of 55 children aged 4 to 6 were contacted via email to inquire about their interest in participating in the present study. Twenty-six parents agreed to participate, and the same data collection procedures were followed (announcements, reminders, fliers etc. for a period of 4 weeks). Eighteen of these participants fully completed the questionnaires and returned them to the school, using the provided envelopes. Subsequently, the teachers of the kids, whose parents participated in the study completed the CBS for all the children. In the end, data from 52 children were examined for the present study. The low return rate was attributed to the demanding nature of the study requirements as it necessitated a significant commitment from parents over a weekend filling out the media journals.

Participant Characteristics

The data for the present study came from an unpublished master's thesis of the first author advised by the second author (İnanlı, 2015). The study involved 52 preschool children between the ages of 4 and 6 to examine their media viewing habits through parental reports (media journals). Among these children, 28 were girls with an average age of 5.13 (SD = 0.70), and 24 were boys with an average age of 4.91 (SD = 0.69). These families were selected from two preschools located in the same district in Istanbul. The first school, 65.4% of the participants, was a public school where children attended full-day classes. The second school, constituting 34.6% of the sample, was a private school, and children attended either half-day or full day. Out of the parents who completed the questionnaires, 46 were mothers (88.5%), and 6 were fathers (11.5%). The age of the parents ranged from 28 to 47 years, with an average age of 37.4 (SD = 5.02).

Of the parents, 21 (40.4%) had graduated from a four-year university, 14 (26.9%) held a master's or doctorate degree, 13 (25%) had completed high school, and 4 (7.7%) were primary school graduates. Additionally, 32 of the parents (61.5%) were employed, while 20 (38.5%) were not working. Parents indicated their socio-economic status (SES) on a 5-point Likert-type scale, answering the question, "How would you describe your income level considering Istanbul, the city you currently live in?" Most parents (48.1%) selected "Average," while 18 (34.6%) chose "Above average." Seven (13.5%) rated their SES level as either "Below average" or "Low," and only two parents described their SES level as "High."

Measures

Children's Media Use

The study assessed children's media usage behaviors using a package that included a questionnaire on demographic characteristics, a survey of media devices at home, parental media use, and a media diary, which were completed by one of the parents over a weekend.

The media diary was employed to collect detailed data about the content, duration, context of media usage, and other activities children were involved in over an entire weekend, from Friday night to Sunday evening. This media diary is based on an adapted form of a time diary, where participants record their media-related activities for a specific period (Vandewater & Lee, 2009). The Child Development Supplement (CDS) utilized a modified time diary approach in the Panel Study of Income Dynamics, where participants completed a 24-hour time diary for one randomly selected weekday, and one randomly chosen weekend day. Present study implemented a similar methodology and covered the entire weekend because one of the primary objectives was to gather descriptive data on how children spent their time when they were at home with their parents.

For each day, starting from Friday after school until Sunday bedtime, parents used a timetable to record their children's media-related activities. They documented the program or activity name, the time spent on it, and the type of media device used. Notably, the choice of media device did not determine the type of media activity. For example, if a child watched the program "Caillou" on an iPad, it was categorized as "TV watching" since it was a form of "viewing" activity independent of what it was viewed on. Additionally, parents recorded information about sleep and nap time, as well as other activities in which children participated during the weekend and their respective durations, such as reading a book or doing puzzles. These details were collected through open-ended questions to allow parents to provide specific and detailed information about the other activities in which their children engaged.

Children's Prosocial and Aggressive Behavior

The study assessed children's prosocial skills and aggression using the Turkish version of the Child Behavior Scale, as adapted by Gülay and Önder (2009). This scale comprises six subscales yet, for the purpose of the current study, only the "aggressive with peers" and "prosocial with peers" subscales were employed. The "aggressive with peers" subscale consisted of 7 items, while the "prosocial with peers" subscale included 10 items. Teachers assessed children's levels of aggressiveness and prosocial skills using a 3-point Likert scale, where 0 represented "doesn't apply," 1 denoted "applies sometimes," and 2 signified "certainly applies." The internal reliability of both subscales was evaluated using Cronbach's Alpha, resulting in a coefficient of .80 for "aggressive with peers" and .89 for "prosocial with peers. "It's worth noting that in the original version of the Child Behavior Scale, the reliability coefficients were .92 for aggressiveness and .88 for prosocial behavior, while in the Turkish version, they were .87 for the aggression scale and .91 for the prosocial scale.

Coding Strategies

Media Content

Child media researchers have historically utilized the rating systems of non-governmental organizations to categorize the type of media children watch or play (Tomopoulos et al., 2007). Common Sense Media Rating System was used as a guide to categorize international TV programs to examine age-appropriateness, content, and educational value. For TV programs, it provides further information regarding age-appropriateness and assesses various content related aspects, including educational value, positive messages, positive role models, violence, scariness, sexual content, language, consumerism, and substance use. Each subcategory is rated on a 5-point scale, with a 3-point rating indicating a fair amount of that type of content.

Out of the 61 TV programs mentioned in parents' media diaries, 56 were cartoons, with 38 of them already assessed by Common Sense Media. To categorize these cartoons, the study first considered age-appropriateness. If Common Sense Media suggested an age range above that of the study's participants (4-6), such as 8, the cartoon was categorized as having content suitable for school-aged children. In cases where a program was both age-inappropriate and received a 3 or more-star rating for violence, it was categorized as having aggressive content, examples being "Ben 10," "Ben 10: Ultimate Alien," and "Tom & Jerry."

If a cartoon was deemed appropriate for the target age group, the study assessed subcategories like educational value, positive messages, and violence. A cartoon was categorized as having educational content if it received at least 3 stars in the educational value subcategory. If it received at least 3 stars for positive messages, it was categorized as having prosocial content. If the cartoon received at least 3 stars for both educational value and positive messages, it was classified as a program with both prosocial and educational content. If it had at least 3 stars only for its violence, it was categorized as a program with aggressive content, such as "Scooby-Doo." Cartoons for which parents didn't provide the program's title were labeled as unnamed program.

For the 18 programs not covered by Common Sense Media reviews, two early childhood educators assessed them based on the same rating system. They watched at least three episodes of each cartoon, initially determining whether it was suitable for preschool children. They then rated the cartoons for

educational value, positive messages, and violent content. In most cases, their assessments were aligned, with only one requiring further evaluation.

In summary, the study identified 24 programs with prosocial content, promoting positive behaviors like sharing, kindness, conflict resolution, and the use of polite language such as "please" and "thank you." Three programs had high educational value and aimed to teach specific subjects, like shapes or the law of buoyancy. Fourteen programs had both prosocial and educational content. Five programs were deemed aggressive, with themes of violence, scariness, and occasional use of inappropriate language. Eight programs were considered to have content suitable for school-aged children, featuring advanced language and topics. Five programs were categorized as adult content due to intense violence or sexual material. Lastly, two programs were labeled as unnamed, as parents didn't specify their titles.

Movies categorized based on the Motion Picture Association of America's rating system, which includes categories like "General Audiences (G)" and "Parental Guidance Suggested (PG)." Video games played by the children were categorized using the Entertainment Software Rating Board (ESRB) system, with most games falling under the "Everyone" category, suitable for all ages, and one in the "Everyone 10+" category, appropriate for ages 10 and up.

Time Spent for Media Use

The study calculated the cumulative time that children spent watching or playing on screens for each type of program daily. Subsequently, the total amount of time spent watching TV, the combined screen time (including both TV and movies), and the total time spent playing video games over the entire weekend were computed.

Developmentally Enriching Activities

The various activities in which the children participated were categorized into 11 distinct groups. These were: Literacy, art, role-play, Legos/blocks/cars, puzzle and math, outdoor activities, music, branch activities (e.g., ballet, swimming lessons), shopping malls, family activities (e.g., playing football or cooking together), unnamed play (for cases where parents simply noted "s/he is playing games"). These categories were used to help organize and understand the diverse range of activities in which the children engaged over the period of a weekend the journals were completed by the parents.

Results

Descriptive Statistics

Among the entire sample, 40.4% of households had two televisions, 36.5% had only one TV, and 15.4% had three or more TVs. In 61.5% of households, there was at least one DVD player. When considering both computers and tablets, 36.5% of parents had two devices, and 34.6% had three or more devices in their households. Most of households (90.4%) had at least one satellite connection, while only 19.2% had at least one game console.

When parents were asked about their media use for a typical weekday, they reported that they spent an average of 91.6 minutes watching TV ($SD = 80.86$), whereas they spent an average of 106.8 minutes watching TV ($SD = 92.74$). Approximately 13.5% of parents reported that they did not watch TV on either weekdays or weekends. The maximum reported TV-watching time was 480 minutes.

Parents also provided information about the time they spent in front of computers, excluding work-related time. On a typical weekday, the mean time spent in front of computers was 40.1 minutes ($SD = 37.80$), and on a typical weekend day, it was 30.7 minutes ($SD = 29.04$). Approximately 21.2% of parents reported not spending any time in front of computers on weekdays, while 32.7% reported the same for weekends. The maximum reported duration for weekdays was 180 minutes, and for weekends, it was 120 minutes.

Regarding the type of TV programs that children spent the most time watching, programs with both prosocial and educational content, such as "Dr. McStuffins," "Kabarcık Çocuklar," and "Barney," ranked as the top choice. The second most-watched type of program was those with prosocial content, including "Max & Ruby," "Gürültücü Aslan Ra Ra", and "Damla'nın Dolabı." The third most-watched

category was programs with aggressive content, such as "Ben 10" and "Mixels." These were the programs that children spent the most time viewing (See Table 1).

Table 1.
Total Time Spent for Television Programs in Minutes

	N	Minimum	Maximum	Mean	Std. Deviation
Prosocial TV	52	0	300	28.75	58.41
Prosocial TV*	52	0	300	77.12	74.40
Educational TV	52	0	195	15.77	39.32
Educational & Prosocial TV	52	0	280	48.37	57.50
Aggressive TV	52	0	120	19.90	36.74
School Age TV	52	0	120	10.67	27.11
Adult TV	52	0	180	13.85	44.24
Unnamed TV	52	0	150	16.15	38.59

*Including programs with both prosocial and educational content.

Children primarily engaged with video games and apps falling under the "everyone" category, including titles like "Hay Day," "Subway Surf," and "Candy Crush." The movies they watched belonged to the "general" category, featuring titles like "Kar Patileri," "Prenses Okulu," and "Impy's Island." These choices reflected the preferred media content for the children in the study (Table 2).

Table 2.
Total Time Spent for Video Games and Movies in Minutes

	N	Minimum	Maximum	Mean	Std. Deviation
Games for Everyone	52	0	270	30.00	53.22
Games for 10 above	52	0	180	5.87	26.58
Unnamed Video Games	52	0	180	9.42	30.57
General Movies	52	0	120	11.15	25.62
PG Suggested Movies	52	0	120	5.48	22.03

When the data were analyzed separately for boys and girls, looking at the time they spent on screens, descriptive analyses revealed that girls had slightly higher total screen time compared to boys. However, boys spent more time than girls on playing video games. This analysis highlights gender differences in screen time and video game usage among the study participants (Table 3).

Table 3.
Time Spent for Media Activities According to Children's Gender in Minutes

		Total TV Time	Total Screen Time	Total Video Game Time
Girls	Mean	185.54	225.36	38.93
	N	28	28	28
	Std. Deviation	119.128	147.101	61.012
Boys	Mean	159.63	213.75	54.54
	N	24	24	24

Table 3 continuing

	Std. Deviation	115.010	135.841	64.745
Total	Mean	173.58	220.00	46.13
	N	52	52	52
	Std. Deviation	116.827	140.754	62.634

Research Question 1: The Relationship between Children's Time Spent for Media Use and Their Prosocial and Aggressive Behaviors

The first research question of the study focused on investigating whether the children's prosocial and aggressive scores changed in relation to the time they spent on media, regardless of the content.

The results indicated a significant positive relationship between children's aggression scores and the time they spent on video games, $r(50) = .32$, $p < .05$. This suggests that as children spent more time playing video games, their aggression scores increased, indicating a potential link between increased video game usage and elevated aggression levels.

In addition, although not statistically significant, there was a potential negative relationship between children's prosocial scores and the time they spent on both screen time and video game time. However, the lack of statistical significance means further research is needed for further examination (Table 4).

Table 4.
Correlation Between Time Spent for Media Use and Aggression and Prosocial Scores of the Children

		Aggression Scores	Prosocial Scores	TV Time	Video Game Time	Screen Time
Aggression Scores	Pearson Correlation					
	Sig. (2-tailed)					
	N					
Prosocial Scores	Pearson Correlation	-.367(**)				
	Sig. (2-tailed)	.007				
	N	52				
TV Time	Pearson Correlation	.019	.045			
	Sig. (2-tailed)	.892	.749			
	N	52	52			
Video Game Time	Pearson Correlation	.328(*)	-.192	.160		
	Sig. (2-tailed)	.018	.173	.256		
	N	52	52	52		
Screen Time	Pearson Correlation	.163	-.044	.898(**)	.576(**)	
	Sig. (2-tailed)	.248	.759	.000	.000	
	N	52	52	52	52	52

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Further examination of the data revealed an association between screen time and the age of the children, *r* (50) = .40, *p* < .01. This indicates that as children grew older, they tended to spend more time on screens. Compared to younger children, older children devoted more time to screen-related activities.

Research Question 2: The Relationship between Media Content and Children's Prosocial and Aggressive Behaviors

The second research question of the study asked whether children's prosocial and aggressive behavior was influenced by the time spent on specific types of programs or video games. To explore this relationship, a series of Pearson correlations were conducted.

The study included seven types of TV programs: prosocial content, educational content, both prosocial and educational content, aggressive content, school-age content as well as programs for adults, and unnamed programs. However, the results revealed that there was no significant relationship between the children's prosocial and aggressive scores and the specific type of content they watched or played on the screen.

Specifically, there was no significant relationship between the time children spent on programs with prosocial content, including those with both prosocial and educational content, and their prosocial scores, r (50) = -.13, p > .05. Similarly, there was no significant relationship between the time children spent on programs with aggressive content and their aggression scores, r (50) = .06, p > .05.

To assess the impact of gender on the time spent on various TV contents, independent samples t-test was conducted. The categories of programs with school-age content and unnamed TV programs were combined under the label "All Others" to reduce the number of t-tests. The prosocial TV category also included programs with both prosocial and educational content. However, the study found that gender had no significant effect on the time spent on TV programs with any type of content.

Research Question 3: The Relationship between Children's Time Spent for Media Use and Their Time Spent for Developmentally Enriching Activities

The last research question of the study aimed to investigate the displacement hypothesis suggesting that as children spend more time on media activities, they may allocate less time to developmentally enriching activities. The study grouped parents' answers into 11 categories, including literacy, art, role-play, lego/blocks/cars, puzzle, and math, outdoor, music, branch (e.g., ballet, swimming lessons), shopping malls, family activities, and unnamed play. The total playtime was calculated as the sum of the time spent on these activities during the weekend, excluding family activities and shopping malls, which only encompassed visiting relatives and shopping. Pearson correlations were employed to explore whether the amount of time spent on play decreased as the time spent on media activities increased. The results indicated a significant negative relationship between the time spent on video games and developmentally enriching activities, r (50) = -.44, and p < .01. This suggests that as children spent more time playing video games, they tended to allocate less time to other forms of play.

Furthermore, the results also suggested that as children spent more time watching TV and movies, there was a tendency for them to spend less time on family activities. However, these results were not statistically significant, implying that further research might be required to establish a clear relationship in these cases (Table 5).

Table 5.
Correlation between Time Spent for Play, Family Activities, and Media Use

		Family Activity Time	Play Time	TV Time	Video Game Time	Screen Time
Family Activity Time	Pearson Correlation					
	Sig. (2-tailed)					

Table 5 continuing

	N	52			
Play Time	Pearson Correlation	-.18			
	Sig. (2-tailed)	.19			
	N	52			
TV Time	Pearson Correlation	-.17	-.10		
	Sig. (2-tailed)	.24	.50		
	N	52	52		
Video Game Time	Pearson Correlation	-.08	-.44(**)	.16	
	Sig. (2-tailed)	.60	.001	.26	
	N	52	52	52	
Screen Time	Pearson Correlation	-.17	-.26	.90(**)	.58(**)
	Sig. (2-tailed)	.22	.06	.000	.000
	N	52	52	52	52

** Correlation is significant at the 0.01 level (2-tailed).

The primary activity that children engaged in during the entire weekend was family activities, with an average of 234.10 minutes (SD = 127.54). Following that, the second most time-consuming activity was the total screen time, including TV and movie watching, with an average of 220 minutes (SD = 140.75). The third activity in terms of time spent during the weekend was unnamed play, encompassing activities that parents didn't specify and simply noted as "Playing games" in the media diaries (Table 6).

Table 6.
Time Spent for Developmentally Enriching Activities and Media Activities in Minutes

	N	Minimum	Maximum	Mean	Std. Deviation
Literacy Time	52	0	360	49.04	71.04
Art Activity Time	52	0	170	38.94	47.11
Role Play Time	52	0	300	27.12	61.60
Cars Blocks Time	52	0	330	30.10	59.69
Puzzle Time	52	0	130	9.52	25.90
Family Activity Time	52	0	540	175.58	150.33
Outdoor Time	52	0	390	86.83	90.51
Music Time	52	0	20	1.06	4.35
Unnamed Play Time	52	0	480	88.75	109.87
Branch Time	52	0	180	10.96	33.62
Mall Time	52	0	180	14.62	43.41
TV Time	52	0	510	173.58	116.83
Movie Time	52	0	180	16.63	36.05
Video Game Time	52	0	270	46.13	62.63

Discussion

Media is an inescapable part of life today. Instead of constantly engaging in a battle against it that parents often lose, it is important to find ways in which parents can live with it and use it effectively without harming or altering the pathway to healthy growth for young children. Obviously, parents, policy makers, educators and researchers have challenging yet a crucial role to play in a quest to find ways in which this is possible. Children learn, have fun, be moved, teach, express, protest, and share via media tools. In short, it is the new normal for today's children as they are born into a digital world now. Therefore, all involved in children's development and care look for the answers to questions such as when to start introducing media, which programs are good for them, how much media is too much exposure and whether media has any positive or negative effects on children's development. Although these questions will probably be asked for a long time, presently, there are various conclusions and responses to then when the results of the child media studies are considered (Kucirkova et al., 2017). One important conclusion is that media viewing is not all good or bad for children and evidence suggests that the content of media, the amount of exposure either by playing games or viewing media, and the context in which media viewing takes place are all crucial factors that need to be considered to understand the effects of media on young children. Although included in this quest for media use to an extent, it is worth exploring the expense of including media into the lives of children. Thus, present research was designed to contribute to existing studies on media literature by exploring whether the amount of time spent with media devices, the content quality (aggressive or prosocial) contributes to children's prosocial and aggressive behaviors rated by teachers. Furthermore, by describing the home environment in terms of media use and other engagements at home, the goal was to also explore whether children's time spent on traditional activities such as play, family time and outdoor activities lessen. By combining survey questions, media diaries, and questionnaires, another goal was to incorporate a range of techniques to obtain more insight, as some techniques such as media diaries, although very useful, are often not preferred as much since they require more resources.

Turkish Statistical Institute (TURKSTAT, 2013) reported that children 50.6 % of children aged 6 to 15 spent 1 hour 55 minutes watching TV on average on a typical day in 2013 Currently, however, a newer report for 2021 showed that 82.7% of the children in the same age group use media. Social media use among children using all digital media has risen and majority of them use the internet. Although the data were collected in the academic year of 2014 and 2015, long before the pandemic hit the world in 2019, the media use among children were on the rise and there were many easily accessible alternative media outlets at home for children. Then the 2019 pandemic has certainly affected the rise of digital media use significantly, yet, although life has seemed to resume its regular course as the restrictions were lifted after the pandemic subsided (e.g., school closures, after school activities etc.), and children are still using digital media much more than ever before with digital media use affecting all aspects of life. In fact, statistical reports (TURKSTAT, 2021) suggest that many aspects of children's lives, including time spent reading books, physically interacting with friends and playtime have all decreased such as social media, online games, watching videos have become routine activities for children. The data for the current study were collected prior to pandemic, so results do not reflect on current developments in media use, yet they give perspectives as to the role and power of media use and its effects on young children. Studies have found that overuse of media is related to many health risks including behavioral problems (Bozzola et a., 2022). Similarly current study showed that increased media use puts children at risk for aggressive behaviors. Similar findings were reported by other studies that increased screen time was risking children's well-being and putting them at risk for higher levels of aggression (Supanitayanon et al., 2020) and problems with executive functioning (Corkin et al., 2021).

Although there are studies focusing on assessing the content quality of video games in Turkey (Gözüm & Kandır, 2021), evaluating the quality of media content children watch seem to be challenging. As it happens, assessing the content quality of the digital media including shows, movies or even games, there is no clear guide easily available in Turkey for evaluation purposes. This provides extra challenge for parents and researchers to assess the content quality and the appropriateness of the media for young children. Having said this, in the current study, existing

evaluation criteria were combined and used as a guide to classify the content as prosocial or aggressive/violent. In one study, Bushman et al. (2015) explored the opinions of media researchers and found that aggressive media content increased violence in children. Similarly, in their meta-analysis, Coyne (2018) reported that prosocial media increased prosocial behaviors despite several moderators. However, we found no evidence that prosocial video content increasing prosocial behaviors or aggressive content increasing aggressive behaviors among young children. Further studies assessing the content quality of media tools more in depth would be valuable for an examination of the dynamics of the messages in them, and their effects on children.

Contrary to the expectation, findings of the present study did not reveal a positive relationship between prosocial content and prosocial behaviors of the children. Similarly, there was not a positive relationship between children viewing more aggressive content and more aggressive behaviors. Yet the total media viewing was associated with more aggressive behaviors. One reason for this might be that, when the program is rated as prosocial or aggressive, the detailed picture of the content could not be produced. It is possible that an aggressive show has prosocial elements, or the prosocial show has aggressive elements. Perhaps when a show is evaluated for its prosocial or aggressive content, it is possible to focus on prosocial or aggressive act counts or explorations of children's perceptions of the nature of the show, or what children's take away messages are watching these shows. In the current study, the average media use for children between the ages of 4 and 6 was 1 hour 50 minutes over a weekend somewhat lower than national statistics and higher than that of studies using US samples. One of the reasons of why national statistics in Turkey reported higher amounts of time might be related to the age of the target group. It is possible that the reason for why the average time was higher in national statistics might be because they used an older and wider age group as a sample. In the current study, it was found that time spent viewing media had increased with age, suggesting that age is a contributing factor for increased media use. As expected, parents have more control in younger children's media usage than that of older children's (Kucirkova et al., 2017). It is also possible that parents might think that as children get older, they grow a better insight about what is appropriate or not for them on the screen. Another possible explanation for this might be that the media market offers more content for school age children including movies, cartoons, TV shows and games. The content that is appropriate for school age children may receive the attention and interest of older preschool children, exposing younger children for content that is more ambiguous or more difficult to interpret and understand prosocial content. Further research needs to explore more in detail for how age influences children's media viewing and the reasons for parents to use media outlets for young children. It is also important to explore how the decisions are made for young children's media viewing.

Research in the field of children's media use suggested that there was a link between violent media exposure and aggressive behaviors as violent media being a predictor of aggressive behaviors among children (Bushman, Gollwitzer, & Cruz, 2015). In the present study, we found that the children who played more video games were reported by their teachers to show more aggressive behaviors. This finding was evident even though parents reported these video games to be in the category of "video games for everyone" based on the guidelines of Entertainment Software Rating Board. Thus, this shows that frequent use of video games may be related with aggression in children, regardless of the content, like other studies such as Manganello and Taylor's (2009) study suggested. Specifically, Manganello and Taylor (2009) argued that no matter what the content is, there is a positive relationship between direct TV exposure and children's aggressive behavior. As the displacement theory suggests, it is possible that children spend less time with their peers when they spend more time on screens similar to what Bickham et al., 2003 argued. It is possible to speculate that children learn to negotiate social relationships and find more efficient strategies to express themselves while spending time with their peers. Yet, when they are in front of screens, there is not much time left to socialize with peers perhaps there is even a risk for deprivation in terms of social interactions with peers. Furthermore, video games allow for more acting out as children in these games actively engage in act of violence possibly leading to aggression. Even though it was not significant at the conventional levels, we found that there was a tendency for a negative relationship between time spent for video games and children's prosocial behaviors suggesting less media viewing could be linked to better prosocial behaviors. It is possible to state that children, during the crucial time of their

development, children might experience a lack of developing social skills while playing video games even if the content is harmless or not considered to be harmful. It is also possible to conclude that children who lack prosocial skills and are more aggressive may play more video games. Further research needs to focus more on exploring the factors associated with why children spend more time on video games and how increased time on video games are more harmful. While exploring such factors it would be inspiring and valuable to explore children themselves perceive the issue. Yazıcı Arıcı, et al. (2023) conducted a study with young children playing video games and reported that metaphors were used by children to express their feelings and these metaphors were useful providing insight into children's learning and understanding. Similarly, allowing children to express their own minds and understanding can be used to explore why children use media tools more and even in the expense of conventional games and play. Perhaps children can better express themselves and help us understand how they feel their needs are fulfilled by the media tools and media interaction.

Our results showed that there is an inverse relationship between the time spent playing video games and the time spent for engaging in developmentally enriching activities, such as doing puzzles or role-playing. Keeping in mind that children's aggression levels increased when they spent more time playing video games, we can argue that when children spend less time playing traditional games or engage in stimulating and developmentally appropriate activities and when they used more media, particularly spend more time playing video games, their aggressive behaviors at school increase. Similarly, not significant at the conventional levels, the tendency emerged to suggest that TV watching seemed to take time away from spending time on developmentally enriching activities. Although bound to be tested by further research, it appears that watching TV or online videos as well as playing video games all crowd the home environment and children's immediate contexts in a sense and preschool children spend less time playing traditional games, doing arts and crafts, or engaging in family activities. In one study conducted by Gözüm and Kandır (2020), researchers focused on children's concentration levels and their desire for play in relation to how much time they spend playing video games and found that time spend for video games has a negative influence on them. It is reasonable to conclude that too much media use by means of playing video games or watching videos deprive children of rich learning and development opportunities that traditional games or developmentally enriching activities provide such as role playing, perspective taking, language rich and emotionally fulfilling interactions as well as building skills to enhance focus, attention, and inhibitory skills. In the literature there is some evidence suggesting that higher levels of media exposure are linked to lower levels of self-regulation skills among young children (Cliff et al., 2018). Furthermore, there are other studies providing evidence that improved self-regulation skills are linked to lower levels of aggression and other problem behaviors as well as positive developmental outcomes such as social competency (Robson et al., 2020). Given that child development is a dynamic process, future research can focus on the dynamic relationships among media use, self-regulatory skills, and aggression to explore the pathways for aggressive behaviors.

In an experimental study with adult participants, Hall et al. (2018) found that high amounts of social media use were associated with perceptions of lower life quality. When the participants were introduced study conditions where social media use was restricted, the participants spent more time for work and house chores. However, these activities were also associated negatively with perceptions of low quality of life. Hall et al. (2018) argues that social media displaces other activities in individuals' lives, however, assuming people engage in more social, or personally fulfilling activities when social media use is absent, would be misleading. It is the case that engaging in with media use in general for adults or children do take time away from other activities. However, perhaps more media use is a result of lacking more pleasant activities in life. Similarly, perhaps children are turning to use of media because there is a lack of more exciting, stimulating, rich and developmentally appropriate activities in their lives. Considering that in today's world, particularly for children and youth, digital media is a part of everyday life, there is a need for a change in the mindset. Instead of viewing media as simply taking time away from more developmentally enriching activities, it is important to accept that media usage is part of children's everyday lives, and the efforts need to be placed on generating and providing more quality activities that can serve as alternatives of media for children.

Having participants with higher socioeconomic level than the average socioeconomic level of Turkey was one of the limitations of this study. Although much lower in Turkey (11%) the approximate percentage of the university graduates was 67% in the current study suggesting that the study sample was composed of families with higher socioeconomic levels. Furthermore, there was a high percentage of children with personal tablets or game consoles. Studies show that higher levels of media use among children is associated with lower levels of parental education (Anand & Krosnick, 2005). Therefore, results of the present study need to be interpreted with caution and further studies should include more diverse families in terms of parental education and income. It would be interesting to see whether the children's media viewing habits are influenced by the number of media devices at home among families with lower and higher socioeconomic backgrounds.

Currently, some researchers argue that young children can benefit academically and cognitively when media devices are implemented in developmentally appropriate activities and games (Kanaki, & Kalogiannakis, 2022). Although we do agree that media tools can be very useful when used appropriately, nonetheless, the results of the present study suggested that it is a cause for concern when children use too much media at young ages. Therefore, a thorough public policy work educating the parents about the effects of media on children, and guiding parents to provide alternative activities with and for children is needed. Currently, number of studies focusing on parental mediation are on the rise (Gözüm & Kandır, 2020, 2021). It is important that further research focusing on parental mediation and effects of media on children focus on how parental strategies are used to regulate children's media related activities along with their own and perhaps explore the pathways for more regulated media engagements for young children. Moreover, use of smart technologies and engagement with media is now possible with one single finger stroke and many interactive games are introduced as suitable for young children in digital stores (Papadakis, 2023). When the content is labeled as educational, parents tend to think that the content is beneficial for their very young children although how these apps and digital games are rated as suitable for young children are unclear (Papadakis, 2023). Furthermore, because young children, and even infants, can manage to use many of the smart devices with interactive screens, adult presence and monitoring for much younger children are not a necessity to navigate through pages and skip through apps. Therefore, these ratings and what they mean become a central challenge for families and young children. In fact, a major the challenge we faced in the present study was rating the content of the media. There was no systematic and a detailed rating system to assess the media content for young children that could guide parents to decide whether the content was developmentally appropriate or the content could be inappropriate or harmful. Hence there is a need to develop a rating system that is thorough, user friendly and provides simple tools to assess both positive and prosocial content as well as harmful content including violence and aggression. Furthermore, since we are now in a post pandemic era and during the pandemic and thereafter games, leisure activities and even socializing with friends and family became online, more studies are needed to explore the effects of sudden and rapid increase of digital media use and its effects longitudinally. Lastly, qualitative studies may be helpful to explore the reasons for parents to leave children alone in front of screens, their beliefs regarding the effects of media and how they interact with their children when they use the media together. It would be helpful to explore what strategies parents use to mediate their children's media use, how they monitor the content in the media and their views on traditional games and developmentally appropriate activities as alternatives for media. Considering that today's children and adults are using media more than ever before, and children are at much younger ages are interacting with media, we need to better understand the expense of media use in children's lives.

to the study, and that all the responsibility belongs to the article authors in case of all ethical violations.

References

Anand, S., & Krosnick, J. A. (2005). Demographic predictors of media use among infants, toddlers, and preschoolers. *American Behavioral Science,* 48, 539–561. https://doi.org/10.1177/0002764204271512

Anderson, C. A., & Bushman, B. J. (2001). Effects of violent video games on aggressive behavior, aggressive cognition, aggressive affect, physiological arousal, and prosocial behavior: A meta-analytic review of the scientific literature. *Psychological Science*, *12*(5), 353–359. https://doi.org/10.1111/1467-9280.00366

Anderson, C. A., & Dill, K. E. (2000). Video games and aggressive thoughts, feelings, and behavior in the laboratory and in life. Journal of Personality and Social Psychology, 78(4), 772–790. https://doi.org/10.1037/0022-3514.78.4.772

Anderson, C. A., Berkowitz, L., Donnerstein, E., Huesmann, L. R., Johnson, J. D., Linz, D., Malamuth, N. M., & Wartella, E. (2003). The influence of media violence on Youth. *Psychological Science in the Public Interest*, *4*(3), 81–110. https://doi.org/10.1111/j.1529-1006.2003.pspi_1433.x

Anderson, D. R., & Hanson, K. G. (2009). Children, media, and methodology. American Behavioral Scientist, 52(8), 1204–1219. https://doi.org/10.1177/0002764209331542

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (2001). Social cognitive theory of mass communication. *Media Psychology, 2,* 265 – 298. https://doi.org/10.1207/S1532785XMEP0303_03

Bandura, A., Ross, D., & Ross, S. A. (1961). Transmission of aggression through imitation of aggressive models. *The Journal of Abnormal and Social Psychology*, *63*(3), 575–582. https://doi.org/10.1037/h0045925

Bar-On, R. (2000). Emotional and social intelligence: Insights from the Emotional Quotient Inventory. In R. Bar-On & J. D. A. Parker (Eds.), *The Handbook of Emotional Intelligence: Theory, development, assessment, and application at home, school, and in the workplace* (pp. 363–388). Jossey-Bass/Wiley.

Baydar, N., Kağitçibaşi, Ç., Küntay, A., & Gökşen, F. (2008). *Evaluation of an early childhood television program in Turkey*. AÇEV, İstanbul.

Bender, P. K., Plante, C., & Gentile, D. A. (2018, February). The effects of violent media content on aggression. *Current Opinion in Psychology, 19,* 104–108. https://doi.org/10.1016/j.copsyc.2017.04.003

Bickham, D. S., Vandewater, E. A., Huston, A. C., Lee, J. H., Caplovitz, A. G., & Wright, J. C. (2003). Predictors of children's electronic media use: An examination of three ethnic groups. *Media Psychology*, *5*(2), 107–137. https://doi.org/10.1207/s1532785xmep0502_1

Bozzola, E., Spina, G., Agostiniani, R., Barni, S., Russo, R., Scarpato, E., Di Mauro, A., Di Stefano, A. V., Caruso, C., Corsello, G., & Staiano, A. (2022). The Use of Social Media in Children and Adolescents: Scoping Review on the Potential Risks. *International Journal of Environmental Research and Public Health, 19*(16), 9960. https://doi.org/10.3390/ijerph19169960

Burkhardt, J., & Lenhard, W. (2021). A Meta-Analysis on the Longitudinal, Age-Dependent Effects of Violent Video Games on Aggression. *Media Psychology, 25*(3), 499–512. https://doi.org/10.1080/15213269.2021.1980729

Bushman, B. J., Gollwitzer, M., & Cruz, C. (2015). There is broad consensus: Media researchers agree that violent media increase aggression in children, and pediatricians and parents concur. *Psychology of Popular Media Culture*, *4*(3), 200–214. https://doi.org/10.1037/ppm0000046

Calvert, S. L. (2015). Children and digital media. In R. Lerner (Ed.), *Handbook of child psychology and developmental science* (Ecological settings and processes in developmental system 7th ed., pp. 375–415). Hoboken, NJ: Wiley.

Cliff, D. P., Howard, S. J., Radesky, J. S., McNeill, J., & Vella, S. A. (2018). Early Childhood Media Exposure and Self-Regulation: Bidirectional Longitudinal Associations. *Academic Pediatrics, 18*(7), 813–819. https://doi.org/10.1016/j.acap.2018.04.012

Conners-Burrow, N. A., McKelvey, L. M., & Fussell, J. J. (2011). Social outcomes associated with media viewing habits of low-income preschool children. *Early Education and Development*, 22(2), 256–273. https://doi.org/10.1080/10409289.2011.550844

Coyne, S. M., Padilla-Walker, L. M., Holmgren, H. G., Davis, E. J., Collier, K. M., Memmott-Elison, M. K., & Hawkins, A. J. (2018). A meta-analysis of prosocial media on prosocial behavior, aggression, and empathic concern: A multidimensional approach. *Developmental Psychology, 54(2), 331–347.* https://doi.org/10.1037/dev0000412

De Leeuw, R. N. H., & van der Laan, C. A., (2018). Helping behavior in Disney animated movies and children's helping behavior in Netherlands. *Journal of Children and Media, 12,* 159 – 174. https://doi.org/10.1080/17482798.2017.1409245

Dong, G., Hu, Y., & Lin, X. (2013). "Reward/punishment sensitivities among internet addicts: Implications for their addictive behaviors." *Progress in Neuro Psychopharmacology & Biological Psychiatry*, 46, 139–145. https://doi.org/10.1016/j.pnpbp.2013.07.007

Eisenberg, N., Fabes, R. A., & Spinrad, T. L. (2006). Prosocial Development. In N. Eisenberg, W. Damon, & R. M. Lerner (Eds.), *Handbook of Child Psychology* (pp. 646–718). John Wiley & Sons.

Fitzpatrick, C., Binet, M. A., Cristini, E., Almeida, M. L., Bégin, M., & Frizzo, G. B. (2023). Reducing harm and promoting positive media use strategies: new perspectives in understanding the impact of preschooler media use on health and development. Psicol. Refl. Crít. 36, 19. https://doi.org/10.1186/s41155-023-00262-2.

Gottschalk, F. (2019). OECD Education Working papers 195: Impacts of technology use on children: Exploring literature on the brain, cognition, and well-being. OECD Publishing. https://ideas.repec.org/p/oec/eduaab/195-en.html DOI: 10.1787/8296464e-en

Gözüm, A. İ. C. (2022). Digital games for STEM in early childhood education: Active co-playing parental mediation and educational content examination. In *STEM, Robotics, Mobile Apps in Early Childhood and Primary Education: Technology to Promote Teaching and Learning* (pp. 489-523). Singapore: Springer Nature Singapore.

Gözüm, A. B. C., & Kandır, A. (2021). Digital games pre-schoolers play: Parental mediation and examination of educational content. *Education and Information Technologies, 26*(3), 3293–3326. https://doi.org/10.1007/s10639-020-10382-2

Gözüm, A. İ. C., & Kandır, A. (2020). Developing a parental mediation scale of digital games for children. International *Journal of Curriculum and Instruction, 12*(2), 336-358.

Gözüm, A. İ. C., & Kandir, A. (2020,). Okul öncesi çocukların dijital oyun oynama sürelerine göre oyun eğilimi ile konsantrasyon düzeylerinin incelenmesi. *Atatürk Üniversitesi Kazım Karabekir Eğitim Fakültesi Dergisi, 41,* 82–100. https://doi.org/10.33418/ataunikkefd.777424

Greitemeyer, T., & Mügge, D. O. (2014). Video games do affect social outcomes: A meta-analytic review of the effects of violent and prosocial video game play. *Personality and Social Psychology Bulletin, 40,* 578–589. https://doi.org/10.1177/0146167213520459

Gülay, H., & Önder, A. (2009). Reliability and validity of the Turkish version of Ladd and Profilet child behavior scale victimization scale and picture sociometry scale to measure peer relations of 5-6 years-old Turkish children. *Procedia Social and Behavioral Sciences, 1*, 648 – 659. https://doi.org/10.1016/j.sbspro.2009.01.114

Hall, J. A., Johnson, R. M., & Ross, E. M. (2018). Where does the time go? An experimental test of what social media displaces and displaced activities' associations with affective well-being and quality of day. *New Media & Society, 21*(3), 674–692. https://doi.org/10.1177/1461444818804775.

Hofferth, S. L. (2010). Home media and children's achievement and behavior. *Child Development, 81,* 1598 – 1619. https://doi.org/10.1111%2Fj.1467-8624.2010.01494.x

Huesmann, L. R., & Taylor, L. D. (2006). The role of media violence in violent behavior. *Annual Review of Public Health*, 27(1), 393–415. https://doi.org/10.1146/annurev.publhealth.26.021304.144640

Huesmann, L. R., Moise-Titus, J., Podolski, C., & Eron, L. D. (2003). Longitudinal relations between children's exposure to TV violence and their aggressive and violent behavior in young adulthood: 1977 – 1992. *Developmental Psychology, 39,* 201 – 221. https://doi.org/10.1037/0012-1649.39.2.201

Hurwitz, L., Bickham, D., Moukalled, S., & Rich, M. (2020). Only So Many Hours in a Day: Early Childhood Screen Time in Boston and Mexico City. *International Journal Of Communication, 14*, 21. Retrieved from https://ijoc.org/index.php/ijoc/article/view/13906

Huston, A. C. H.,Wright, J.C, Marquis, J., & Green, S. B. (1999). How young children spend their time: Television and other activities. *Developmental Psychology, 35,* 912 – 925. https://doi.org/10.1037//0012-1649.35.4.912

İnanli, S. (2015). Preschool-aged children's media use and its relationship to their prosocial and aggressive behavior (Unpublished master's thesis). Bogazici University.

Kanaki, K. & Kalogiannakis, M. (2023). Sample design challenges: an educational research paradigm. *International Journal of Technology Enhanced Learning, 15,* 266-285. http://dx.doi.org/10.1504/IJTEL.2023.131865

Kanaki, K., Kalogiannakis, M. (2022). Assessing Algorithmic Thinking Skills in Relation to Age in Early Childhood STEM Education. Education Sciences, 12, 380. https://doi.org/10.3390/educsci12060380

Kucirkova, N., Littleton, K., & Kyparissiadis, A. (2017). The influence of children's gender and age on children's use of digital media at home. British Journal of Educational Technology, 49(3), 545–559. https://doi.org/10.1111/bjet.12543

Ladd, G. W., & Profilet, S. M. (1996). The child behavior scale: A teacher-report measure of young children's aggressive, withdrawn, and prosocial behaviors. *Developmental Psychology*, 32, *(6)*, 1008-1024. https://psycnet.apa.org/doi/10.1037/0012-1649.32.6.1008

Madigan, S., Browne, D., Racine, N., Mori, C., & Tough, S. (2019). Association between Screen Time and Children's Performance on a Developmental Screening Test. *JAMA Pediatrics, 173(3),* 244-250. https://doi.org/10.1001/jamapediatrics.2018.5056

Manganello, J. A. & Taylor, C. A. (2009). Television exposure as a risk factor for aggressive behavior among 3-year-old children. *Archives of Pediatrics and Adolescent Medicine,163,* 1037 – 1045. https://doi.org/10.1001/archpediatrics.2009.193

Mares, M. L., & Woodard, E. (2001). Prosocial effects on children's social interactions. In D. G. Singer & J. L. Singer (Eds.), *Handbook of children and the media* (pp. 183–203). essay, Thousand Oaks, CA: Sage.

Mares, M., & Woodard, E. (2005). Positive effects of television on children's social interactions: A meta-analysis. *Media Psychology, 7,* 301 – 322. https://psycnet.apa.org/doi/10.1207/S1532785XMEP0703_4

McHarg, G., & Hughes, C. (2021, February). Prosocial television and prosocial toddlers: A multi-method, longitudinal investigation. *Infant Behavior and Development, 62,* 101526. https://doi.org/10.1016/j.infbeh.2021.101526

Mercan, Z., Papadakis, S., Can Gözüm, A. İ., & Kalogiannakis, M. (2022). Examination of STEM parent awareness in the transition from preschool to primary school. *Sustainability*, *14*(21), 14030. http://dx.doi.org/10.3390/su142114030

Nabi, R. L., So, J., Prestin, A., & Torres, D. D. P. (2021). Media-based emotional coping: Examining the emotional benefits and pitfalls of media consumption. *In Routledge International Handbook of Emotions and Media* (pp. 85-101). Routledge. https://doi.org/10.4324/9780203885390

Neumann, M. M., & Herodotou, C. (2020, April 17). Evaluating YouTube videos for young children. *Education and Information Technologies, 25(5),* 4459–4475. https://doi.org/10.1007/s10639-020-10183-7

Özen, Ö., & Kartelli, F. (2017). Türkiye de Yayın Yapan Çocuk Kanallarında Yayınlanan Çizgi Filmlerdeki Şiddet Olgusunun Analizi. *Marmara Iletisim Dergisi, 27,* 81–81. https://doi.org/10.17829/midr.20172729523

Paulus, M. P., Squeglia, L. M., Bagot, K., Jacobus, J., Kuplicki, R., Breslin, F. J., Bodurka, J., Morris, A. S., Thompson, W. K., Bartsch, H., & Tapert, S. F. (2019). Screen media activity and brain

structure in youth: Evidence for diverse structural correlation networks from the ABCD study. *Neuroimage, 185*, 140 – 153. https://doi.org/10.1016/j.neuroimage.2018.10.040

Petousi, V. & Sifaki, E. (2021). Contextualizing harm in the framework of research misconduct. Findings from discourse analysis of scientific publications. *International Journal of Sustainable Development, 23*(3-4), 149-174. https://doi.org/10.1504/IJSD.2020.115206

Papadakis, S. J. (2023). Choosing the best educational apps for young children. What parents and educators need to know. In I. M. S. Trigueros (Ed.) *Desafíos de la inclusión digital: la brecha digital de género y las competencias digitales docentes en el contexto educativo* (pp.77-94) Octaedro, S.L. Spain.

Prescott, A. T., Sargent, J. D., & Hull, J. G. (2018, October). Meta-analysis of the relationship between violent video game play and physical aggression over time. *Proceedings of the National Academy of Sciences, 115* (40), 9882–9888. https://doi.org/10.1073/pnas.1611617114

Rasmussen, E. E., Shafer, A., J. Colwell, M. J., White, S., Punyanunt-Carter, N., Densley, R. L., & Wright, H. (2016) Relation between active mediation, exposure to Daniel Tiger's Neighborhood, and US preschoolers' social and emotional development. *Journal of Children and Media,* 10, 443-461. http://dx.doi.org/10.1080/17482798.2016.1203806

Robson, D. A., Allen, M. S., & Howard, S. J. (2020). Self-regulation in childhood as a predictor of future outcomes: A meta-analytic review. *Psychological Bulletin, 146*(4), 324–354. https://doi.org/10.1037/bul0000227

Stiglic, N., & Viner, R. M. (2019). Effects of screentime on the health and well-being of children and adolescents: a systematic review of reviews. *BMJ Open, 9* (1), e023191. https://doi.org/10.1136/bmjopen-2018-023191

Supanitayanon, S., Trairatvorakul, P., & Chonchaiya, W. (2020). Screen media exposure in the first 2 years of life and preschool cognitive development: a longitudinal study. *Pediatric Research, 88*(6), 894–902. https://doi.org/10.1038/s41390-020-0831-8

Corkin, M. T., Peterson, E. R., Henderson, A. M., Waldie, K. E., Reese, E., & Morton, S. M. (2021, March). Preschool screen media exposure, executive functions and symptoms of inattention/hyperactivity. *Journal of Applied Developmental Psychology, 73,* 101237. https://doi.org/10.1016/j.appdev.2020.101237

Tamana, S. K., Ezeugwu, V., Chikuma, J., Lefebvre, D. L., Azad, M. B., Moraes, T. J., Subbarao, P., Becker, A. B., Turvey, S. E., Sears, M. R., Dick, B. D., Carson, V., Rasmussen, C., Pei, J., & Mandhane, P. J. (2019). Screen-time is associated with inattention problems in preschoolers: Results from the Child Birth Cohort Study. *PLOS ONE, 14*(4). https://doi.org/10.1371/journal.pone.0213995

Tomopoulos, S., Valdez, P. T., Dreyer, B. P., Fierman, A. H., Berkule, S. B., Kuhn, M., & Mendelsohn, A. L. (2007). Is exposure to media intended for preschool children associated with less parent-child shared reading aloud and teaching activities? *Ambulatory Pediatrics*, *7*(1), 18–24. https://doi.org/10.1016/j.ambp.2006.10.005

Turkish Statistical Institute (TURKSTAT). (2013). 06-15 yaş grubu çocuklarda bilişim teknolojileri kullanımı ve medya [Use of Information and Communication Technology and Media by Children Aged 06-15, 2013]. Retrieved October 23, 2014, from https://data.tuik.gov.tr/Bulten/Index?p=Use-of-Information-and-Communication-Technology-and-Media-by-Children-Aged-06-15-2013-15866

Turkish Statistical Institute (TURKSTAT). (2021). Çocuklarda Bilişim Teknolojileri Kullanım Araştırması, 2021 [Survey on Information and Communication Technology Usage by Children, 2021]. https://data.tuik.gov.tr/Bulten/Index?p=Cocuklarda-Bilisim-Teknolojileri-Kullanim-Arastirmasi-2021-41132

Vandewater, E. A., & Lee, S. J. (2009). Measuring children's media use in the Digital age. *American Behavioral Scientist*, *52*(8), 1152–1176. https://doi.org/10.1177/0002764209331539

Wilson, B. J. (2008). Media violence and aggression in youth. In S. L. Calvert & B. J. Wilson (Eds.), *The Handbook of children, media, and development* (pp. 237–267). Blackwell Publishing.

Winn, E. B. L. (1977). *Human Neurological Organization*. Charles C Thomas Pub Ltd.

Yazıcı Arıcı, E., Kalogiannakis, M., & Papadakis, S. (2023). Preschool Children's Metaphoric Perceptions of Digital Games: A Comparison between Regions. Computers, 12, 138. https://doi.org/10.3390/computers12070138

Meta-Analysis of the Relationship between Perception of Organizational Justice and Gender in Educational Organizations in Türkiye

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Abstract
This study aims to examine the relationship between the perception of organizational justice and gender in educational organizations using the meta-analysis method. Additionally, the study explores the impact of moderator variables, including year, thesis/study type, field of study, participants, school type, and applied region, on the relationship between organizational justice perception and gender. The research begins with a comprehensive literature review that identified 883 academic theses. These theses were then screened based on inclusion criteria, resulting in 86 independent theses that met the criteria for meta-analysis. The meta-analysis encompassed a total sample size of 37,192, with 20,503 females and 16,689 males. The study findings indicate a significant gender-based difference in organizational justice, favoring men [k = 86, d = -0.062, 95% CI (0.096, -0.028), p < 0.05]. Additionally, the results show that the relationship between gender and organizational justice perceptions remains consistent across various moderators. Based on these findings, it is recommended that researchers conduct causally-determining studies, while educational administrators should focus on enhancing interactional, distributional, and procedural efforts to improve the perception of organizational justice, particularly among women.

Keywords: Educational organization, Educational administration, Organizational justice, Gender, Meta-analysis.

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Introduction

Justice is a concept that Plato and other philosophers emphasized intensively and which is still difficult to define scientifically today. Nevertheless, it is indisputable that justice is key to the continuation of the exchange relationship between living beings, especially regarding respect for the right to life. Its essence lies in valuing and respecting the right to life of others at least as much as one's right to life. It is inherent in the concept of justice that at least one of the living beings involved must be conscious, as the content of valuing and respect implies. This is because only a conscious living being can realize whether the established exchange relationship includes respect for its right to life. On the other hand, the survival of unconscious creatures relies on the initiative of the conscious, and while consciousness can be socialized, collective consciousness is not superior to individual consciousness; both forms of consciousness are equally valid. The greatest unconscious living being is nature and the universe, which contains movement and formation within itself and encompasses all conscious and unconscious living beings. If this movement holds inherent meaning, it can be considered conscious. Hence, it is crucial to emphasize that any harm inflicted upon the balance of nature and the universe also affects conscious beings. Accordingly, it is clear that human beings, as conscious creatures, should base their exchange relationships on respect for the right to life, which includes nature within its scope. Moreover, if both living beings establishing the exchange relationship are conscious, it becomes necessary to speak of a qualitative and quantitative development of respect for the right to life within the framework of peace (spiritual) and quality of life (material) of the consciousnesses. As evident, the three variables of the concept of justice are two living beings, at least one of which is conscious, and nature. Therefore, a definition of justice can be formulated within the context of these variables. Justice is the achievement of a dynamic balance of respect for the right to life, considering nature in the material and spiritual exchange relationship between a human (conscious) and another (living-conscious).

When considering the qualifications related to the concept of justice, it is crucial not to overlook the variables of nature/universe and unconscious living beings, as studies addressing the problems arising from this deficiency focus on future generations and environmental issues (Algan, 1995; Bahro, 1989; Baudrillard, 1998; Bookchin, 1994; Brzezinski, 1994; Castoriadis, 1993; Demirer, 1992; Elgin, 1994; Feyerabend, 1995; Fırat, 2003; Giddens, 1998; Kaplan, 1997; Metzner, 1994; Özdek, 1993; Özer, 2001; Popper, 2001; Tanilli, 2000; Touraine, 2000; West, 1994). Beyond these studies, numerous significant thinkers, such as Hume, Rousseau, Locke, Hobbes, Kant, Mill, and later scholars (Deutsch, 1975; Gill, 1992; Gorowitz, 1981; Habermas, 1999; Jasso, 1980; Lerner, 1977; Rawls, 1999; Reeve, 2017; Robertson, 1998; Van Wormer, Kaplan & Juby, 2012), have contributed to a more socially-oriented understanding of justice. In fact, according to the TDK (2023) dictionary, justice is defined as follows: "1. Distinguishing between the rightful and the unjust, giving the rightful his/her right. 2. Having everything where it should be, being in its proper place. 3. To dispose of one's property in the area that belongs to oneself, to respect the rights of others." From this definition, it can be inferred that the concept of justice is often associated with social or societal justice, highlighting the relationship between social consciousness and individual consciousness.

When examining ideas related to social justice, thinkers like Rawls argue for the equal distribution of fundamental rights and duties (Adams, 1965; Rawls, 1999). They propose that social and economic inequalities should only be accepted if they benefit the least advantaged members of society (Rawls, 1999; Van den Bos, 2003). On the other hand, Nozick and similar thinkers emphasize the uniqueness of the individual and the importance of individual rights and freedoms (Folger&Konovsky, 1992; McDaniel, Rios, Necochea, Stowell & Kritzer, 2001; Tanaka, 1999; Sağlam, 2007). Some views perceive social justice as a social ideal with no class differences, where all citizens are considered equal (Miller, 2001). Additionally, Walzer's understanding of justice emphasizes that different conceptions of equality should be taken into account in the distribution of values in society, depending on each social production (Hazır, 2012). Social justice, therefore, pertains to justice within a social structure. A social structure, which encompasses society, consists of substructures called 'institutions' created to fulfill the needs of its members (Toprakçı, 2017). Thus, the distinction between 'society' and 'organization' can be explained by the fact that 'society' encompasses 'organization'. Society can be seen as a vast organization that encompasses countless smaller organizations. Consequently, the

concept of social/societal justice can shape the concept of organizational justice in terms of its meaning (İçerli, 2010; Özen, 2002; Özmen, Timurcanday & Özer, 2005).

In terms of meaning, the concept of organizational justice appears to align with Rawls' (1999) idea that inequality can be tolerated in favor of the disadvantaged and Adams' (1965) understanding of social justice. Combining these perspectives, organizational justice can be defined as the equality between what members contribute to an organization and what they receive from it, in comparison to other members within the spiral of similar organizations. The perception of this equality by each member is referred to as the 'perception of organizational justice'. Greenberg (1990) considers the 'perception of organizational justice' as the reflection of perceived justice in the work environment or the perceived justice regarding the work environment. Establishing organizational justice is vital for the healthy functioning of an organization, which involves ensuring that employees have a balanced perception of equality concerning other members within the spiral of similar organizations. When this is achieved, employees tend to increase their input to the organization (Yeniçeri, Demirel, &Seçkin, 2009) and develop positive attitudes toward their jobs. Organizational justice is typically examined through three sub-dimensions: distributive justice, procedural justice, and interaction justice (Adams, 1965; Colquitt, 2001; Cropanzano, Prehar, & Chen, 2002; Greenberg, 1990).

Distributive justice refers to the perception of whether the outcomes (such as tasks, goods, services, opportunities, roles, status, wages, promotions, etc.) obtained by an organizational member are fair, ethical, and moral, as well as whether the rewards are distributed fairly (Polat, 2007). Adams defined distributive justice as the perceived fairness of outcomes obtained from a social exchange or interaction (Nowakowski & Conlon, 2005). In short, distributive justice entails the fair sharing of outputs within an organization (Lambert, 2003).

Procedural justice, another sub-dimension, concerns the fairness of the procedures, practices, and methods used in decision-making. It reflects employees' perceptions of whether managers, who are responsible for distributing organizational resources, act fairly in their distribution practices. It also encompasses employees' perceptions of the processes that determine the rewards, promotions, and wages they receive (Altıntaş, 2007; Çakar & Yıldız, 2009). The quality of relationships between individuals within the organization influences the perceptions and attitudes of each member. Therefore, the quality of relations between decision-makers and employees forms the basis for interaction justice, which plays a crucial role in the perception of organizational justice (Karaeminoğulları, 2006). The perception of interaction justice is influenced by the communication between employees and those responsible for implementing organizational procedures and managers. Elements such as respect, honesty, and courtesy are essential in shaping this process, significantly impacting people's perceptions of justice. Low perception of interaction justice among employees may lead to negative reactions toward their managers or the unit responsible for causing this perception (Söyük, 2007).

Realizing social/organizational justice within educational institutions, as one of the essential means of ensuring social justice (Kahraman, Karadağ&İşeri, 2023), seems to be relatively more critical compared to other organizations. Consequently, numerous studies have focused on how stakeholders (teachers, administrators, supervisors, and academics) experience the perception of organizational justice within educational organizations, both globally and in Turkey. These studies have examined the perception of organizational justice in various educational organizations and aimed to identify the variables that influence this perception. Depending on the country, variables, and specific research focus, some academic studies on employees' perceptions of organizational justice in Turkish educational organizations have utilized the concept of "gender to gather information about the sample. However, in academic theses, the concept of "gender" is primarily used as a variable (Gök, 2014; Akgüney, 2014; Bahçeci, 2014; Çökük, 2013; Kılıç, 2013; Kuru Çetin, 2013; Polat, 2007). Despite this, the lack of a meta-analysis study on gender and the perception of organizational justice in educational organizations in the literature highlights the need for further research.

This study aims to systematically and comprehensively synthesize the relationship between gender and organizational justice in educational organizations and determine whether gender significantly influences the perception of organizational justice. By obtaining a large sample, it seeks to investigate

whether there is a substantial difference in the perception of organizational justice between genders. The findings of this study are expected to contribute to future research on the perception of organizational justice and inform practitioners about the potential role of gender as a variable in establishing justice within their organizations.

In this context, the study seeks to answer the following questions:

1.   Does the perception of organizational justice differ significantly according to gender in academic theses on educational organizations in Turkey?

2.   Do various moderators, such as the year of the study, type of thesis/research, the field of study, the people to whom it is applied, type of school, and region of application, affect the effect size of the significant difference between organizational justice and gender in academic theses/research on educational organizations in Turkey?

Method

In this study, the meta-analysis method was used to determine the role of gender in organizational justice in educational organizations. Meta-analysis is a statistical method used to combine independent studies on a certain subject to obtain stronger results and a larger sample size (Littel, Corcoran, & Pillai, 2008; Petitti, 2000; Cumming, 2012). The study focused on quantitative studies that examined the relationship between organizational justice and gender, with organizational justice as the dependent variable. The studies analyzed were master's and doctoral theses published in the YÖK Thesis database, written in Turkish, and conducted in educational institutions in Turkey.

Determination of Theses for Analysis

The theses included in the study were obtained from the YÖK Thesis database, covering the period from 2007 to 2023. A search for "organizational justice" was conducted, resulting in a total of 883 theses. Then, the title, abstract, and sample parts of these theses were examined and 130 theses that were studied in educational organizations were identified. These theses were screened based on the criteria of being quantitative research, providing the number of male and female participants, and reporting the means, standard deviations, or p-values for "general organizational justice perception" of male and female participants. As a result of the screening, a total of 44 studies were excluded from the study because 11 of them were not quantitative and 33 of them did not contain sufficient and necessary data (29 of them did not have a general score). Attempts were made to contact the investigators of 29 studies with no overall score, but no results were obtained. As a result of this elimination, the number of theses included in the study was 86. All of the included theses are about educational organizations, measure the general perception of organizational justice with gender variables, are made with quantitative methods, and include data sets used to find the standard mean difference in the study.

Coding of Theses

The Standardized Mean Difference (SMD) effect size, also known as Cohen's d, was used in the meta-analysis. To calculate the SMD and identify possible moderators, the following information was extracted from each study:

a) Sample size (male and female),

b) Author's coding scheme for gender,

c) Quantitative data (correlation coefficient, t-value, F statistic, chi-square, or mean and standard deviation) necessary for calculating the effect size.

In this study, males were coded as 0, and females were coded as 1. If the data were coded oppositely, it was transformed to match the coding scheme of this study. Thus, a negative d value indicates that men score higher on organizational justice perception, while a positive d value indicates that women score higher on each dimension of organizational justice perception.

Additionally, all studies were coded into six different moderator categories for further analysis. These categories were:

a) Year of publication,

b) Type of thesis (Master's Degree→M, PhD→D),

c) Field of study (Educational Sciences →ES, Non-Educational Sciences →NON-ES),

d) Sample type (Teachers →T, Administrators, and Teachers →A+T, Administrators and all stakeholders →A+S, University Lecturers →UL),

e) School levels included in the sample (Pre School→Pre, Primary School →P, Secondary School →S, High School →H, University →U),

f) Region where the study was conducted (All, Aegean, Mediterranean, Black Sea, Marmara, Central Anatolia, Eastern Anatolia, Southeastern Anatolia).

In the meta-analysis study, a total of 86 effect sizes related to general organizational justice were calculated. The study sample consisted of 37,192 participants, with 20,503 females and 16,689 males.

The inclusion/exclusion of the articles analyzed for study reliability was evaluated by two researchers. Each checklist item on the coding sheet was independently checked, and five studies were jointly coded for control purposes. The remaining 81 studies were coded separately by the two researchers. Inter-coder reliability (ICR) correlation and Cohen's kappa statistic were calculated using SPSS software version 17, resulting in values of 94% and 0.92, respectively. In case of disagreement, the researchers had planned to consult a third coder to make the final decision, but no disagreements were found between the coders on any item.

Effect size calculations were performed using Comprehensive Meta-Analysis software (Version 2.0). To determine the appropriate model based on statistical results, the Q statistic, which tests heterogeneity-homogeneity in meta-analysis, was examined. If the Q value was significant, indicating heterogeneity, the random effects model (Borenstein, Hedges, Higgins & Rothstein, 2013) was deemed appropriate. In meta-analysis, the I2 value, which represents the ratio of variance and ranges from 0 to 100, was used to interpret the effect size. Values of 25, 50, and 75 were considered as low, medium, and high heterogeneity, respectively (Higgins, Thomson, Deeks, & Altman, 2003).

Findings

Publication Bias

Publication bias refers to the tendency to publish statistically significant studies. Publication bias affects the average effect size to be calculated and shows it higher than it should be (Borenstein et al., 2013). In this study, publication bias was analyzed by looking at the funnel scatter plot. When Figure 1 is analyzed, it is seen that the funnel plot is symmetrical. Therefore, there is no publication bias in terms of the funnel scatter plot.
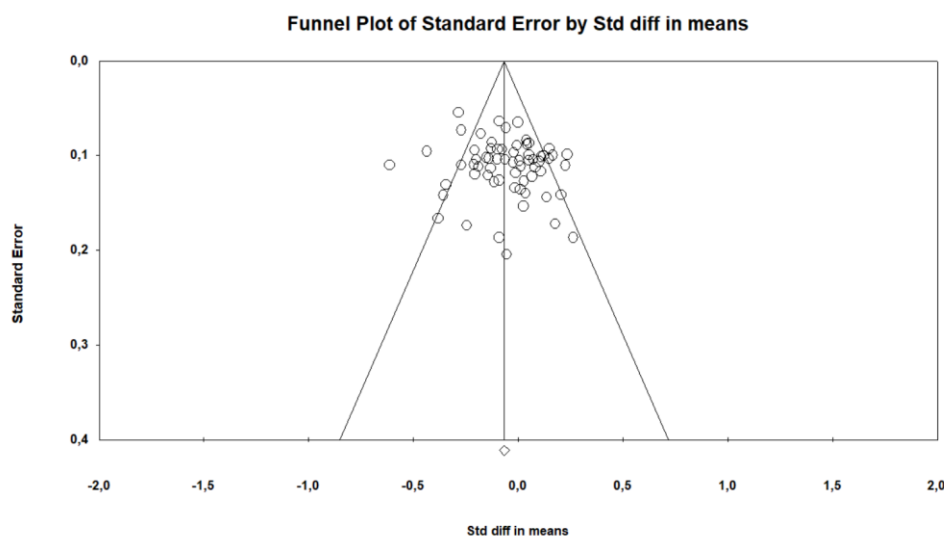
Figure 1. Funnel Plot for Publication Bias

In addition to the funnel plot, four methods were used to test for publication bias. These are Orwin's Protected Number, Egger's test, Duval and Tweedie's trim and fill method, and Kendal's. The reason for choosing these four statistics is that they are frequently used and understandable in the studies in the literature. The findings for these tests are presented in Table 1.

Table 1.
Publication Bias Test Results for Organisational Justice

Organizational Perception of Justice	Orwin'sProtected Count	Duval and Tweedie's Clip and Fill Method		Egger Test	Kendal tau b
	"insignificant" for SMD* number of necessary studies	Cropped Study	SMD Observed (filled)		
Female	0,01 SMD for 524	17	-0,06219(-0,10718)	P1=0,06 (2 tails)	0,23
Male		0	-0,06219(-0,06219)	P2=0,11 (2 tails)	0,45

* SMD: Standardized Mean Difference

Orwin's Protected Count for Perception of Organizational Justice is approximately six times larger than the total of 86 included studies. Moreover, the newly calculated Standardized Mean Difference (SMD), considering the trimmed and filled studies, does not exhibit a significant difference in terms of size or direction. All of the Egger test results are p > .05, indicating that the funnel plot is not asymmetric. Lastly, Kendall's tau b value was calculated, and both tau b1 (.23) and tau b2 (.45) were found to be insignificant (p > .05). These findings collectively suggest that no publication bias was detected in this meta-analysis study.

In this study, the effect of gender on the perception of organizational justice was examined using 86 independent studies, which provided a total sample size of 37,192 participants. Among these participants, 20,503 were female and 16,689 were male. The Q statistic was calculated to determine the appropriate model for the meta-analysis, and it was found to be significant [Q(86) = 202.788, p < .001]. Additionally, the I2 value indicated a moderate variance ratio of 58.084, further supporting the use of the random effects model in the meta-analysis.

The results of the meta-analysis conducted using the random effects model are presented in Table 2.

Table 2.
Meta-Analysis Results of Gender on Organisational Justice

Variable	N		k	d	%95 CI		Q	I2
	Female	Male			Lower limit	Upper limit		
Organizational Justice	20.503	16,689	86	-0,062	-0,096	-0,028	202,788	58,084

Notes: Random Effects Model; p< .01; CI Confidence Interval; Q Homogeneity Measure; I2 Higgins and Thompson Heterogeneity Measure

As can be seen from Table 2, the findings reveal that gender has a significant effect on the perception of organizational justice [k = 86, d = -0.062, 95% CI (-0.096, -0.028), p < .05]. This suggests that women and men hold different perceptions of organizational justice, with men exhibiting a more favorable perception. The forest plot, displayed in Figure 2, visually represents the effect size and confidence intervals of each included study.

The forest plot illustrates the weights of each study in the meta-analysis and provides insight into the individual and overall effect sizes (Lewis & Clarke, 2001). In this study, the weights of the included studies are observed to be closely distributed.

Study/Thesis	SMD	SE	V	LL	UL	Z	P	F	M	Std. Mean. Difference and 95% CI	WAM
Demir,2021	-0,021	0,097	0,009	-0,211	0,168	-0,223	0,824	259	183		1,28
Saydam, 2012	0,051	0,105	0,011	-0,155	0,257	0,485	0,628	262	138		1,19
Uğurlu, 2009	0,000	0,065	0,004	-0,127	0,127	0,000	1,000	472	481		1,63
Yılmaz,2012	0,035	0,140	0,020	-0,239	0,309	0,251	0,801	146	79		0,89
Balcı, 2019	0,123	0,100	0,010	-0,073	0,319	1,227	0,220	158	273		1,24
Güneş, 2019	-0,179	0,077	0,006	-0,330	-0,028	-2,318	0,020	450	271		1,49
Akbulut, 2020	-0,200	0,104	0,011	-0,405	0,004	-1,920	0,055	158	222		1,20
Akdeniz, 2018	-0,613	0,110	0,012	-0,829	-0,397	-5,573	0,000	202	151		1,14
Akdenizli, 2022	0,043	0,088	0,008	-0,130	0,216	0,488	0,625	265	251		1,37
Aksay, 2021	-0,067	0,063	0,004	-0,191	0,056	-1,067	0,286	628	417		1,65
Alagöz, 2020	-0,131	0,113	0,013	-0,353	0,092	-1,152	0,249	303	105		1,11
Aslan, 2019	-0,221	0,119	0,014	-0,454	0,012	-1,860	0,063	203	110		1,06
Aslanoğlu, 2021	-0,311	0,183	0,033	-0,670	0,048	-1,699	0,089	96	44		0,63
Atahan, 2022	-0,136	0,143	0,020	-0,416	0,145	-0,949	0,343	118	84		0,87
Atasoy, 2019	0,021	0,090	0,008	-0,155	0,198	0,236	0,814	281	219		1,34
Aydın, 2015	0,211	0,106	0,011	0,003	0,420	1,988	0,047	177	179		1,18
Canbaz, 2022	0,009	0,120	0,014	-0,227	0,245	0,075	0,940	178	113		1,05
Cesur, 2019	0,235	0,099	0,010	0,041	0,429	2,378	0,017	199	214		1,25
Ceyhan, 2022	-0,011	0,118	0,014	-0,243	0,221	-0,093	0,926	136	151		1,06
Coşkun, 2019	0,052	0,099	0,010	-0,143	0,246	0,520	0,603	202	203		1,25
Çapraz, 2009	0,027	0,153	0,023	-0,274	0,327	0,174	0,862	66	120		0,79
Çavuş, 2016	-0,129	0,093	0,009	-0,311	0,053	-1,392	0,164	221	247		1,32
Çekiç, 2018	0,083	0,113	0,013	-0,138	0,303	0,733	0,464	230	120		1,12
Çetin, 2019	0,149	0,092	0,009	-0,032	0,330	1,610	0,107	174	359		1,32
Çetin, 2021	-0,089	0,126	0,016	-0,336	0,158	-0,707	0,480	168	101		1,00
Çetin., 2021	-0,006	0,090	0,008	-0,181	0,170	-0,064	0,949	286	221		1,35
Çırak, 2013	-0,188	0,111	0,012	-0,406	0,031	-1,684	0,092	233	124		1,13
Dahmaz, 2019	-0,029	0,126	0,016	-0,275	0,217	-0,230	0,818	144	113		1,00
Demir, 2020	-0,128	0,097	0,009	-0,319	0,063	-1,311	0,190	256	180		1,27
Demirbilek, 2018	-0,272	0,073	0,005	-0,415	-0,129	-3,720	0,000	366	390		1,54
Derici, 2019	-0,048	0,081	0,007	-0,207	0,111	-0,593	0,553	388	251		1,45
Doğan, 2014	0,011	0,136	0,018	-0,256	0,277	0,078	0,938	195	75		0,92
Dursun, 2021	0,227	0,110	0,012	0,011	0,443	2,055	0,040	255	122		1,14
Duyurucu, 2014	-0,205	0,120	0,014	-0,439	0,030	-1,713	0,087	208	106		1,05
Emir, 2017	0,109	0,101	0,010	-0,089	0,308	1,080	0,280	213	180		1,23
Ergül, 2019	-0,136	0,087	0,008	-0,307	0,035	-1,556	0,120	310	227		1,37
Ersoy, 2020	-0,076	0,093	0,009	-0,259	0,107	-0,819	0,413	222	238		1,31
Eyigün, 2022	-0,064	0,116	0,013	-0,292	0,163	-0,554	0,580	166	134		1,08
Gegekoğlu, 2021	-0,208	0,095	0,009	-0,393	-0,023	-2,200	0,028	315	175		1,30
Girgin, 2016	-0,212	0,110	0,012	-0,427	0,003	-1,936	0,053	263	123		1,15
Gölcür, 2022	-0,159	0,087	0,008	-0,330	0,011	-1,834	0,067	387	202		1,38
Görgülü, 2021	0,078	0,129	0,017	-0,175	0,330	0,603	0,546	148	102		0,97
Güngörmez, 2014	0,012	0,111	0,012	-0,206	0,230	0,110	0,913	130	215		1,13
İşler, 2022	-0,062	0,104	0,011	-0,267	0,142	-0,598	0,550	200	170		1,20
İşleyici, 2015	0,101	0,106	0,011	-0,107	0,310	0,955	0,340	229	145		1,18
Kahraman, 2014	0,074	0,104	0,011	-0,130	0,278	0,708	0,479	202	170		1,20
Kahraman, 2017	0,264	0,187	0,035	-0,102	0,629	1,414	0,157	35	165		0,61
Karabacak, 2020	0,165	0,100	0,010	-0,030	0,361	1,656	0,098	303	151		1,24
Karabulut, 2018	0,108	0,117	0,014	-0,121	0,337	0,926	0,355	85	545		1,08
Kaya, 2022	0,148	0,103	0,011	-0,055	0,351	1,433	0,152	196	180		1,21
Kemer, 2021	-0,271	0,110	0,012	-0,487	-0,056	-2,469	0,014	243	127		1,14
Kete, 2015	0,052	0,087	0,007	-0,118	0,222	0,601	0,548	287	250		1,38
Kızılkaya, 2016	-0,114	0,128	0,016	-0,365	0,136	-0,895	0,371	180	93		0,98
Korkut, 2019	-0,047	0,096	0,009	-0,235	0,141	-0,489	0,625	249	193		1,28
Köse, 2020	-0,089	0,064	0,004	-0,214	0,035	-1,406	0,160	955	334		1,65
Kurt, 2020	-0,024	0,107	0,011	-0,234	0,186	-0,225	0,822	168	182		1,17
Kuşci, 2014	-0,140	0,103	0,011	-0,342	0,062	-1,360	0,174	129	354		1,21
Mıhcı, 2019	-0,061	0,135	0,018	-0,325	0,203	-0,451	0,652	101	121		0,93
Nayır, 2011	-0,125	0,086	0,007	-0,294	0,044	-1,447	0,148	187	481		1,39
Özcan, 2014	0,135	0,144	0,021	-0,146	0,417	0,942	0,346	103	92		0,86
Özgöçer, 2019	-0,054	0,204	0,042	-0,454	0,347	-0,263	0,792	34	81		0,53
Özyolcu, 2015	-0,381	0,166	0,028	-0,706	-0,055	-2,294	0,022	81	68		0,72
Özyurt, 2021	0,065	0,101	0,010	-0,132	0,263	0,648	0,517	196	199		1,23
Polat, 2022	0,028	0,127	0,016	-0,221	0,277	0,222	0,824	148	107		0,99
Potuk, 2017	-0,058	0,071	0,005	-0,196	0,081	-0,816	0,414	512	330		1,57
Pusmaz, 2020	-0,086	0,081	0,007	-0,245	0,072	-1,065	0,287	380	255		1,45
Saçlı, 2022	-0,100	0,104	0,011	-0,303	0,103	-0,964	0,335	215	164		1,20
Sağbaş, 2020	-0,138	0,086	0,007	-0,306	0,031	-1,596	0,110	411	201		1,39
Saruhan, 2019	-0,435	0,095	0,009	-0,622	-0,248	-4,557	0,000	221	229		1,29
Selekler, 2007	0,028	0,098	0,010	-0,163	0,220	0,291	0,771	230	193		1,26
Şamdan, 2019	-0,422	0,082	0,007	-0,582	-0,261	-5,159	0,000	583	206		1,44
Tan, 2017	0,177	0,172	0,030	-0,160	0,514	1,031	0,303	38	315		0,68
Tavaslı, 2021	-0,015	0,134	0,018	-0,278	0,247	-0,114	0,909	113	110		0,93
Tekin, 2023	-0,097	0,094	0,009	-0,280	0,086	-1,037	0,300	297	186		1,31
Terkeş, 2015	0,068	0,122	0,015	-0,172	0,307	0,554	0,580	187	105		1,03
Uludağ, 2018	0,205	0,141	0,020	-0,072	0,482	1,450	0,147	157	74		0,88
Uludağ, 2022	-0,151	0,102	0,010	-0,351	0,049	-1,475	0,140	249	157		1,22
Uysal, 2018	-0,143	0,121	0,015	-0,380	0,094	-1,181	0,238	142	133		1,04
Uysal, 2019	-0,091	0,076	0,006	-0,240	0,058	-1,198	0,231	482	271		1,50
Yavuz, 2021	-0,090	0,187	0,035	-0,455	0,276	-0,481	0,631	224	33		0,61
Yavuz, 2022	-0,284	0,054	0,003	-0,391	-0,178	-5,235	0,000	628	754		1,75
Yıldız, 2015	0,005	0,105	0,011	-0,201	0,212	0,052	0,959	179	181		1,19
Yıldız, 2019	-0,244	0,174	0,030	-0,585	0,096	-1,407	0,159	43	148		0,67
Yoldaş, 2018	-0,357	0,142	0,020	-0,635	-0,079	-2,515	0,012	201	67		0,87
Yozgat, 2019	-0,343	0,131	0,017	-0,599	-0,087	-2,625	0,009	142	102		0,96
Yüksel, 2022	0,039	0,084	0,007	-0,125	0,204	0,468	0,640	321	254		1,41
Rasgele Etki Modeli	-0,062	0,017	0,000	-0,096	-0,028	-3,601	0,000	20.503	16.689		

F: Female, M: Male, P: P Value, Z: Z Value, LL: Lower Limit, ÜL: Upper Limit, V: Variance Value, SH: Standard Error,
SMD: StandardizedMeanDifference, WAM: Weight of the study in the Analysis

Figure 2. Forest Graph of Organisational Justice Meta-Analysis Study

Figure 2 shows the forest plot of the effect of organizational justice on the gender of employees in educational institutions. The figure shows the study weights of each study included in the meta-analysis. It is observed that the weights of the studies included in the research are close to each other.

Moderator Analyses

Another purpose of this study is to evaluate whether various moderators affect the relationship between the perception of organizational justice and gender. The moderators of the study were determined as the year of the studies, the type of thesis reached in the studies, whether the studies were conducted in the field of educational sciences, the sample of the studies, the school levels of the sample of the studies, and the region where the sample of the studies was applied. The factors that may affect the direction and size of the overall effect size of the studies were determined as moderators, and it was left to the researcher to determine these moderators. Moderator analyses were made in line with the determined analyses, and the analyses of these categorical moderators are given in Table 3.

Table 3.
Moderator Analyses For Organisational Justice

Moderator	K	%k	d	SE	95% CI Lower	95% CI Upper	Qb	df(Q)	p
Year of Studies	86	100					15,530	14	0,343
2007	1	1,16	0,028	0,098	-0,163	0,220			
2009	2	2,33	0,004	0,060	-0,113	0,121			
2011	2	2,33	-0,152	0,070	-0,289	-0,015			
2012	1	1,16	0,035	0,140	-0,239	0,309			
2013	1	1,16	-0,188	0,111	-0,406	0,031			
2014	6	6,98	-0,018	0,048	-0,112	0,075			
2015	6	6,98	0,039	0,063	-0,084	0,162			
2016	3	3,49	-0,152	0,062	-0,273	-0,031			
2017	4	4,65	0,065	0,071	-0,075	0,205			
2018	6	6,98	-0,145	0,125	-0,390	0,099			
2019	19	22,09	-0,089	0,044	-0,174	-0,003			
2020	9	10,47	-0,081	0,031	-0,142	-0,020			
2021	11	12,79	-0,055	0,045	-0,143	0,034			
2022	14	16,28	-0,055	0,039	-0,131	0,021			
2023	1	1,16	-0,097	0,094	-0,280	0,086			
Thesis Type of Studies	86	100					1,646	1	0,200
PhD	10	11,63	-0,116	0,044	-0,202	-0,029			
Master's Degree	76	88,37	-0,054	0,019	-0,091	-0,017			
Whether it has been done in the field	86	100					0,196	1	0,658
ES	81	94,19	-0,064	0,018	-0,100	-0,028			
NON ES	5	5,81	-0,044	0,041	-0,124	0,036			
Sample of Studies	86	100					3,843	3	0,279
T	74	86,05	-0,048	0,017	-0,081	-0,014			
UL	2	2,33	-0,134	0,069	-0,269	0,001			
A+T	9	10,47	-0,172	0,076	-0,322	-0,023			
A+S	1	1,16	-0,090	0,187	-0,455	0,276			
School Levels of Studies	86	100					3,489	7	0,836
Pre+P+S+H	17	19,77	-0,053	0,036	-0,123	0,017			
P	11	12,79	-0,027	0,035	-0,095	0,041			
P+S	20	23,26	-0,046	0,041	-0,126	0,034			
P+S+H	16	18,60	-0,061	0,039	-0,138	0,016			
H	10	11,63	-0,077	0,045	-0,166	0,011			
S	7	8,14	-0,164	0,098	-0,355	0,028			
S+H	3	3,49	-0,066	0,076	-0,215	0,083			
U	2	2,33	-0,134	0,069	-0,269	0,001			
Implementation Region	86	100					13,751	7	0,056
Mediterranean	6	6,98	0,016	0,037	-0,057	0,088			
Eastern Anatolia	7	8,14	-0,152	0,046	-0,242	-0,062			
Aegean	14	16,28	0,006	0,035	-0,064	0,075			
Southeast Anatolia	5	5,81	-0,111	0,106	-0,319	0,098			
Central Anatolia	12	13,95	-0,127	0,055	-0,234	-0,020			
Black Sea	11	12,79	-0,046	0,030	-0,104	0,012			
Marmara	30	34,88	-0,061	0,031	-0,122	0,000			
All	1	1,16	-0,125	0,086	-0,294	0,044			

K: Number of Studies, %k: Percentage of Study, d: Effect size, SE: Standard Error, CI: Confidence Interval, Qb: Homogeneous Matching of Moderator Effects With Gender, Q: Homogeneity Measure, p: Significance Level

When the theses included in the study in Table 3 are examined according to the year of the study, it is observed that the studies in which organizational justice is examined as a dependent variable are mostly from 2019 (22.09%). Furthermore, the studies on organizational justice have shown an increasing trend over time, especially after 2019. However, the meta-analysis results indicate that the effect size calculated based on the relationship between organizational justice perception and gender does not differ significantly according to the moderator effect of the year of the studies (p > .05).

When the theses included in the study were examined according to their type, it was found that the majority of studies examining organizational justice as a dependent variable were master's theses (88.37%). Nevertheless, the meta-analysis results indicate that the effect size calculated based on the relationship between organizational justice and gender does not significantly differ according to the moderator effect of the type of studies (p > .05).

In terms of the field of study, when examining the theses included in the study, it was observed that the studies in which organizational justice was examined as a dependent variable were mostly in the field of educational sciences (94.19%). However, the meta-analysis results suggest that the effect size calculated based on the relationship between organizational justice and gender does not significantly differ according to whether the studies were conducted in educational sciences (p > .05).

When the theses included in the study were analyzed based on the participants, it was revealed that the studies in which organizational justice was examined as a dependent variable mostly involved teachers (86.05%). However, the meta-analysis results indicate that the effect size calculated based on the relationship between organizational justice and gender does not significantly differ according to the moderator effect of the participants (p > .05).

Regarding the type of school in which the studies were conducted, it was observed that the studies examining organizational justice as a dependent variable were mostly conducted in the sample group comprising both primary and secondary schools (23.26%), while the proportion was the lowest for university settings (2.33%). However, the meta-analysis results suggest that the effect size does not significantly differ based on the moderator effect of school type (p > .05).

Finally, when examining the regions where the studies were conducted, it was observed that the studies investigating organizational justice as a dependent variable were mostly conducted in the Marmara Region (34.88%), while the least number of studies were conducted in mixed regions (1.16%). However, the meta-analysis results suggest that the effect size calculated based on the relationship between organizational justice and gender does not significantly differ according to the moderator effect of the region where the studies were conducted (p > .05).

Conclusion, Discussion, and Recommendations

This study aims to demonstrate the divergence between standard methods for assessing the connection between organizational justice and gender in educational organizations and to identify moderators who can partially account for the perceived male/female gender difference. In this context, theses on the relationship between perceptions of organizational justice and gender in educational organizations in Turkey were examined. As the research is based on theses with a sample of Turkey and there is no meta-analysis study with domestic and foreign samples, this section includes discussions about studies that use domestic articles instead of foreign ones.

According to the results of the study, there is a significant difference in the perception of organizational justice in educational organizations in Turkey, with men being more likely to be favored by gender. The studies conducted by Oguz (2011), Akar (2015), Şamdan, and Başkan (2019) in educational organizations in Turkey demonstrate substantial disparities in favor of men when examined against other research methods. In accordance with Jepsen and Rodwell (2010), Australian studies reveal that organizational justice in educational organizations is influenced by gender differences. Again, in a study conducted by Ramamoorthy and Flood (2004), women in Ireland had lower organizational justice perceptions than men. Based on Lee, Pillutla, and Law (2000), men were more likely to perform their duties within the organization, follow the existing contract properly, and treat their superiors and friends fairly than women in the study conducted in Hong Kong. Procedural justice is a subdimension of organizational justice.

Upon reviewing the publications in Turkey, no considerable advantages for women were detected. In the USA, a study conducted by Warner, Culatta, and James (2013) found that women are more likely to be influenced by gender than status in their perception of organizational justice. This is supported by other important studies. In Nigeria, Arogundade, Anandades, and Oyebanji (2015) conducted research on educational organizations and found that female teachers tend to have a higher level of organizational commitment than male teachers, which has broader implications for organizational justice. Ansari, Moazzam, Jabeen, and Salman (2016) analyzed their research in Pakistani universities and concluded that perceptions of justice are significantly influenced by gender. In the same study, the researcher conducted a literature review on whether there is a sex difference in perception of organizational justice and stated that and stated that the studies in the literature show a difference in favor of men. However, when his studies were examined, it was found that organizational justice perceptions in women were higher than in men, contrary to what had been assumed. Despite this, the literature generally indicates that men have a higher belief in organizational justice in educational institutions than women.

Another study's findings indicate that only 19 of the investigated theses contain statistically significant data on how gender-based differences affect the perception of organizational justice. In the meta-analysis study, it is crucial to demonstrate that a significant outcome can be achieved when large effects are produced through merging studies with mostly irrelevant data. In fact, Üstün and Eryilmaz (2014) assert that meta-analysis is an effective method of research synthesis in which the results of many large-scale studies are merged and interpreted to explain the inconsistent results in the literature.

The study's second outcome indicates that the relationship between gender and organizational justice perceptions remains consistent across different moderators, including the year, type, field, individuals applying to the thesis/study, the type of school, and the region in which the project is conducted. Because the studies on organizational justice differences based on gender cannot be analyzed in a meta-analysis, this research has revealed whether the dependent and independent variables are affected by the moderator effect for the first time. This study highlights this issue. The literature is expected to provide a significant guideline for further research to enhance and develop the subject.

This research was limited to theses in Turkey. Researchers were asked to identify the theses and dissertations of meta-analysis studies in the context of articles that can be suggested. On the other hand, studies conducted in other countries.

It can be suggested that educational administrators should give importance to interaction, transactional, and distributional practices that increase the perception of organizational justice of female staff in their organizations, or avoid or reduce interactional, transactional, and distributional practices that decrease their perceptions of organizational justice.

authors contribute to the study, and that all the responsibility belongs to the article authors in case of any ethical violations.

Data Availability Statement: Data generated or analyzed during this study should be available from the authors on request.

Conflict of Interest: We declare that there is no conflict of interest between the authors and that all authors contribute to the study, and that all the responsibility belongs to the article authors in case of all ethical violations

References

(*)References marked with * indicate studies included in the meta-analysis

Adams, J.S. (1965). Inequity in social exchange. L.Berkowitz (Ed.), *Advances in Experimental Social Psychology*, 2, 267-269. San Diego AcademicPress.

Akbulut, A. (2020). *Öğretmenlerin örgütsel adalet ve örgütsel destek algılarının örgütsel sinizm tutumuna yönelik etkisinin incelenmesi.* [Unpublished master's thesis] İstanbul Sabahattin Zaim Üniversitesi, İstanbul. (*)

Akdeniz, A. (2018). *Eğitim örgütlerinde öğretmenlerin örgütsel adalet algıları ile işle bütünleşme algıları arasındaki ilişki ve bazı değişkenlere göre incelenmesi.* [Unpublished master's thesis], Gazi Üniversitesi, Ankara.

Akdenizli, N., O. (2022). *Okul yöneticilerinin örgütsel adalet davranışlarına ilişkin öğretmen algıları ile örgütsel muhalefet düzeyleri arasındaki ilişki.* [Unpublished master's thesis], Ondokuz Mayıs Üniversitesi, Samsun. (*)

Akgüney, E. (2014). *Öğretmenlerin örgütsel adalet algılamaları ile örgütsel vatandaşlık davranışları arasında ilişki.* [Unpublished master's thesis]. Marmara Üniversitesi, İstanbul.

Aksay, O. (2021). *Öğretmenlerin örgütsel adalet, örgütsel dürüstlük ve iş doyumu düzeylerine yönelik algıları arasındaki ilişkilerin incelenmesi.* [Unpublished PhD thesis], Bolu Abant İzzet Baysal Üniversitesi, Bolu. (*)

Alagöz, E. (2020). *İlkokul öğretmenlerinin örgütsel adalet algıları ile örgütsel sessizlik ve örgütsel güven algıları arasındaki ilişkinin incelenmesi.* [Unpublished master's thesis], İstanbul Sabahattin Zaim Üniversitesi, İstanbul. (*)

Algan, N. (1995). Çevre gerçeğinin küresel düzeyde ele alınışı, *Yeni Türkiye,* (5), Çevre Özel Sayısı. 210-219.

Altıntaş, F. Ç. (2007). Örgüt yapısının örgütsel politika ve işlem adaleti üzerine etkisinin yapısal denklem modellemesi yardımıyla analizi. *Anadolu Üniversitesi Sosyal Bilimler Dergisi,* 7(2), 151-168.

Ansari, N., Moazzam, A., Jabeen, N. & Salman, Y. (2016). Gender and perceptions of organizational justice: a study of university of the Punjab. *Pakistan Journal of Women's Studies,* 23(1),1024-1256.

Arogundade,O.T., Arogundadeand, A.B. & Oyebanji, O.H. (2015). Influence of perceived organizational justice on teachers' commitment in selected secondary schools in Lagos State, Nigeria. *Journal of Scientific Research & Reports,* 4(7): 605-613

Aslan, S. (2019). *Okul yöneticilerinin liderlik stillerinin öğretmenlerin örgütsel adalet düzeyleri üzerindeki etkisinde örgütsel bağlılığın aracılık rolü.* [Unpublished master's thesis], Bahçeşehir Üniversitesi, İstanbul. (*)

Aslanoğlu, Ö. (2021). *Öğretmenlerin örgütsel adalet algısı ile sinizm düzeyleri arasındaki ilişki.* [Unpublished master's thesis], Bahçeşehir Üniversitesi, İstanbul. (*)

Atahan,K.(2022). *Özel eğitim kurumlarında görev yapan öğretmenlerin öğretim duygu durumları, örgütsel destek algıları ve tükenmişlik düzeyleri.* [Unpublished master's thesis], Uşak Üniversitesi, Uşak. (*)

Atasoy, D., Ç. (2019). *İlkokul ve ortaokul öğretmenlerinin iş yaşamındaki yalnızlık düzeyleri ile örgütsel adalet algıları arasındaki ilişki.* [Unpublished master's thesis], Ondokuz Mayıs Üniversitesi, Samsun. (*)

Aydın, K. (2015). *İlkokul ve ortaokul öğretmenlerinin örgütsel adalet algıları ile işe yabancılaşma algıları arasındaki ilişki (uşak ili örneği).* [Unpublished master's thesis], Uşak Üniversitesi, Uşak. (*)

Bahçeci, F. (2014). *Öğretmen algılarına göre okul müdürlerinin etik liderlik davranışları, öğretmenlerin karşılaştığı yıldırma davranışı ve örgütsel adalet arasındaki ilişkinin incelenmesi.* [Unpublished master's thesis]. Mevlana Üniversitesi Sosyal Bilimler Enstitüsü, Konya.

Bahro, R. (1989), *Nasıl sosyalizm, hangi yeşil, ne için sanayi*, İstanbul: Ayrıntı Yayınları (Der. T. Bora).

Balcı, İ. (2019). *Mesleki ve teknik anadolu liselerinde görev yapan öğretmenlerin örgütsel adalet ve örgütsel bağlılık seviyelerinin incelenmesi*. [Unpublished master's thesis], Harran Üniversitesi, Şanlıurfa. (*)

Baudrillard, J. (1998). *Kusursuz cinayet*, İstanbul: Ayrıntı Yayınları (Çev. N. Sevil)

Bookchin, M. (1994), *Özgürlüğün ekolojisi - Hiyerarşinin ortaya çıkışı ve çözülüşü*, İstanbul: Ayrıntı Yayınları, (Çev.: A. Türker)

Borenstein, M., Hedges, L.V., Higgins, J.P.T. & Rothstein, H.R.(2013). *Meta-analize giriş* (S.Dinçer, Çev.) Ankara: Anı Yayıncılık.

Brzezinski, Z. (1994). *Kontrolden çıkmış dünya*, istanbul: Türkiye İş Bankası Kültür Yayınları Genel Yayın: 337, Sosyal Felsefi Dizi: 41, (Çev.: H. Menemencioğlu)

Canbaz, S. (2022). *Ilkokul ve ortaokullarda çalışan öğretmenlerin örgütsel adalet ve örgütsel sessizlik algıları arasındaki ilişki*. [Unpublished master's thesis], Çanakkale Onsekiz Mart Üniversitesi, Çanakkale. (*)

Castoriadis, C. (1993). *Dünyaya İnsana ve tabiata dair*, İstanbul: iletişim Yayınları, (Çev.: H. Tufan).

Cesur, A. (2019). *Okul yönetiminde kayırmacılık ve örgütsel adalet arasındaki ilişki (Afyonkarahisar ili örneği)*. [Unpublished master's thesis], Kütahya Dumlupınar Üniversitesi, Kütahya. (*)

Ceyhan, İ. (2022). *Sınıf öğretmenlerinin örgütsel adalet algılarının incelenmesi (Bir karma yöntem araştırması)*. [Unpublished master's thesis], Ağrı İbrahim Çeçen Üniversitesi, Ağrı.(*)

Colquitt, J. A. (2001). On the dimensionality of organizational justice: A construct validation of a measure. *Journal of Applied Psychology,* 86, 386-400.

Coşkun, B. (2019). *Devlet okullarında öğretmenlerin işyeri saldırganlığı davranışları ve örgütsel adalet ile ilişkisi*. [Unpublished master's thesis], Ankara Üniversitesi, Ankara.(*)

Cropanzano, R., Prehar, C. A., ve Chen, P. Y. (2002). Using Social Exchange Theory to distinguish procedural from interactional justice. *Group & Organization Management,* 27(3), 324-351.

Cumming, G. (2012). *Understanding the new statistics: Effect sizes, confidence intervals, and metaanalysis.* New York: Routledge.

Çakar, N. D., ve Yıldız, S. (2009). Örgütsel adaletin iş tatmini üzerindeki etkisi; "Algılanan örgütsel destek" bir ara değişken mi? *Elektronik Sosyal Bilimler Dergisi,* 8 (28), 68-90.

Çakar, N. D. (2015). Toplumsal cinsiyet temelinde örgütsel adalet algısı: etik iklimin rolü. *Kadem Kadin Araştirmaları Dergisi,*1(2),79-107.

Çavuş, B. (2016). *Öğretim elemanlarının örgütsel adalet algılarıyla umutsuzluk düzeyleri arasındaki ilişki*. [Unpublished master's thesis], Adnan Menderes Üniversitesi, Aydın.(*)

Çapraz, H. (2009). *Ortaöğretim kurumu öğretmenlerinin örgütsel adalet algıları ile iş doyum düzeyleri arasındaki ilişkinin incelenmesi (Şişli ilçesi örneği)*. [Unpublished master's thesis], Yeditepe Üniversitesi, İstanbul.(*)

Çekiç, E. (2018). *Ilköğretim okullarındaki öğretmenlerin görüşlerine göre örgütsel adalet ve örgütsel iklim arasındaki ilişki (Edirne ili örneği)*. [Unpublished master's thesis], Trakya Üniversitesi, Edirne.(*)

Çetin, S. (2019). *Ortaokul öğretmenlerinin örgütsel adalet algı düzeyleri ile örgütsel mutluluk düzeyleri arasındaki ilişki*. [Unpublished master's thesis], Kocaeli Üniversitesi, Kocaeli.(*)

Çetin, S., M. (2021). *Ortaokul müdürlerinin hizmetkâr liderlik davranışları ile öğretmenlerin örgütsel adalet algıları arasındaki ilişki*. [Unpublished master's thesis], Gazi Üniversitesi, Ankara.(*)

Çetin,İ.(2021). *Sınıf öğretmenlerinin örgütsel adalet algıları*. [Unpublished master's thesis], Düzce Üniversitesi, Düzce.(*)

Çırak,S.(2013). *Ilköğretim okulu öğretmenlerinin örgütsel adalet algısı (Ankara/yenimahalle)*. [Unpublished master's thesis], Hacettepe Üniversitesi, Ankara.(*)

Çökük, S. (2013). *Örgütsel adaletin örgütsel bağlılığa etkisi: Konya ilindeki özel eğitim kurumlarında bir uygulama*. [Unpublished master's thesis]. Selçuk Üniversitesi, Konya.

Dahmaz, A. (2019). *Sınıf öğretmenlerinin örgütsel adalet ve duygusal emek düzeyleri arasındaki ilişkinin incelenmesi*. [Unpublished master's thesis], Bolu Abant İzzet Baysal Üniversitesi, Bolu.(*)

Demir, H. (2020). *Öğretmenlerin örgütsel adalet ve otantik liderlik algıları ile örgütsel mutluluk düzeyleri arasındaki ilişki*. [Unpublished master's thesis], Fırat Üniversitesi, Elâzığ.(*)

Demir, N (2021). *Okul yöneticilerinin örgütsel adalet davranışları ile öğretmenlerin örgütsel bağlılık ve örgütsel güven duyguları arasındaki ilişkinin incelenmesi.* [Unpublished master's thesis], Mersin Üniversitesi, Mersin. (*)

Demirbilek, N. (2018). *Okul müdürlerinin kayırmacı davranışlarının öğretmenlerin örgütsel adalet algıları ile müdüre güvene etkisi.* [Unpublished PhD thesis], İnönü Üniversitesi, Malatya.(*)

Demirer, M. A. (1992). *Ekopolitika,* İstanbul: Anahtar Kitaplar.

Derici, F. (2019). *Öğretmenlik mesleğinde empatik eğilimler ve adalet algısı: istanbul ili bağcılar ilçe okulları örneği.* [Unpublished master's thesis], Ankara Hacı Bayram Veli Üniversitesi, Ankara.(*)

Deutsch, M. (1975), Equity, equality and need: what determines which value will be used as the basis of distributive justice? *Journal of Social Issues,* 31(3), 137-149.

Doğan, S. (2014). *İlkokullarda görev yapan öğretmenlerin örgütsel destek algısı (Polatlı ilçesi örneği).* [Unpublished master's thesis], Hacettepe Üniversitesi, Ankara.(*)

Dündar, T. (2011). *Öğretmenlerin örgütsel adalet algıları ile iş doyumu düzeyleri arasındaki ilişki.* [Unpublished master's thesis], Yıldız Teknik Üniversitesi, İstanbul.(*)

Dursun, K. (2021). *Yöneticilerin kullandıkları güç türleri ile öğretmenlerin örgütsel adalet algıları arasındaki ilişki.* [Unpublished master's thesis], İstanbul Sabahattin Zaim Üniversitesi, İstanbul.(*)

Elgin, D. (1994). *Evren ve ekoloji, İçinde Derin Ekoloji* (Der.: G. Tamkoç), İzmir: Ege Yayınları.

Emir, A. (2017). *İlkokullarda ve ortaokullarda görev yapan öğretmenlerin örgütsel adalete ilişkin görüşleri ile motivasyon düzeyleri arasındaki ilişki.* [Unpublished master's thesis], Uşak Üniversitesi, Uşak.(*)

Ergül, S., B. (2019). *Ortaöğretim okullarında görev yapan öğretmenlerin algıladıkları örgütsel destek düzeyleri ile örgütsel adalet algıları arasındaki ilişki.* [Unpublished master's thesis], Marmara Üniversitesi ve İstanbul Sabahattin Zaim Üniversitesi, İstanbul.(*)

Ersoy, S. (2020). *Öğretmenlerin okul yöneticilerinin kullandıkları örgütsel güç kaynaklarına ilişkin algıları ile örgütsel adalet algıları arasındaki ilişki.* [Unpublished master's thesis], Kahramanmaraş Sütçü İmam Üniversitesi, Kahramanmaraş.(*)

Eyigün, M. (2022). *Kamu liselerinde görev yapan öğretmenlere göre örgütsel adalet ve örgütsel sinizm arasındaki ilişki.* [Unpublished master's thesis], Aydın Adnan Menderes Üniversitesi, Aydın.(*)

Feyerabend, P. (1995). *Akla veda*, İstanbul: Ayrıntı Yayınları, (Çev.: E. Başer).

Fırat, A.S. (2003). Çevre etiği kavramı üzerine yeniden düşünmek, *Ankara Üniversitesi SBF Dergisi,* 58(3), 105-144.

Folger, R., & Konovsky M.K. (1992). Effects of procedural and distributive justice on reactions to pay raise decisions. *Academy of Management Journal,* 32 (1), 115-130.

Gegekoğlu, Ş. (2021). *Okul müdürlerinin kindarlık davranışları ile öğretmenlerin örgütsel adalet algıları arasındaki ilişki.* [Unpublished master's thesis], Ondokuz Mayıs Üniversitesi, Samsun.(*)

Giddens, A. (1998). *Modernliğin sonuçları*, İstanbul: Ayrıntı Yayınları, (2.Baskı: Çev.Ersin Kuşdil).

Girgin, S. (2016). *Yöneticiye duyulan güven ile örgütsel adalet ilişkisinin öğretmenler açısından incelenmesi.* [Unpublished master's thesis], İstanbul Sabahattin Zaim Üniversitesi, İstanbul.(*)

Gök, D. (2014). *İlkokul ve ortaokullarda görevli öğretmenlerin örgütsel adalet ve örgütsel bağlılık algılarının çeşitli değişkenler açısından incelenmesi.* [Unpublished master's thesis]. Gaziantep Üniversitesi, Gaziantep.

Gölcür, M. (2022). *Ortaokullardaki örgütsel etik iklim ile algılanan örgütsel adalet ilişkisi.* [Unpublished master's thesis], Gazi Üniversitesi, Ankara.(*)

Görgülü, H. (2021). *Öğretmenlerin örgütsel adalet ile etkili okul algıları arasındaki ilişki.* [Unpublished master's thesis], Düzce Üniversitesi, Düzce.(*)

Gorowitz, S. (1981), *John Rawls: bir adalet kuramı, içinde Çağdaş Siyaset Felsefecileri* (De Crespigny, Anthony - Minogue, Kenneth R. (Eds.) Türkçe- Kollektif Çeviri) İstanbul: Remzi Kitabevi

Greenberg, J. (1990). Organizational Justice: Yesterday, Today And Tomorrow. *Journal Of Management,* 16, 399-432.

Güneş, A. (2019). *Öğretmenlerin örgütsel adalet algıları, örgütsel sessizlik düzeyleri ve örgütsel vatandaşlık davranışları arasındaki ilişki (pendik ilçesi örneği).* [Unpublished master's thesis], Uludağ Üniversitesi, Bursa. (*)

Güngörmez, E. (2014). *Örgütsel adalet algısının performans üzerindeki etkisi; adıyaman ilinde çalışan öğretmenler üzerine bir uygulama.* [Unpublished master's thesis], Türk Hava Kurumu Üniversitesi, Ankara.(*)

Habermas, J. (1999). *Öteki olmak ötekiyle yaşamak,* İstanbul: Yapı Kredi Yayınları, Cogito (Çev. İ. Aka).

Hazır, M. (2014). Çokkültürlülük teorisine çağdaş katkılar ve bireysel haklar-grup hakları ekseninde çokkültürlülüğü tartışmak. *Akademik İncelemeler Dergisi* 7(1), 1-28.

Higgins, J. P., Thompson, S. G., Deeks, J. J., & Altman, D. G. (2003). Measuring inconsistency in meta analyses. Bmj, 327(7414), 557-560.

İçerli, L.(2010). Örgütsel adalet: Kuramsal bir yaklaşım, *Girişimcilik ve Kalkınma Dergisi,* 5(1), 67-92.

İşler, M. (2022). *Yöneticilerinin hizmetkâr liderlik davranışları ile algılanan örgütsel adalet düzeyinin örgütsel adanmışlık üzerindeki etkileri.* [Unpublished master's thesis], Fatih Sultan Mehmet Vakıf Üniversitesi, İstanbul.(*)

İşleyici, K. (2015*). Örgütsel adalet ve örgütsel sessizlik arasındaki ilişkinin incelenmesi (zonguldak ili örneği),* [Unpublished master's thesis], Abant İzzet Baysal Üniversitesi, Bolu.(*)

Jepsen, D. M. & Rodwell, J. (2010). Female perceptions of organizational justice. *Gender, Work& Organization.* 19(6), 723-740.

Jasso, G. (1980). A new theory of distributive justice, *American Sociological Review,* 45(1), 3-32.

Kahraman, H., Karadağ, N. ve Tüzel İşeri, E. (2023). Sosyal adaleti anlamak: eğitim perspektifinden akademik bakış, *e-Uluslararası Eğitim Araştırmaları Dergisi,* 14 (1) , 355-372.

Kahraman, Ü. (2014). *İlkokullarda performans yönetimi uygulamaları ve öğretmenlerin örgütsel adalet algısı arasındaki ilişki.* [Unpublished master's thesis], Uşak Üniversitesi, Uşak.(*)

Kahraman, Z. (2017). *Okul yöneticileri ile öğretmenlerin örgütsel adalet algıları ve motivasyon düzeyleri arasındaki ilişki.* [Unpublished master's thesis], İstanbul Sabahattin Zaim Üniversitesi, İstanbul.(*)

Kaplan, A. (1997). *Küresel çevre sorunları ve politikalar*, Ankara: Mülkiyeliler Birliği Vakfı Yayınları, 18.

Karabacak, İ., U. (2020). *Öğretmenlerin örgütsel adalet algılarının mesleki bağlılıklarına etkisi.* [Unpublished master's thesis], İstanbul Sabahattin Zaim Üniversitesi, İstanbul.(*)

Karabulut, Y. (2018). *İlkokul müdürlerinin örgütsel adalet düzeyleri ile öğretmenlerin iş doyum düzeylerinin incelenmesi.* [Unpublished master's thesis], Dokuz Eylül Üniversitesi, İzmir.(*)

Karaeminoğulları, A. (2006). *Öğretim elemanlarının örgütsel adalet algıları ile sergiledikleri üretkenliğe aykırı davranışlar arasındaki ilişki ve bir araştırma*. [Unpublished master's thesis] İstanbul: İstanbul Üniversitesi Sosyal Bilimler Enstitüsü.

Kaya, Ş., F. (2022). *Öğretmenlerin örgütsel adalet algıları ile pozitif psikolojik sermayeleri arasındaki ilişki.* [Unpublished master's thesis], Akdeniz Üniversitesi, Antalya.(*)

Kemer, M. (2021). *Ortaokul öğretmenlerinin örgütsel adalet algı düzeylerinin okul iklimi ile ilişkisi.* [Unpublished master's thesis]. Kocaeli Üniversitesi, Kocaeli.(*)

Kete, D. (2015). *Okul müdürlerinin liderlik stilleri, öğretmenlerin iş doyumu ve örgütsel adalet algıları arasındaki ilişkinin incelenmesi.* [Unpublished master's thesis], Zirve Üniversitesi, Gaziantep.(*)

Kılıç, E. (2013). Yatılı bölge ilköğretim okullarında örgütsel adalet: Sinop örneği. *Journal of World of Turks,* 5 (2), 19-33.

Kızılkaya, G. (2016). *ilkokul öğretmenlerinin örgütsel adalet algısı (İstanbul ili Şişli ilçesi örneği).* [Unpublished master's thesis], Bahçeşehir Üniversitesi, İstanbul.(*)

Korkut, A. (2019). *Öğretmenlerin örgütsel mutluluk, örgütsel sinizm ve örgütsel adalet algılarının analizi* [Unpublished PhD thesis], İnönü Üniversitesi, Malatya.(*)

Köse, A. (2020). *Etik liderlik davranışlarının örgütsel adalet algısı ile ilişkisi: kocaeli ilindeki eğitim kurumlarında yapılan bir araştırm*a, [Unpublished master's thesis], Yalova Üniversitesi, Yalova.(*)

Kurt, F., M. (2020). *Öğretmenlerin örgütsel destek algısı ve örgütsel sessizliği arasındaki ilişkinin incelenmesi*. [Unpublished master's thesis], Uşak Üniversitesi, Uşak.(*)

Kuru Çetin, S. (2013). *Okul yöneticileri ve öğretmenlerin birbirlerini etkileme taktiklerinin örgütsel adalet ile ilişkisi*. [Unpublished PhD thesis]. Ankara Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara.

Kuşci, E. (2014). *Akademisyenlerin üniversitelerde örgütsel adalete ilişkin algıları (yüzüncüyıl üniversitesi örneği)*. [Unpublished master's thesis], Yüzüncü Yıl Üniversitesi, Van.(*)

Lambert, E. (2003). The impact of organizational justice on correctionalstaff, *Journalof Criminal Justice,* 31, 155-169.

Lee, C., Pillutla, M. & Law, K. (2000). Power-Distance, Gender And Organizational Justice. *Journal of Management,*26(4),685-704.

Lerner, M. J. (1977). The justice motive: some hypotheses as to its origins and forms", *Journal of Personality,* 45(1), 1-52.

Lewis, S. & Clarke, M.(2001). Forest plots: Trying to see the wood and the trees. *British Medical Journal,* 322:1479-1480.

Littel, H. J., Corcoran, J. ve Pillai, V. (2008). *Systematic revews and meta-analysis.* NewYork: Oxford University Press.

McDaniel, J. E., Rios, F. A., Necochea, J., Stowell, L. P., & Kritzer, C. F. (2001). Envisioning the arc of social justice in middle schools. *Middle School Journal,* 33(1), 28-34.

Metzner, R. (1994). *Ekoloji çağı, içinde derin ekoloji* (Der.Günseli Tamkoç), İzmir: Ege Yayınları.

Mıhcı, H. (2019). *Okullarda etik liderlik ile örgütsel adalet ve örgütsel özdeşleşme arasındaki ilişkilerin incelenmesi (giresun ili örneği),* [Unpublished master's thesis], Recep Tayyip Erdoğan Üniversitesi, Rize.(*)

Miller, D. (2001). *Principles of social justice*. Massachusetts: Harvard University Press

Nayır, F. (2011). *İlköğretim okulu yöneticilerinin öğretmenlere sağlanan örgütsel desteğe ilişkin görüşleri, öğretmenlerin örgütsel destek algısı ve örgütsel bağlılıkla ilişkisi.* [Unpublished PhD thesis], Ankara Üniversitesi, Ankara.(*)

Nowakowski, J.M. & Conlon, D.E. (2004). Organizational justice: Looking back, looking forward, *International Journal of Conflict Management,* 16, 4-29.

Oğuz, E. (2011). Öğretmenlerin örgütsel adalet algıları ile yöneticilerin liderlik stilleri arasındaki ilişki. *İnönü Üniversitesi Eğitim Fakültesi Dergisi* 12(1), 45-65.

Özcan, E. (2014). *Öğretmenlerin örgütsel adalet algıları ile örgütsel sinizm tutumları arasındaki ilişki.* [Unpublished master's thesis], Kocaeli Üniversitesi, Kocaeli.(*)

Özdek, E.Y. (1993). *İnsan hakkı olarak çevre hakkı*, Ankara: TODAİE Yayınları,249.

Özen, J. (2002). Adalet kuramlarının gelişimi ve örgütsel adalet türleri, *Hukuk Felsefesi ve Sosyolojisi Arşivi* 5, 107-117.

Özer, M.A. (2001). Ekolojik harekette yol ayrımı: Yeşiller ve derin ekoloji, *Yerel Yönetim ve Denetim,* 6(S), 9.

Özgöçer, Ö., Z. (2019). *Bilişim teknolojileri öğretmenlerinin örgütsel adalet algısı ve iş tatmini düzeylerinin incelenmesi (Malatya ili örneği).* [Unpublished master's thesis], İnönü Üniversitesi, Malatya.(*)

Özmen, Ö., Timurcanday, Y., A. ve Özer, P. S. (2005 May). Değerler ve adalet, *XIII. Ulusal Yönetim ve Organizasyon Kongresi Bildiriler Kitabı* - M.Ü. İ.B.F İşletme Bölümü Yönetim ve Organizasyon Dalı, 161-166,İstanbul.

Özyolcu, E. (2015). *Eğitim yönetimi temelinde öğretmenlerin ve yöneticilerin aşırı iş yükü, tükenmişlik ve sosyal destek durumlarının incelenmesi.* [Unpublished master's thesis], Yakın Doğu Üniversitesi, Lefkoşe.(*)

Özyurt, D. (2021). *Öğretmenlerin örgütsel adalete ilişkin algıları ile örgütsel muhalefet davranışları arasındaki ilişki.* [Unpublished master's thesis], Harran Üniversitesi, Şanlıurfa.(*)

Petitti, D. B. (2000). *Meta analysis, decision analysis and cost effectiveness analysis: methods for quantitative synthesis in medicine*. New York: Oxford University Press.

Polat, S. (2007). *Ortaöğretim öğretmenlerinin örgütsel adalet algıları, örgütsel güven düzeyleri ile örgütsel vatandaşlık davranışları arasındaki ilişki.* [Unpublished PhD thesis] Kocaeli Üniversitesi, Kocaeli.

Polat, S. (2022). *Eğitim kurumlarında sürdürülebilir liderlik, örgütsel adalet ve örgütsel özdeşleşme arasındaki ilişkinin incelenmesi.* [Unpublished master's thesis], İstanbul Kültür Üniversitesi, İstanbul.(*)

Popper, K. (2001). *Daha iyi bir dünya arayışı,* İstanbul: Yapı Kredi Yayınları, Cogito, (Çev.İ. Aka)

Potuk, A. (2017). *Mobbing davranışı, örgütsel adalet ve örgütsel sessizlik algıları arasındaki ilişki.* [Unpublished master's thesis], Eskişehir Osmangazi Üniversitesi, Eskişehir.(*)

Pusmaz, H., Y. (2020). *Öğretmenlerin örgütsel atalet düzeylerinin yordayıcısı olarak örgütsel adalet algısı.* [Unpublished master's thesis], Marmara Üniversitesi İstanbul Sabahattin Zaim Üniversitesi, İstanbul.(*)

Rawls, J., (1999), *A theory of justice*, Harvard University Press (Revised Edition)

Ramamoorthy, N ve Flood, P.C.(2004). Gender and employee attitudes: the role of organizational justice perceptions. *British Journal Management,* 15(3), 247-258.

Reeve, C.D.C. (2017), *Plato, in political thinkers from socrates to the present*, (Edited by David Boucher and Paul Kelly, Third Edition), Oxford University Press, 54-73

Robertson, R. (1998), *Toplum kuramı, kültürel görecelik ve küresellik sorunu, içinde Küreselleşme ve Dünya Sistemi* (Der. King, A. D.), (Çev.: Gülcan Seçkin ve Ümit Hüsrev Yolsat). Ankara: Bilim ve Sanat Yayınları

Saçlı, E. (2022). *Öğretmenlerin yaşadıkları etik ikilemler üzerinde algıladıkları örgütsel adaletin rolü.* [Unpublished master's thesis], Recep Tayyip Erdoğan Üniversitesi, Rize.(*)

Sağbaş, Ö., N. (2020). *Okullarda ayrılma, kayıtsız kalma, muhalefet ve sadakat ile örgütsel adalet ilişkisinde iş doyumunun aracı etkisi.* [Unpublished PhD thesis], Hacettepe Üniversitesi, Ankara.(*)

Sağlam, R.(2007). Liberal adaletin iki farklı görünümü: John Rawls ve Robert Nozick 'hakkaniyet olarak adalet' eleştirisinden 'yetkisel adalet' eleştirisine. *Erzincan Binali Yıldırım Üniversitesi Hukuk Fakültesi Dergisi* (11), 181-217.

Şamdan, T. (2019). *İlkokul ve ortaokul öğretmenlerinin algılarına göre örgütsel adalet ve örgütsel sinizm arasındaki ilişkinin incelenmesi.* [Unpublished PhD thesis], İstanbul Okan Üniversitesi, İstanbul.(*)

Saruhan, C. (2019). *Eğitim örgütlerinde örgütsel adalet ve örgütsel güven arasındaki ilişki.* [Unpublished master's thesis], Harran Üniversitesi, Şanlıurfa.(*)

Saydam, H. (2022). *Öğretmenlerin örgütsel adalet algıları ile örgütsel bağlılık düzeyleri arasındaki ilişkilerinin incelenmesi.* [Unpublished master's thesis], Kırıkkale Üniversitesi, Kırıkkale. (*)

Selekler, Z., O. (2007). *Öğretmenlerde örgütsel adalet ve psikolojik sözleşme ihlal algısı.* [Unpublished master's thesis], Kocaeli Üniversitesi, Kocaeli.(*)

Söyük, S. (2007). *Örgütsel adaletin iş tatmini üzerine etkisi ve istanbul ilindeki özel hastanelerde çalışan hemşirelere yönelik bir çalışma.* [Unpublished PhD thesis]. İstanbul Üniversitesi, İstanbul.

Şamdan, T., ve Başkan, G. A. (2019). Öğretmenlerin algılarına göre örgütsel adalet ve örgütsel sinizm arasındaki ilişkinin incelenmesi. *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi*, 47, 17-40. doi: 10.9779/pauefd.479173

Tan, Ş. (2017). *Meslek liselerinde örgütsel adaletin okul-sanayi işbirliğine etkisi ve örgütsel vatandaşlığın aracı rolü: İstanbul ili örneği.* [Unpublished master's thesis], Bahçeşehir Üniversitesi, İstanbul.(*)

Tanaka, K. (1999). Judgments of fairness by just world believers. *Journal of Social Psychology,* 139 (5), 631-638

Tanilli, S. (2000). *İnsanlığı nasıl bir gelecek bekliyor?* İstanbul: Adam Yayınları.

Tavaslı, B. (2021). *Ortaokul ve lise öğretmenlerinin örgütsel adalet algıları ile mesleki profesyonellikleri arasındaki ilişki (Muğla ili milas ilçesi örneği).* [Unpublished master's thesis], Muğla Sıtkı Koçman Üniversitesi, Muğla.

Tekin, Y., F. (2023). *Öğretmenlerin örgütsel adalet algıları, motivasyon düzeyleri ve performansları: bir yapısal eşitlik modellemesi.* [Unpublished master's thesis], Aydın Adnan Menderes Üniversitesi, Aydın.(*)

Terkeş, N. (2015). *Öğretmenlerin örgütsel adalet algısı ve tükenmişlik düzeyleri arasındaki ilişki (istanbul ili kağıthane ilçesi örneği).* [Unpublished master's thesis], Yeditepe Üniversitesi, İstanbul.(*)

Touraine, A. (2000). *Birlikte yaşayabilecek miyiz?* İstanbul: Yapı Kredi Yayınları, Cogito, (Çev.: O. Kunal)

Uğurlu, C., T. (2009). *İlköğretim okulu öğretmenlerinin örgütsel bağlılık düzeylerine yöneticilerinin etik liderlik ve örgütsel adalet davranışlarının etkisi (hatay ili örneği).* [Unpublished PhD thesis], İnönü Üniversitesi, Malatya. (*)

Uludağ, A. (2022). *İlköğretim yöneticilerinin demokratik tutum ve davranışları ile öğretmenlerin örgütsel adalet algıları arasındaki ilişki.* [Unpublished master's thesis], Karabük Üniversitesi, Karabük.(*)

Uludağ, T. (2018). *Sınıf öğretmenlerinin örgütsel adalet algıları ile örgütsel sinizm tutumları arasındaki ilişki.* [Unpublished master's thesis], Marmara Üniversitesi İstanbul Sabahattin Zaim Üniversitesi, İstanbul.(*)

Uysal, B. (2019). *Okul yöneticilerinin etik liderlik davranışları ile öğretmenlerin örgütsel adalet algıları arasındaki ilişki.* [Unpublished master's thesis], Ondokuz Mayıs Üniversitesi, Samsun.(*)

Uysal, M. (2014). *Genel liselerde görev yapan öğretmenlerin örgütsel adalet konusundaki algıları (altındağ ilçesi örneği).* [Unpublished PhD thesis], Hacettepe Üniversitesi, Ankara.(*)

Üstün, U., Eryılmaz, A.(2014). Etkili araştırma sentezleri yapabilmek için bir araştırma yöntemi: Meta-analiz. *Eğitim ve Bilim,* 39 (174), 1-32.

Warner, J. C.,Culatta, E. & James, K.R. (2013). Gender and organizational justice preferences.*Social Psychology & Family,* 7(12), 1074-1084.

Van den Bos, K. (2003). On the subjective quality of social justice: The role of affect as information in the psychology of justice judgments. *Journal of Personality and Social Psychology,* 85, 482–498.

Van Wormer, K., Kaplan , L. & Juby, C. (2012). *Confronting Oppression, restoring justice: from policy analysis to social action,* Council on Social Work Education Publishing

West, R. E. (1994). *Yeranamız gaia-James Lovelock ve gezegen birliği görüşü, İçinde Derin Ekoloji* (Der.: G. Tamkoç), İzmir: Ege Yayınları.

Yavuz, A. (2022). *Devlet okullarında yönetici ve öğretmenlerce algılanan örgütsel etik iklim ile örgütsel adalet ilişkisi* [Unpublished master's thesis], Harran Üniversitesi, Şanlıurfa.(*)

Yavuz, H. (2021). *Çalışanların nepotizm ve örgütsel adalet algısı ilişkisi: ankara'da bir alan araştırması* [Unpublished master's thesis], Ankara Hacı Bayram Veli Üniversitesi, Ankara.(*)

Yeniçeri, Ö., Demirel, Y. ve Seçkin, Z. (2009). Örgütsel adalet ile duygusal tükenmişlik arasındaki ilişki: İmalat sanayi çalışanları üzerine bir araştırma. *Karamanoğlu Mehmetbey Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi,* 11(16), 83-99.

Yıldız, B., B. (2019). *Okul yöneticilerinin açık liderlik, örgütsel adalet ve örgütsel erdemlilik algıları arasındaki ilişkilerin incelenmesi.* [Unpublished PhD thesis], Marmara Üniversitesi İstanbul Sabahattin Zaim Üniversitesi, İstanbul.(*)

Yıldız, H. (2015). *Özel ilkokul ve ortaokul öğretmenlerinin örgütsel adalet algıları (konya/meram ilçesi örneği).* [Unpublished master's thesis], Mevlâna Üniversitesi, Konya.(*)

Yılmaz, M. K. (2012). *Örgütsel adalet ve örgütsel bağlılık arasındaki ilişki: ortaöğretim okullarında görev yapan öğretmenlerin algıları.* [Unpublished master's thesis], Yakındoğu Üniversitesi, Lefkoşe. (*)

Yoldaş, A. (2018). *Okul yöneticilerinin etik liderlik davranışlarının öğretmenlerin örgütsel adalet algıları üzerine etkilerinin incelenmesi.* [Unpublished master's thesis], Bahçeşehir Üniversitesi, İstanbul.(*)

Yozgat, C. (2019*). Öğretmenlerin örgütsel adalet algılarının örgütsel bağlılığa ve iş doyumuna ilişkin etkisinin incelenmesi.* [Unpublished master's thesis], Gazi Üniversitesi, Ankara.(*)

Yüksel, M. (2022). *Öğretmenlerin örgütsel adalet algıları ile motivasyonları arasındaki ilişki.* [Unpublished master's thesis], Düzce Üniversitesi, Düzce.(*)

An Examination of Mothers' Self-efficacy and their Interaction with their Children Aged 60-72 Months[1]

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Abstract

The present study has the aim of examining the parental self-efficacy of mothers in terms of the education level and social support status of mothers and the gender of their children different variables, establishing the correlation between parenting and the general self-efficacy levels of mothers and identifying the characteristics of their interactions with their children in the context of their self-efficacy. Explanatory sequential design, a mixed method, was used in this study. For the quantitative part, 251 mothers with children who are 60-72 months were involved. The sample for the qualitative part was formed of volunteers out of the said sample and consisted of 20 mothers with 20 children in total; in this group of mothers, the self-efficacy levels were determined as low (n=10) or high (n=10). The data were collected through a set of forms, namely the "Demographic Information Form", "General Self-Efficacy Scale", "Berkeley Parenting Self-Efficacy Scale Revised", and "Mother-Child Interaction Games Video Records". Statistical analyses revealed that the total scores of mothers' self-efficacy did not differ according to their educational status and social support from their spouses, but showed a significant difference according to the gender of their children, in favor of mothers with girls. Additionally, it was found that mothers' general self-efficacy levels and parenting self-efficacy were positively related. Mothers having low parenting self-efficacy levels exhibit more behaviors gravitating towards a "focusing on success" first and foremost, followed by "sensitivity" and "play interaction". Mothers with high parenting self-efficacy, on the other hand, exhibited behaviors towards the theme of "sensitivity" the most, unlike mothers with low self-efficacy in games. However, the frequency of behavior for the themes of "achievement orientation" and "game interaction" was also found to be high.

Keywords: Mother-child interaction; parenting self-efficacy; general self-efficacy; early childhood.

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Introduction

Children, who first encounter their family when they are born, try to make sense of life with their help and their first experiences are mostly in the family. Güler (2012) defined the family has an impact on the children's development since they are born. The behavior of parents towards their children can leave traces that will affect them The relationship between a mother and their baby is a fundamental and usually lifelong relationship that builds a reference for subsequent relationships, and should ideally meet the physiological needs of the child such as hunger, thirst, sleep, cleanliness, and shelter, as well as their needs for love, warmth, and closeness, etc. (Çağdaş, 2012). The parent-child relationship can help parents provide social support to their children, show them affection, make sense of life experiences, and better problem-solving skills (Gordon, 2017; Horstman et al., 2016). Parents who make their children feel loved and aware of their positive behavior can help their children to think that they are valuable. Instead of helping their children develop feelings of love, respect, and courage, the children of parents who reject and constantly criticize them may feel worthless (Morgan, 1977). If children are approved only when strict rules are set and they follow these rules, they may have difficulty expressing themselves adequately. Similarly, if the abilities of the children are underestimated, expected to do much more, and overprotected, they may not express themselves adequately. Instead, they may begin to show obedience or defiance. Both of these negative situations can cause the children to develop feelings of anxiety and insecurity that can last for many years (Çağdaş & Seçer, 2011).

Play in the preschool period offers an important opportunity for mother-child interaction and for the child to learn through such interaction (Özyürek & Gürleyik, 2016). Mother-child play is powerful in that it covers physical contact, is mutual, and also has emotional content. Playing together helps create a unique interactional context to establish and develop a safe relationship between the mother and the child (Akgün & Yeşilyaprak, 2011). During the play process, the mother needs to accept the children as they are, allow the children to develop and detail the theme of the game without interfering with it, create a warm and caring environment, and make an effort to recognize the needs and potential of the child and to allow them to freely express their feelings and behaviors (Gander & Gardiner, 2010; Wood & Attfield, 2007). For this reason, mother-child play can provide an opportunity to observe some features that show the positive or negative nature of the mother-child relationship. One of these characteristics is the mother's warm and sensitive approach. Cebioğlu & Aksan (2012) found that maternal warmth predicted children's self-regulation skills. Adults who could not feel enough warmth in their childhood relationships with their mothers may prefer individuals who display a distant, critical, and pedantic attitude as their partners later in life. This, in turn, may negatively affect their adult relationships (Cloud & Townsend, 2000). Mothers with a high level of sensitivity can accurately recognize the behaviors exhibited by their children and address them with appropriate reactions. In addition, a mother-child interaction shaped by a high level of sensitivity from the mother may allow children's cognitive skills to develop further (Bee & Boyd, 2009). All kinds of touches, including physical closeness reflecting the warmth of the parent towards the child, are also very important for the emotional development of a child. In addition, a child whose needs for physical contact are met consistently may also enjoy a closer maternal attachment. Since girls and boys share similar needs for physical contact, parents should offer an equal level of physical contact to girls and boys (Chapman & Campbell, 2018; Güleşen & Yıldız, 2013). Another factor that can affect the quality of a mother-child interaction is the use of praise or criticism. Praise can be defined as the outcome that the child is provided with after exhibiting a desired behavior (Açıkalın et al., 2001). The use of such judgmental expressions as "You are great!" and "You are perfect!" that relate to a child's personality may cause the child to assume that they will never be deserving of this adjective once they have made a mistake. In addition, it may cause the child to withdraw just so that the praise wouldn't turn out to be undeserving or to try to lighten their responsibility by exhibiting an undesired behavior. On the other hand, descriptive praise given through the definition of the specific desired behavior can enable the child to draw positive conclusions from these praises and thus, to develop essential opinions about their world (Ginott, Ginott, & Goddard, 2016). Criticism, on the other hand, can be defined as a listener's judgment of a speaker, shaped in line with their point of view (Dökmen, 2008). The use of criticizing, judging, and accusatory expressions by mothers in their interaction with their children may cause the child to feel inadequate, worthless, and humiliated, and to avoid communicating in order not

to face their mother's negative judgments. In addition, frequent criticism of children can negatively affect their self-esteem (Çağdaş, 2012; Gordon, 2017).

A mother's parenting self-efficacy level can be effective in mother-child interaction. Bandura (1995) defined the perception of self-efficacy as the belief in one's capabilities to manage future situations and execute and organize the necessary actions. According to Hergenhahn and Olson (2005), self-efficacy is one's beliefs about what one can do. Personal successes and failures, seeing oneself close to others in terms of performance in various tasks, and verbal persuasion can be determinative in the formation of self-efficacy perception. Individuals' high perceptions of efficacy may be effective in determining whether they will strive to cope with difficult situations. People may avoid anxiety-provoking situations that they believe they will have difficulty overcoming and may have difficulty exhibiting the expected behavior. However, when they believe that they will be successful in controlling the situations that occur, they are more likely to exhibit the expected behavior (Bandura, 1977; Schunk, 2011). Self-efficacy can reduce future fears and constraints, as well as affect previous efforts to be successful by individuals. Efficacy expectations can determine how much effort individuals will exert and how long they will sustain that effort when faced with obstacles and disruptive experiences. Individuals with a high level of proficiency and high expectations to cope with difficulties may tend to be more diligent (Bandura, 1977). In addition to behaviors, self-efficacy can also determine emotional reactions, especially in anxious, stressful, unfamiliar, or avoided situations. According to Bandura, a feeling of inadequacy arises in the face of undesirable events that cause individuals to fear. As a result, experiences that increase coping efficacy can reduce fear, and encountering this previously feared and avoided situation may appear as a less disturbing situation (Bandura, 1982).

Parental self-efficacy, on the other hand, belongs to the class of more general constructs related to general self-efficacy but consists of a potential cognitive construct related to child and family functions. Parental self-efficacy can also be defined as parents' expectations about whether they will be successful in raising children (Jones & Prinz, 2005). Parental self-efficacy includes the specific level of knowledge about the behaviors involved in both child development and child-rearing, and the ability of a parent to meet specified role behaviors without feelings of frustration or inadequacy (Coleman & Karraker, 1997). While raising their children, parents have to manage other relationships within the family system and non-family social affairs including education, entertainment, and health and care opportunities, as well as experiences related to the child. A mother's beliefs concerning parenting skills play an important role in their capability for caring their child and supporting their development. A mother's belief that she will fail in mothering may prevent them from demonstrating these skills. According to assessments undertaken among mothers before their first child is born, mothers with a high expected parenting self-efficacy have a stronger belief that they will be successful in their children's care (Bandura, 2000). It is also stated that parental self-efficacy may have been correlated with some important sides of parenting such as role satisfaction, control, parental warmth, and involvement (Junttila et al., 2007).

A low level of parenting self-efficacy may be considered an effective factor in a child's behavior problems by way of its implications for the mother's behaviors (Jackson & Huang, 2000). Parents who experience behavioral problems in their children may have difficulty maintaining a high parenting self-efficacy due to the negative consequences they have observed (Jones & Prinz, 2005). In addition, a low parental self-efficacy was found to be associated with the mother's depression level, controlling behaviors, high parenting stress, passive or negative style of coping with parenting, tendency to focus on relationship difficulties, irritability, and feelings of helplessness and disturbance (Coleman & Karraker, 1997). Mash et al., (1983), on the other hand, showed in their study that parents with low self-efficacy levels try to regulate their behavior by employing more authoritarian and stricter methods of discipline towards their children. Gözübüyük (2015) found that there was a positive and significant correlation between mothers' self-efficacy levels in teaching and daily tasks and their children's language and fine and gross motor skills. In another study, it was found that there was a positive and significant correlation between mothers' distinct strategies of mothering, what they can bring to the child, and their perception of total self-efficacy and their ability to establish close relationships with their children (Balat, 2015). In addition, a negative significant correlation was found between

children's levels of anger, aggression, anxiety, and introversion and mothers' levels of self-efficacy (Buluş & Samur, 2017). In another study conducted by Balat (2014) with mothers who have preschool children, a negative relationship was found between the mother's depression level and parenting self-efficacy level. Similarly, in another study conducted with mothers whose children attend a pre-school education institution, a negative relationship was found between the mother's anger level and parenting self-efficacy level (Balat, 2014; Balat, Sezer, & Tunçeli, 2014). Mash, Johnston, and Kovitz (1983) showed in their study that parents with low self-efficacy try to change their behavior by using more oppressive and strict discipline methods toward their children.

Mothers with high parenting self-efficacy levels may feel better emotionally, establish stronger bonds with their children, and adapt to the parenting role more easily in the postpartum period. It has been suggested that parents having high parental self-efficacy levels have a more favorable effect on their children's social competence than parents with low self-efficacy levels. Parents with high parental self-efficacy levels have also been suggested to create a more positive effect on their child's social competence level than parents with low parental self-efficacy levels (Swick, & Hassell, 1990). In addition, people having high parenting self-efficacy are more optimistic and display more coherent behaviors in parent-child interactions (Ozer, 1995). In a study conducted by Anthony et al. (2005), it was found that parents with high self-efficacy levels exhibit more positive, more consistent, and more competent behaviors toward their children. Other studies also found that high parenting self-efficacy levels exhibit more positive, more consistent, and more competent behaviors toward their children and engage in more verbal interaction and less conflict with their children (Anthony et al., 2005; Balat, 2015; Diken & Diken, 2008; Gözübüyük, 2015). Improved parental self-efficacy can reduce behavior problems observed in children or prevent the emergence of serious behavioral problems (Bandura, 2000). Relevant studies have emphasized that programs designed to improve mothers' levels of parenting self-efficacy or to strengthen parents' perceptions of self-efficacy may be instrumental in reducing children's behavioral problems and giving rise to more positive behaviors and more positive verbal expressions in mutual mother-child interactions (Coleman & Karraker, 2003; Diken, 2009; Mouton & Roskam, 2015).

When the literature is examined, it can be seen that parenting self-efficacy is linked with mostly some variables such as the mother's education level, social support, and child's gender (Brody, Flor, and Gibson, 1999; Coleman and Karraker, 2003; Davies & Lindsay, 2004; Dursun and Bıçakçı (2015) Holloway et al. 2005; Öztürk and Giren, 2015; Seven, 2007; Sevigny and Loutzenhiser, 2010; Teti and Gelfand, 1991). The socioeconomic status of the family, on which the education level of the mother is effective, has been associated with many aspects of parenting behavior (Fuligni & Yoshikawa, 2012). Higher parenting self-efficacy is observed in mothers with a higher education level, higher income, and having previous experiences with children other than their own (Coleman & Karraker, 2000). Family and friends can provide support on issues that affect parenting, such as caring for children, financial assistance, promoting parenting performance, positive evaluations, and strategies for parenting skills (Izzo, Weiss, Shanahan, and Rodriguez-Brown, 2000). When adequate support is not provided, individuals' efforts to cope with stressful situations decrease. On the other hand, it is stated that individuals can feel more secure and emotionally better when adequate social support is provided (Bandura, 1995; Holloway, Suzuki, Yamamoto, & Behrens, 2005). The family's living conditions may play a role because raising a daughter or son may be more difficult under certain circumstances and therefore mother's self-efficacy can be different in terms of their child's gender (Gessulat, Oppermann, Cohen & Anders, 2023).

To form a strong bond between the baby and the mother, who is the person who cares for the baby in most cases, a positive interaction must be created between the mother and the baby. A situation that will negatively affect the interaction between mother and baby may prevent the baby from establishing unity with the mother and the mother from giving a healthy reaction to her baby (Bakkaloğlu, 2010). It is thought that one of the factors affecting mother-child interaction characteristics may be the mother's parenting self-efficacy level. The mother's beliefs about these skills are very important for her ability to care for her child and support his development, because the mother's belief that she will fail in various mothering skills may prevent her from displaying these skills. This situation, together with the variables that may determine the mother's self-efficacy skills, may negatively change the care that the

mother will provide to her child and the characteristics of her interaction with her child. However, when the early childhood education literature was examined, no study was found examining the relationship between mothers' parenting self-efficacy level and mother-child interaction characteristics during play. Therefore, it is thought that this study will contribute to the literature with these variables. In this context, the study aimed to examine the parental self-efficacy among mothers in terms of various variables (educational status of mothers, receiving social support, and gender of their children) and the correlation between parenting and general self-efficacy levels of mothers, and also the characteristics of their interaction with their children in the context of their parenting self-efficacy. To fulfill this general aim, the study seeks answers to the following questions: it was

1. Is there a significant difference between parenting self-efficacy levels of mothers with 60-72-month-old children and their educational status, receiving social support, and gender of their children?

2. Is there a significant correlation between general and parenting self-efficacy levels of mothers with 60-72-month-old children?

3. What are the characteristics of mother-child interaction among mothers with 60-72-month-old children in free and structured play concerning their parenting self-efficacy levels?

Method

Research Design
This study employed mixed methods research to achieve the aforementioned aims. Mixed methods research is a research approach bringing together or blending quantitative and qualitative data or methods in a study (Christensen et al., 2015). In this study, parents' general and parenting self-efficacy levels were identified through quantitative data, while the characteristics of mother-child interaction were determined with qualitative data. Consequently, this research study was designed as mixed-method research.

Explanatory sequential design, a form of mixed methods research, was considered appropriate for the present research study. According to Creswell and Clark (2010), quantitative data are to be collected first through studies conducted using explanatory sequential design, also called explanatory design. Quantitative data analysis results determined the subgroup where qualitative data will be collected as the final stage of the design.

Research Sample
The sample of this study was determined through criterion sampling, a purposive sampling method. The criterion sampling method allows for an examination of units meeting a specific set of criteria designated for research (Büyüköztürk et al., 2008). The sample was identified in line with the criteria that the children are of normal development, attend a preschool, and are in the age range of 60-72 months in this study. Considering these criteria, 251 voluntary mothers and their children attending independent preschools in Altındağ, Keçiören, Mamak, Çankaya, and Yenimahalle districts of Ankara were included and they were asked to fill out the "Demographic Information Form", "General Self-Efficacy Scale-Turkish Form", and "Berkeley Parenting Self-Efficacy Scale Revised". Demographic information of the mothers participating in the study is given in Table 1.

Table 1.
Demographic Information of the Mothers

Demografik Bilgi		n	%
Age	30 Years Old or Younger	102	40,6
	31-34 Years Old	87	34,7
	35 Years Old or Older	62	24,7
Educational Status	Primary School	39	15,5
	High School	127	50,6
	Associate Degree or Higher	85	33,9
Number of children	One Child	64	25,5
	Two Child	146	58,2
	Three or More Child	41	16,3
Working Status	Working	64	25,5

Table 1 continuing

	Not Working	187	74,5
Family Situation	Parents Together	241	96,0
	Parents Separated	10	4,0
Family Type	Extended Family	32	12,7
	Elementary Family	219	87,3
Child Gender	Girl	117	46,6
	Boy	134	53,4
Receiving Social Support	Receiving	214	85,3
(Husband)	Not Receiving	172	68,5
Total		251	100

Table 1 shows that 40.6% of the mothers participating in the research are "30 years old or younger"; 34.7% are "31-34 years old"; and 24.7% are "35 years old or older". In terms of their educational status, 50.6% of the mothers are "high school" graduates; 33.9% have an "associate degree or higher"; and 15.5% are primary school graduates. 58.2% of the mothers have "two" children; 25.5% have "one" child; and 16.3% have "three or more" children. In the research, most of the mothers (74.5%) do not work. Most mothers are "parents together" (96%) and have an elementary family (87.3%). In response to a question on the spousal social support available to them, the majority of mothers (85.3%) indicate that they receive support from their spouses. The gender breakdown of the children participating in the study was balanced (53.4% were boys and 46.6% were girls). 60.2% of the children included in the study were the first child, 25.8% were the second child, 12% were the third child and 2% were the fourth child. When the duration of children's attendance at preschool was examined, it was seen that 39.8% had been attending preschool for "0-1 year", 29% had been attending preschool for "1-2 years" and 31.2% had been attending preschool for "2 years or more".

After the quantitative data was collected and analyzed, the study group which qualitative data were to be drawn from was determined in line with the criteria of high and low maternal self-efficacy. After mothers' scores of "Berkeley Parenting Self-Efficacy Scale Revised" were ranked from low to high the overall grouping of mothers having low and high parental self-efficacy was done. As a result, 10 mothers having low parenting self-efficacy and 10 mothers having high parenting self-efficacy and their children (12 boys and 8 girls) were included, in line with criterion sampling, in the subgroup for the subsequent organization of mother-child interaction games. Demographic information of the mothers and their children is included in Table 2.

Table 2.
Demographic Information of the Mothers and Their Children

Demographic Information		n	%
Child Gender	Girl	8	40
	Boy	12	60
Child Birth Order	First Child	7	35
	Second Child	9	45
	Third Child or More	4	20
Number of children	One Child	1	5
	Two Child	15	75
	Three or More Child	4	20
Age	30 Years Old or Younger	6	30
	31-34 Years Old	8	40
	30 Years Old or Older	6	30
Educational Status	Primary School	5	25
	High School	9	45
	Associate Degree or Higher	6	30
Total		20	100

According to Table 2, 40% of mothers have girls and 60% have boys. When the birth order of their children is examined, it is seen that 35% of the children are the first child, 45% are the second child, and 20% are the third child or above. Additionally, 5% of mothers have only one child, 75% have 2

children, and 20% have 3 or more children. The ages of the mothers range between 24 and 45, and 30% of the mothers participating in the research are "30 years old or younger"; 40% are "31-34 years old"; and 30% are "35 years old or older". 25% of the mothers are "high school" graduates; 45% have an "associate degree or higher"; and 30% are primary school graduates.

Data Collection Tools

Demographic Information Form
A demographic information sheet was prepared to address information about mothers and their children in the research. The information form includes two parts. The first part inquires into the child's gender, date of birth, birth order, and the duration of the child's time in preschool. The second part requests information about the mother's age, educational status, number of children, employment status, and spousal support with childcare, as well as the presence or absence of other individuals in the household and if present, their relationship with the family.

General Self-Efficacy Scale-Turkish form (GSES-TF)
The study employed the GSES-TF to identify the level of general self-efficacy among the mothers. The first Turkish adaptation of the scale, developed by Sherer et al. (1982), was by Gözüm and Aksayan (1999). The Turkish adaptation of the revised version was carried out by Yıldırım and İlhan (2010). Accordingly, 17 points can be obtained from the minimum and a maximum of 85 points can be obtained from the 5-likert scale, which consists of 17 items (Yıldırım & İlhan, 2010). The test-retest correlation coefficient of the GSES-TF was found to be .69. The internal consistency coefficient of the GSES-TF was calculated as .80. The exploratory factor analysis conducted for validity resulted in a three-factor structure. These factors were named "Beginning", "Not Giving Up", and "Sustaining". This three-factor structure explains 41.47% of the variance (Yıldırım & İlhan, 2010).

Berkeley Parenting Self-Efficacy Scale Revised (BPSE-R)
BPSE-R was used to identify the parenting self-efficacy levels of mothers. BPSE-R was developed by Suzuki et al., (2009) as an edited version of the Berkeley Parenting Self-Efficacy Scale (BPSE). The Turkish adaptation of the scale was published by Güler Yıldız et al., (2021). BPSE-R is a 6-point Likert scale and consists of two subscales, namely "parental strategies" and "child outcomes". The internal consistency values of the BPSE-R were found to be 0.83, 0.87, and 0.91 for the subscales of "parental strategies" and "child outcomes", and for the overall scale, respectively (Güler Yıldız et al., 2021).

Mother-Child Interaction Games
Free and structured play sessions were utilized to determine the characteristics of mother-child interaction. The features of the game used in the research are as follows:

Free Play (FP) Session: For free play, each mother and their child entered an environment prepared specifically for the game and equipped with one table, two chairs, one carpet, and a playset in advance. The playset included a train, a toy car, a doll, a toy airplane, a puppet, a set of animals, toy kitchen utensils, and a toy set for playing house. After the mother and child were introduced to the environment, the following instruction was given to the mother: "Be natural, I want you to play with your child the way you always do. Also, you are not expected to make any additional effort. I'll let you know when your time is up."

Each game resulted in 15 minutes of video recording, the first 10 minutes of which were considered adaptation play between the mother and the child to get familiar with the environment and thus, not included in the analysis.

Structured Play (SP) Session: After the free play, each mother and their child were introduced to the structured play session and given an 18-piece playset consisting of three-dimensional blocks of different shapes, and five visuals created by the author in advance. Prior to the commencement of the play sessions, the materials and visuals were vetted by three experts, and a series of pilot plays were implemented to confirm their suitability to the age group. During the actual play, the mother and the child were given the following instructions: "Now, you can collect the toys with your child and move on to the game in the other box. I want you to create the structures in the images together using the pieces in this set in 10 minutes."

After the instructions for the structured play were explained to the mother and the child, the author left the room, and a 10-minute video recording was taken of the mother and child playing. Some mother-child pairs in the study completed the structures in images in less than 10 minutes; therefore, the analysis only considered the first 5 minutes of their video recording.

Data Collection and Ethics Committee Approval

Before the commencement of the study, due permission was granted to the study by the Ethics Committee for its ethical compliance. Then, a group was formed mothers volunteered to be involved in the research and all of them signed consent forms. The mothers first filled in the "Demographic Information Form", "Berkeley Parental Self-Efficacy Scale Revised", and "General Self-Efficacy Scale". After that, the quantitative data was analyzed and the grouping of the mothers with low and high parenting self-efficacy scores according to "Berkeley Parental Self-Efficacy Scale Revised" was done. Finally, the volunteering mothers and their children grouped in line with their levels of self-efficacy played mother-child interaction games in pairs in suitable preschool environments. For this purpose, environments used in preschool during activities carried out outside the classroom, such as drama and various active games, were used for the games. While choosing these environments, care was taken to ensure that there were no materials that could distract the attention of the child and mother. A table and two chairs were placed in the environment, and the mother and child were asked to sit facing the wall. The toys that the mother and child would play with were placed in the middle of the table, allowing easy access to the materials.

Data Analysis

The first step in investigating the qualitative variables was the study of the normal distribution. For this purpose, the mean, mode, and median values, kurtosis and skewness coefficients, Kolmogorov-Smirnov Test, histogram, and scattering and box-line graphs are examined. For this reason, the Kruskal Wallis H-Test, one of the non-parametric tests, was used to examine the parenting self-efficacy levels of mothers according to the mother's education level. Mann Whitney U-Test, a non-parametric test, was used to examine mothers' parenting self-efficacy levels according to their social support status and the gender of their child. To examine the relationship between mothers' general and parenting self-efficacy levels, normal distribution was first examined. For this purpose, mean, mode, and median values, kurtosis and skewness coefficients, Kolmogorov-Smirnov Test, histogram, scatter, and box-plot plots were examined. These examinations resulted in the conclusion that the data did not distribute normally, and the Spearman Correlation Coefficient Test was used to test whether there was a relationship between the mothers' general and parenting self-efficacy levels.

The qualitative data collected for the research study including the characteristics of mother-child interaction and relevant video recordings was analyzed by the content analysis. With content analysis, identifying the concepts (codes) and determining the correlations (themes) in between to account for the data is targeted (Yıldırım and Şimşek, 2016).

The steps taken to encode the qualitative data firstly entailed the author watching all video recordings twice followed by the decoding and transcription of the video recordings. Once all video recordings had been transcribed, the transcripts were studied to identify certain codes in line with the literature on mother-child interaction (Mash et al., 1983; Cielinski et al., 1995; Bakkaloğlu & Sucuoğlu, 2000; Diken et, al., 2009; Akgün & Yeşilyaprak, 2011; Ceyhun et al., 2015). The codes thus identified were taken as a reference for a second reading of the records (reinforced with a second viewing of the video recordings as necessary), whereby a list of codes was created with the addition of new codes identified. Then, all the records were watched once again and re-examined in line with the code list. Once the final code lists were organized, the codes were grouped around respective themes.

To ensure reliability in the coding of the qualitative data, the expectation is that the coding is undertaken by multiple authors independently and the numerical values of the similarities and differences observed are compared with a resulting value of over 70% (Yıldırım and Şimşek 2016). In the present study, independent coding was undertaken by a researcher attending their post-graduate program on preschool education for coding reliability, resulting in a reliability value of 71.3%

Findings

Findings of Mothers' Parenting Self-Efficacy Levels According to Mothers' Educational Status, Children's Gender and Social Support

The findings regarding whether the BPSE-R scores of the mothers differ significantly according to the educational status of the mothers, the gender of their children, and the status of receiving social support from their husbands are given in Table 3, Table 4, and Table 5 respectively.

Table 3.
BPSE-R Kruskal Wallis H-Test Analysis Results by Mothers' Educational Status

Educational Status	n	Mean Rank	df	X^2	p
Elementary School	39	127,46	2	0,266	.876
High School	127	123,70			
Associate Degree and Above	85	128,76			

*p>.05

According to Table 3, it was found that the total scores of mothers' parenting self-efficacy did not differ significantly according to their educational status.

Table 4.
BPSE-R Kruskal Wallis H-Test Analysis Results by Mothers' Educational Status BPSE-R Mann Whitney U-Test Analysis Results by Gender of Children

Gender of Children	n	Mean Rank	Sum Rank	X^2	p
Girl	117	140,35	16421,50	6159,50	.003*
Boy	134	113,47	15204,50		

*p<.05

When Table 4 is examined, it was found that the total parenting self-efficacy scores of the mothers differed significantly according to the genders of their children, U=6159.50, p<.05. Considering the mean rank, it was observed that mothers with girls had higher parenting self-efficacy levels than mothers with boys.

Table 5.
BPSE-R Mann Whitney U-Test Analysis Results According to Mothers' Social Support from Their Husband

The Source of Social Support	Status of Receiving Social Support	n	Mean Rank	Sum Rank	X^2	p
Husband	Receiving	214	126,78	27130,00	3793,00	.684
	Not Receiving	37	121,51	4496,00		

*p>.05

Table 5 shows that the total scores of mothers' parenting self-efficacy did not differ significantly according to the status of receiving social support from the husband, U=3793.00, p>.05.

Findings from The Evaluation of the Correlation Between General and Parenting Self-Efficacy of Mothers

This part describes the findings regarding the parenting self-efficacy levels and the general self-efficacy levels of the mothers and the characteristics of their interaction with their children according to the parenting self-efficacy. Table 6 shows the findings regarding the correlation between the general and parenting self-efficacy of the mothers.

Table 6.
The Results of the Correlation Between Mothers' General and Parenting Self-Efficacy Levels

Variables	Beginning Subscale	Do not Give Up Subscale	Sustaining Subscale	General Self-Efficacy Total Score
Parental Strategies	.245*	.169*	.143*	.241*
	.000	.007	.024	.000
Child Outcomes	.233*	.124	.123	.206*
	.000	.050	.052	.001
BPSE-R Total Score	.242*	.139*	.134*	.222*
	.000	.028	.034	.000

*p>.05

Table 6 demonstrates that there is a weak positive correlation between the BPSE-R "Parental Strategies" subscale and the GSES-TF "Beginning" subscale, r=.245, p<.05; the GSES-TF "Do not give up" subscale, r=.169, p<.05, the GSES-TF "Sustaining Effort-Insistence" subscale r=.143, p<.05, and the total score of the GSES-TF r=.241, p<.05.

It is found that there is a weak positive correlation between the BPSE-R "Child Outcomes" subscale and the GSES-TF "Beginning" subscale, r=.233, p<.05; and the total score of GSES-TF, r=.206, p<.05. In addition, no significant relationship was identified between the BPSE-R "Child Outcomes" subscale and the GSES-TF "Do not give up" subscale, p=.05, and the GSES-TF "Sustaining Effort-Insistence" subscale, p>.05.

A positive and weak correlation is seen between the BPSE-R and the GSES-TF "Beginning" subscale, r=.242, p<.05; the GSES-TF "Do not give up" subscale, r=.139, p<.05; the GSES-TF "Sustaining Effort-Insistence" subscale, r=.134, p<.05; and the total score of the GSES-TF, r=.222, p<.05. Cohen (1988) construes the correlation as weak if the correlation coefficient is in the range of r=.10 -.29; as moderate if r=.30 - .49; or as strong if r=.50 -1.0 (Cohen, 1988, as cited in Pallant, 2017).

Findings from The Evaluation of the Characteristics of Mother-Child İnteraction in Free and Structured Play According to Mothers' Parenting Self-Efficacy Levels
The characteristics of mother-child interaction and behavioral themes observed during free and structured play are described in Table 7.

Table 7.
Behavior Themes Identified During Free and Structured Play

Behavior Themes Identified During Free and Structured Play					
Focusing on success	Sensitivity	Enjoyment	Being judgmental	Being out of play	Play interaction

A close look at Table 7 shows that the characteristics of mother-child interaction of mothers in free and structured play center around the themes of "focusing on success", "sensitivity", "enjoyment", "being judgmental", "being out of play", and "play interaction".

Table 8 shows the number of times mothers used expressions falling under the predetermined themes for the mother-child interaction characteristics and the analysis in line with the respective parenting self-efficacy levels.

Table 8.
Behavior Themes Identified During Free and Structured Play

Parenting Self-Efficacy Level	Mother-Child Interaction Characteristics and Frequency of Expressions Used in Free and Structured Play											
	Participant No	Focusing on Success		Sensitivity		Enjoyment		Being Judgmental		Play Interaction		Being Out of Play	
		FP	SP	FP	SP	FP	SP	FP	SP	FP	SP	FP	SP
Low	M41	14	34	8	19	-	-	-	1	13	-	-	1
	M90	12	25	11	41	1	1	12	4	13	-	3	4
	M111	33	25	22	19	2	-	1	4	24	-	2	3
	M121	8	28	14	11	-	1	3	-	-	-	-	2
	M134	3	25	23	18	3	-	4	1	6	-	-	2
	M180	20	39	30	26	4	-	8	1	33	-	-	2
	M201	16	32	5	30	3	-	-	1	32	-	-	2
	M207	19	35	25	18	-	-	1	5	-	-	1	-
	M218	24	15	4	17	1	2	3	7	12	-	3	1
	M251	27	39	29	20	2	-	2	2	3	-	2	-
Total		176	297	171	219	16	4	34	26	136	0	11	17
High	M8	8	38	13	24	2	-	-	1	18	-	-	-
	M36	4	14	20	30	1	-	1	1	2	-	4	-
	M37	13	28	8	22	-	-	1	2	17	-	8	-
	M75	13	15	16	13	-	-	-	-	-	-	-	-
	M81	10	27	12	30	2	-	2	2	3	-	1	-
	M89	9	21	9	5	-	-	2	1	6	-	1	-
	M118	9	27	14	42	2	-	1	4	10	-	4	-
	M137	19	15	19	24	-	-	6	10	7	-	-	-
	M185	21	30	37	53	6	4	1	-	29	-	-	-
	M200	15	15	9	19	3	2	-	3	19	-	-	-
Total		121	230	157	262	16	6	14	24	111	0	18	0

An analysis of Table 8 in line with the self-efficacy levels of the mothers indicates that the mothers with low parenting self-efficacy levels exhibit behaviors primarily the theme of "focusing on success" in the first place, followed by the themes of "sensitivity" and "play interaction". The mothers having high parenting self-efficacy, otherwise, exhibited behaviors primarily around the theme of "sensitivity" during the games, followed by the themes of "focusing on success" and "play interaction". The mothers having low parenting self-efficacy displayed more behaviors consistent with the theme of "being judgmental" and "being out of play" than mothers having high parenting self-efficacy.

The number of behaviors exhibited by mothers with both low and high parenting self-efficacy around the theme of "enjoyment" is close to each other and is in the lowest order.

When examined according to the types of free and structured play, the mothers are seen to have exhibited behaviors primarily around the theme of "sensitivity" during the free games, followed by the themes of "focusing on success" and "play interaction". In structured plays, on the other hand, the behaviors of mothers gravitated more towards the theme of "focusing on success", followed by the themes of "sensitivity" and "being judgmental". None of the mothers were observed to display any behavior around the theme of "play interaction" in structured play. The number of behaviors exhibited by mothers for the theme of "enjoyment" is higher in free play.

The behavioral codes related to the characteristics of mother-child interaction observed during free and structured play are given in Table 9.

Table 9.
Behavioral Themes and Codes Observed During Free and Structured Play

	Themes					
	Focusing on Success	Sensitivity	Enjoyment	Being Judgmental	Being out of the Game	Play Interaction
Codes	Directing	Feedback (reflecting, responding)	Humor, Laughing, Singing	Criticism	Conversations with no Relevance to the Game	Play Talk
	Teaching	Reinforcement (praise, applause, clap, encouragement)	Physical Contact			
	Interference	Asking Questions				
	Focusing on the Task	Complying with the Child's Wishes				
		Asking the Child for their Opinion				
		Assistance				

Examples of expressions grouped around the themes and relevant codes as specified in Table 9 are given below.

The mothers' expressions on the theme of "focusing on success" were accounted for with the codes of "directing", "teaching", "interference" and "focusing on the task".

During the free play, M-C180 (Low PSE) used the following expressions as an example for the "teaching" code.

> Mother: "Mr. Waiter!"
>
> Child: "What!"
>
> Mother: "Not what, Ma'am."
>
> Child: "Here…"
>
> Mother: "You will say "Ma'am"."

M-C89 (High PSE) used the following statements during the structured play as examples for the "Focusing on the Task" code:

> Child: "Mom, I want to play a different game."
>
> Mom: "But look, you have to play with these. Come on, mommy. Come sit here."
>
> Child: "Mom, these are hard."

The mothers' expressions around the theme of "sensitivity" accounted for the codes of "feedback (reflecting, responding)", "reinforcement (praise, applause, clapping, encouragement)", "asking questions", "complying with the child's wishes", "asking the child's opinion", and "assistance".

In the free play, M-C36 (High PSE) used the following expressions as examples for the code "Reinforcement (praise, applause, clapping, encouragement)":

> Child: "You put it in."
>
> Mom: "You did it all, you can put this in too."
>
> Child: "I don't think I can."
>
> Mother: "I think you do. How do you need to put it in so that it is round?"
>
> Boy: "Ugh, I don't know."

Mom: "You can do it."

During the structured play, M-C90 (Low PSE) used the following expressions as examples for the code "complying with the child's wishes".

Child: "Mom, I want to do this (pointing to one of the images)."

Mom: "Okay, let's do it, whatever you want, bring it here, but let's not forget our pieces."

The mothers' expressions around the theme of "enjoyment" were accounted for with the codes of "humor, laughing, singing" and "physical contact".

During the structured play, M-C41 (Low PSE) used the following sample expressions for the "physical contact" code:

Child: "Mom, I will find a place to sit, too."

Mom: "Okay, come on. We put it in like this. Right-o! (She sits the child on her lap.) Stop, this one should go here."

M200 (High PSE) used the following expressions during the free play as examples for the "humor, laughing, singing" code:

Mother: "Let her friend the donkey come (Mother and child sing the song "My Friend the Donkey"). Very nice."

Expressions of mothers on the theme of "being judgmental" were accounted for with the "criticism" code.

During the structured play, M-C90 (Low PSE) used the following statements around the "criticism" code:

Child: "Shall I break it apart? (He wants to break the shape to make the new shape.)"

Mother: (while the child is taking the shape apart) "Don't do that, don't let the pieces fall apart. Make your mind up, what do you want to do"

Child: (Selects an image and starts to do it.)

Mom: Be careful, that's not how it should be. But I've already told you that's not how it should be done. That's not the way. Come on, do it. Do its legs first. You will put it at the top. Yeah. Let's bring it a little closer to the edge.

Although the "play talk" code was included in the theme of "play interaction" during free play, mothers were found not to have exhibited any behaviors around the theme of "play interaction" during structured play.

M-C180 (Low PSE) used the following expressions during the free play as examples for the "play talk" code:

Mother: "Where is my tea and cake, waiter?"

Child: "Tea?"

Mom: "Yes, I want one tea and one cake. That's with sugar, Mommy, I take it without sugar."

Child: "Here you go"

Mom: "Yes, I'm drinking my tea. Thanks. Is this mine?" (They point to one of the two cups on the table.)

For the free and structured plays, the codes of "out of the game conversation", "not fulfilling the child's requests" and "opting out of the game" were included under the theme of "being out of play"

M-C89 (High PSE) used the following expressions during the free play as examples for the code "opting out of the game":

Boy: "I'm going to fly this plane."

Mom: "Never put it in your mouth."

Child: (The child plays alone with the plane for a while.)

Mother: (Mother also seems to be interested in the other toys.)

During the structured play, M-C180 (Low PSE) used the following statements for the code of "not doing the child's requests":

Child: "Done, can it stay up like this?" (He wants the piece to stand upright on the table.)

Mom: "It can't."

Discussion, Conclusion and Recommendations

As a result of the study, it was found that the parenting self-efficacy of the mothers did not differ significantly according to their educational status. It is thought that one of the factors determining this finding of the study may be the critical evaluation of their skills by being more aware of the knowledge and skill deficiencies of the mothers who received more education. The result of the research conducted by Coleman and Karraker (2003) supports this finding that the level of parenting self-efficacy of the mother does not change according to educational status. Similarly, in the study of Brody, Flor, and Gibson (1999), it was concluded that the educational status of the mother did not affect parental self-efficacy. On the other hand, there are also studies in the literature showing that the parenting self-efficacy of mothers increases with education. In the study carried out by Dursun and Bıçakçı (2015), it was found that mothers with bachelor's degrees had higher parenting self-efficacy than mothers who graduated from primary school, and as a result of the research conducted by Öztürk and Giren (2015), the parenting self-efficacy level of high school graduate mothers was compared to the parenting self-efficacy level of primary school graduate mothers found to be higher. The results of these studies may differ due to the occupation and working status of the mother because some mothers can have more education about the child growing related to the occupation and this can result in higher parenting self-efficacy. In addition, the reason for this result may be the content of the education they receive. In addition, Holloway et al.'s (2005) research also shows that parents' parenting self-efficacy level is not related to the skills and resources obtained through higher education. In this study, most of the mothers were also primary and high school graduates and they didn't take a course directly related to parenting self-efficacy.

It was observed that mothers with daughters had higher parenting self-efficacy levels than mothers with sons. According to the literature, boys exhibit more externalized behavior problems (Davies & Lindsay, 2004; Seven, 2007). For this reason, it is thought that mothers with boys may have difficulty in managing these behaviors and may perceive their parenting self-efficacy as lower. In the study conducted by Sevigny and Loutzenhiser (2010), it was concluded that mothers with daughters had higher parenting self-efficacy levels. Similarly, Kılıçgün (2017) concluded that mothers with daughters have higher parenting self-efficacy levels. Unlike this result, Kotil's (2010) study found that the parenting self-efficacy of mothers did not change according to the gender of their children. The study of Holloway et al. (2005) on mothers with preschool children also shows that the parenting self-efficacy of mothers does not change according to the gender of the child. In addition, in the study conducted by Coleman and Karraker (2003), no relationship was found between the parenting self-efficacy of mothers and the gender of the child.

It was found that the parenting self-efficacy of the mothers did not differ significantly according to the status of receiving social support from the husband. The mother's dissatisfaction with the level of support despite receiving support from her spouse may cause no significant difference in parenting self-efficacy. Mothers who receive support from their husbands may not share the responsibilities related to the child equally so even if the mother receives support from their husbands, this may not be enough and satisfying. Unlike the findings of this study, studies in the literature have generally concluded that parenting self-efficacy levels of mothers increase with social support. In the study conducted by Holloway et al. (2005), it was concluded that mothers who received support from their spouses and other relatives had higher parenting self-efficacy. Similarly, in the study conducted by Kılıçgün (2017), it was concluded that mothers who received support from their spouses had higher

parenting self-efficacy. In the study conducted by Teti and Gelfand (1991), it was found that mothers who received more social support had higher parenting self-efficacy.

In the research, a significant positive correlation between the mothers' general self-efficacy and total scores in parenting self-efficacy and also their parental strategy subscale scores were concluded. Parenting self-efficacy is considered to develop proportionately with general self-efficacy, as the skills required to carry out various parenting tasks may be derived from a feeling of competence in skills developed and utilized in other parts of life. In other words, it may be that a mother's past experiences of success relating to their general self-efficacy may also indicate that they may exhibit appropriate parenting behaviors. There are similar studies in the literature indicating that the general self-efficacy of mothers predicts parenting self-efficacy (Coleman & Karraker, 2000; Sevigny & Loutzenhiser, 2010). It was stated that as the level of parenting self-efficacy increases, it increases in direct proportion to the general self-efficacy level of the parents (Murdock, 2013). Unlike these studies, however, Porter and Hsu (2003) imply that mothers' general self-efficacy does not predict parenting self-efficacy.

In the present study, mothers having low parental self-efficacy were found to display more behaviors primarily closer to "focusing on success" followed by the themes of "sensitivity" and "play interaction". One of the factors determining the behaviors of focusing on success among mothers having low parenting self-efficacy might be their disbelief in their capabilities to bring forward the skills necessary to achieve the expected goal with their child, especially in a structured play environment. Similarly, the literature establishes that parents' self-efficacy levels and their levels of stress while accompanying their children during play were negatively related (Sugiana et al., 2020). In addition, during the mother-child interaction games, some of the mothers stated that they did not know how to play with their children and had not been playing with them. It is considered that this may have something to do with the negative behaviors of mothers with low self-efficacy levels such as focusing on success.

Mothers having high parenting self-efficacy were concluded that they exhibit more behaviors around the themes of "sensitivity", "focusing on success", and "play interaction" during the games. In this regard, the positive beliefs of mothers with high parenting self-efficacy concerning their parenting skills are thought to improve their ability to interact positively with their children, and thus, such mothers exhibit more sensitive behaviors such as complying with the child's wishes, asking them for their opinion, assistance, and giving feedback. The literature indicates high parenting self-efficacy levels and positive parenting behaviors were positively related (Benedetto & Ingrassia, 2018). These behaviors are illustrated by inductive and non-rigid punishment discipline strategies, high parent involvement, and sensitivity and warmth towards children. Similarly, Fewell and Deutscher (2004) accounted for positive characteristics in mother-child interaction with the factors of sensitivity to the child's emotional state and interests. Certain studies account for positive characteristics in mother-child interaction with the themes of assistance (Bakkaloğlu and Sucuoğlu, 2000), sensitivity-responsivity (Ceyhun et al., 2015), sensitivity to the emotional state of the child, sensitivity to the child's interests (Mahoney et al., 1986), and asking descriptive questions, praise, and verbal reflection (Akgün and Yeşilyaprak, 2011). Similar to this conclusion of the present study, Leerkes and Crockenberg (2002) identified a positive and significant correlation between the mothers' parenting self-efficacy and sensitivity.

Mothers having low parenting self-efficacy levels exhibit more behaviors around the theme of "being judgmental" and "being out of the game" than mothers with high parenting self-efficacy levels. A factor that determines parents' judgmental behavior may be their children's inability to manage the problem behaviors of their mothers with low self-efficacy levels. This, in turn, predisposes parents to use more judgmental expressions in their interactions with their children. In Anicama (2018), parental self-efficacy is negatively associated with harsh/punitive parenting. In parallel, Maglica et al., (2020) concluded that any replacement in parenting self-efficacy level corresponds to an increase in their children's extroverted problem behaviors. There are also studies in the literature suggesting that there may be a cyclical relationship between a child's behavior and the mother-child interaction. In addition, Crowell and Feldman (1988) concluded that the children of calm and self-confident mothers who are interested and enthusiastic in participating in activities with their children have fewer behavioral

problems. Ferreira et al. (2016) found a positive correlation between the prosocial behavior of children and mother-child interaction quality. On the other side, it is considered that mothers having low parenting self-efficacy can exhibit more out-of-play behavior because of their self-perceived incapacity to demonstrate the skills necessary to achieve the goal set for the structured game with their child and their resulting inability to manage the process. Similarly, Büyüktaşkapu (2012) found mothers to hold perceptions of low efficacy in playing with their children.

The values of the behaviors of mothers having either low or high parenting self-efficacy around the theme of "enjoyment" are close to each other, albeit at the lowest rank among all themes and only slightly higher in free play. Mothers with either low or high self-efficacy levels can, similarly, participate more actively in a game with their children by taking on more roles in free play, and can adapt to the game more easily owing to the variety of materials. They are thus considered to be more capable of developing richer game content and enjoying the game more during free play. Similarly, Ginsburg (2007) considers the participation of parents in their children's free play as an opportunity for them to see the world from their child's perspective and as a suitable environment for communicating more effectively with their children and offering gentle and nurturing guidance. Free play situations often see children being more enthusiastic and more persistent in their problem-solving situations, finding it easier to elicit and accept their mother's help and offer them more room for exploration. Özyürek and Gürleyik (2016) revealed that mothers reportedly playing dramatic games such as playing house thought that the game gave them happiness through stress relief and relaxation. Fewell and Deutscher (2004) and Bakkaloğlu and Sucuoğlu (2000) accounted for the mother-child interaction behaviors observed during free play with the factor of enjoyment and the theme of positive emotion. Moreover, Kwon et al., (2013) observed that parents established more cognitive scaffolding and exhibited less negative behavior towards their children during free play compared to structured play.

In the study, it was concluded that mothers mostly exhibited behaviors around the theme of "sensitivity" in free play, followed by the themes of "focusing on success" and "play interaction". Free play is considered to make it easier for mothers to exhibit more sensitive behaviors such as giving feedback or encouragement, fulfilling the child's wishes, and asking questions since free play does not dictate a predetermined goal to be achieved with the play emerging spontaneously roles being assumed in an imaginary world, and the mother and the child taking an active role in the play. In this process, children's strengths and independence can be supported through encouragement that focuses on the process and effort instead of focusing on the result (Açıkalın et al., 2001). Thus, words of encouragement can help the child feel better by allowing them to express their feelings more easily (Chapman & Campbell, 2012). Similarly, asking a child for their opinions encourages the child to make an effort to control their behavior. A parent offering constant guidance and not allowing the child to make their own choice may cause frustration, persistence in inappropriate behaviors, and resistance. A child who is allowed to make choices and produce solutions can regulate their behavior more easily (Faber & Mazlish, 2012). In addition, open-ended materials made available to a mother and their child during free play are also thought to support mothers in exhibiting sensitive behaviors. Thus, any restrictions on mother-child interaction may be avoided effectively through open-ended questions inquiring into the child's feelings rather than questions that make the child feel bad such as those of a judgmental or accusatory nature (Gordon, 2017).

In the structured play, the mothers were found to display more behaviors around the theme of "sensitivity" and "being judgmental" with the most common theme being "focusing on success", and they did not exhibit any behaviors related to the theme of "play interaction". One of the factors that determine the success-oriented behaviors of parents may be that mothers focus on the goal that needs to be achieved at the end of the game rather than on playing with their children in structured games. Thus, in structured play, it is thought that mothers use directing expressions that require less interaction instead of expressions aimed at improving their interaction during the game such as talking to their children. In addition, the mothers' disbelief in their arsenal of cognitive abilities sufficient for their children to achieve the result in the game is thought to have a role to play in their gravitation to interfering in their child's play more and thus, in their focus on success. Piaget emphasizes the importance of pretend games, which allow children aged two to seven to develop and use skills such

as role-playing, animating, and replacing one object with another. In addition, Piaget argues that games with rules, which can be very beneficial for a child in terms of skills such as learning the importance of following the rules, cooperation, and social development, require higher cognitive abilities and their functionality starts around the age of seven and remains relevant into adulthood (Kadan, 2018; Özdoğan, 2014). When evaluated in this context, free play in preschool is considered to have a very important role in mother-child interaction. In addition, John et al., (2013) concluded that mothers, while playing a game with their child, tended to display behaviors of trying to structure the game and teaching their child how to play it. The fact that the behaviors around the theme of sensitivity were exhibited more in structured play than in free play may be associated with the mothers' belief that they could offer better reinforcement and support to their children by giving them clues to achieve the goal during the play. The literature states that parents' efforts to reinforce the positive requests of their children often result in the regulation of their negative requests (Root & Rubin, 2010). In addition, it is argued that parents can help reinforce correct behaviors by using affirmative feedback, and with corrective feedback, they can send a message to the child about which behavior should be corrected and how this can be achieved (Açıkalın et al., 2001). Behaviors of assistance are also very crucial as regards helping the child in structured play. However, if parents try to solve the problems before the child has the opportunity to do so, the child may not develop sufficient problem-solving skills. For this reason, parents need to support their children by assuming a facilitating role instead of taking on the child's problem completely (Gordon, 2017).

In conclusion, mothers with low self-efficacy levels were found in general to exhibit more behaviors around the themes of focusing on success, being judgmental, play interaction, and being out of games. Mothers with high parenting self-efficacy levels were concluded to display more behaviors around the theme of sensitivity during the games. In the study, a suitable play environment was prepared for the mother and child to play, and they were allowed to stay alone in the room so that they felt more comfortable during the game. Video recording was taken to fully evaluate mother and child expressions during mother-child games. The fact that the data obtained regarding the expressions and behaviors during mother-child interaction are based on the records obtained during the video recording process can be considered a limitation of the study. A comparison between free and structured play sessions indicated that mothers enjoyed free play more and did not exhibit play interaction behavior in structured play. Moreover, the mothers participating in the study were observed to have used certain expressions indicating that they had not played with their children and did not know how to play with them, and to have enjoyed the game more during free play. In this regard, it is recommended that parents be given training on the importance of playing games and on the types of games they can play at home with their children. It is also recommended to plan training for mothers having preschool children to improve their parenting self-efficacy levels and the characteristics of their mother-child interaction. The study examined mother-child interactions by qualitative methods in line with the mothers' respective parenting self-efficacy levels. For future research, the use of quantitative measurement tools is recommended for the determination of the correlation between mothers' parenting self-efficacy and the characteristics of their interaction with their children using quantitative measurement tools.

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References

Açıkalın, A., H., Yavuzer, N., & Selçuk, Z. (2001*). Çocuklarımız için eğitim sohbetleri* [Educational conversations for our children]. Pegem.

Akgün, E., & Yeşilyaprak, B. (2011). Anne çocuk oyun etkileşiminde niteliksel boyut: Sözel ifadelerin değerlendirilmesi [The qualitative dimension of mother-child play interaction: An evaluation of mothers' verbal expressions]. *Hacettepe University Journal of Education*, 40 (2011), 11-20.

Anicama, C. (2018). *I think I can: The relations among parenting self-efficacy, parenting context, parenting practices, and preschoolers' socio-emotional development among low income ımmigrant families* (Publication No. 13422440) [Doctoral dissertation, University of California]. ProQuest Dissertations and Theses Global

Anthony, L. G., Anthony, B. J., Glanville, D. N., Naiman, D. Q., Waanders, C., & Shaffer, S. (2005). The relationships between parenting stress, parenting behaviour and preschoolers' social competence and behaviour problems in the classroom. *Infant and Child Development*, 14(2), 133-154. https://doi.org/10.1002/icd.385

Bakkaloğlu, H. (2010). Erken çocukluk döneminde gelişimi etkileyen faktörler [Factors affecting development in early childhood]. In İ. H. Diken (Ed.), *Erken Çocukluk Eğitimi [Early Childhood Education], (pp.* 210-244). Ankara: Pegem Akademi.

Bakkaloğlu, H. C., & Sucuoğlu. B. (2000). Normal ve zihinsel engelli bebeklerde anne-bebek etkileşiminin karşılaştırmalı olarak incelenmesi [A comparative investigation of mother-infant interaction in normal and intellectually handicapped babies]. *Özel Eğitim Dergisi*, 2(4), 47-58. https://doi.org/10.1501/Ozlegt_0000000051

Balat, G. U. (2014). Analyzing self efficacy and depression levels of mothers who have children in the preschool period. *Journal of Human Sciences*, 11(2), 661-677. https://dx.doi.org/10.14687/ijhs.v11i2.2972

Balat, G. U. (2015). Analyzing the relationship between self-efficacy perception of mothers and their communication with their preschool children. *US-China Education Review*, 5(6), 390-399. https://doi.org/10.17265/2161-623X/2015.06A.002

Balat, G. U., Sezer, T., & Tunçeli, H. İ. (2014). Okul öncesi eğitim kurumuna devam eden çocuklarin annelerinin öz yeterlilik ve öfke düzeylerinin incelenmesi [The examination of maternal self-efficacy and anger levels of children who attending preschool education]. *Journal of Kazım Karabekir Education Faculty*, 29(2014), 47-63.

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191-215.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, 37(2), 122-147.

Bandura, A. (1995). Exercise of personal and collective efficacy in changing societies. In A. Bandura (Ed.), *Self-Efficacy in Changing Societies*, (pp. 1-45). Cambridge University Press.

Bandura, A. (2000). *Self-efficacy: The exercise of control*. W. H. Freeman and Company.

Bee, H., & Boyd, D. (2011). *The developing child*. Allyn & Bacon.

Benedetto, L., & Ingrassia, M. (2018). Parental self-efficacy in promoting children care and parenting quality. In L. Benedetto & M. Ingrassia (Eds.), *Parenting-empirical advances and intervention resources*, (pp. 31-57). InTech.

Brody, G. H., Flor, D. L. & Gibson, N. M. (1999). Linking maternal efficacy beliefs, developmental goals, parenting practices, and child competence in rural single-parent African American families. *Child development*, 70(5), 1197-1208.

Buluş, M., & Samur., A. Ö. (2017). Beş-Altı yaş çocuklarının sosyal duygusal uyumunu yordamada ebeveyn benlik saygısı, temel ihtiyaçları ve öz yeterliğin rolü [The role of respect for parental self, essential needs and self-efficacy in predicting the social emotional adjustment of five/six-year-old children]. *Pamukkale University Journal of Education*, 41(2017), 105-119. https://doi.org/10.9779/PUJE807

Büyüköztürk, Ş., Çakmak, E. K., Akgün, Ö., Karadeniz, Ş., & Demirel, F. (2008). *Bilimsel araştırma yöntemleri* [Scientific Research Methods]. Pegem.

Büyüktaşkapu, S. (2012). Annelerin özyeterlik algıları ile 1-3 yaş arasındaki çocuklarının gelişimleri arasındaki ilişkinin incelenmesi [An investigation of the relationship between mothers' perception of self efficacy and development of their children aged between 1 and 3]. *Amasya Education Journal*, 1(1), 18-30. https://dergipark.org.tr/en/download/article-file/19585

Çağdaş, A. & Seçer, Z. (2011). *Anne-baba eğitimi* [Parent education]. Eğiten Kitap

Çağdaş, A. (2012). *Anne baba çocuk iletişimi* [Parent child communication]. Eğiten Kitap

Cebioğlu, S. G., & Aksan, N. (2012). "Benlik düzenlemenin gelişiminde mizaç ve ana baba etkisi" [Temperament and parental influence on the development of self-regulation]. In M. Sayıl & M. Yağmurlu (Eds.), *Ana babalık: Kuram ve araştırma* (pp. 239-270). Koç University.

Ceyhun, A. T., Özdemir, S., Töret, G. & Özkubat, U. (2015). A comparison of parents-child ınteractions of children with autism spectrum disorders and with their parents and typically developing children and their parents. *International Journal of Early Childhood Special Education*, 7(2), 183-211. https://doi.org/10.1501/Ozlegt_0000000240

Chapman, G. & Campbell, R. (2012). *Five love languages of children*. Northfield Publishing.

Christensen, L. B., Johnson, R. B., & Turner, L. A. (2014). *Research methods, design, and analysis*. Pearson.

Cielinski, K. L., Vaughn, B. E., Seifer, R., & Contreras, J. (1995). Relations among sustained engagement during play, quality of play, and mother-child interaction in samples of children with down syndrome and normally developing toddlers. *Infant Behavior and Development*, 18(2), 163-176. https://doi.org/10.1016/0163-6383(95)90046-2

Cloud, H., & Townsend, J. (2000). *Anne faktörü: Çocukluk ve yetişme çağınızda annenizle ilişkileriniz bugünkü yaşamınızı nasıl etkiliyor?* [The Mother Factor: How Your Mother's Emotional Legacy Impacts Your Life] (E. Aksay, Trans.). Sistem Publishing. (Original work published 1998)

Coleman, P. K. & Karraker, K. H. (2003). Maternal self-efficacy beliefs, competence in parenting, and toddlers' behavior and developmental status. *Infant Mental Health Journal*, 24(2), 126-148. https://doi.org/10.1002/imhj.10048

Coleman, P. K., & Karraker, K. H. (1997). Self-efficacy and parenting quality: Findings and future applications. Developmental Review, 18(1), 47-85. https://doi.org/10.1006/drev.1997.0448

Coleman, P. K., & Karraker, K. H. (2000). Parenting self-efficacy among mothers of school-age children: Conceptualization, measurement, and correlates. *Family Relations*, 49(1), 13-24. https://doi.org/10.1111/j.1741-3729.2000.00013.x

Creswell, J. W., & Clark, V. L. P. (2010). Designing and conducting mixed methods research. Sage

Crowell, J. A. & Feldman, S. S. (1988). Mothers' internal models of relationships and children's behavioral and developmental status: A study of mother-child interaction. *Child development*, 59(5), 1273-1285.

Davies, P. T. & Lindsay, L. L. (2004). Interparental conflict and adolescent adjustment: Why does gender moderate early adolescent vulnerability? *Journal of Family Psychology*, 18(1), 160-170.

Diken, İ. H. (2009). Turkish mothers' self-efficacy beliefs and styles of interactions with their children with language delays. *Early Child Development and Care*, 179(4), 425-436. https://doi.org/10.1080/03004430701200478

Diken, İ. H. and O. Diken, 2008. Turkish mothers' verbal interaction practices and self-efficacy beliefs regarding their children with expressive language delay. *International Journal of Special Education*, 23(3), 110-117. https://files.eric.ed.gov/fulltext/EJ833687.pdf

Diken, Ö., Topbaş, S., & Diken, İ. H. (2009). Validity and reliability of Turkish versions of maternal behavior rating scale and child behavior rating scale. *Ankara University Faculty of Educational Sciences Journal of Special Education*, 10(2), 41-60. https://doi.org/10.1501/Ozlegt_0000000139

Dökmen, Ü. (2008). *Sanatta ve günlük yaşamda iletişim çatışmaları ve empati*. [Communication conflicts and empathy in art and daily life]. Remzi Kitabevi.

Dursun, Ş. S. & Bıçakçı, M. Y. (2015). Bir-üç yaş arası bebeğe sahip annelerin annelik becerilerinde öz yeterliliklerinin incelenmesi [Investigation of self-efficacy in mothering skills of mothers with babies aged one to three years]. *Hacettepe University Faculty of Health Sciences Journal*, 1(2), 613-628.

Faber, A., & Mazlish, E. (2012). *How to talk so teens will listen, and listen so teens will talk*. Piccadilly Press

Ferreira, T., Cadima, J., Matias, M., Vieira, J. M., Leal, T., & Matos, P. M. (2016). Preschool children's prosocial behavior: The role of mother–child, father–child and teacher–child relationships. *Journal of Child and Family Studies*, 25(6), 1829-1839. https://doi.org/10.1007/s10826-016-0369-x

Fewell, R. R., & Deutscher, B. (2004). Contributions of early language and maternal facilitation variables to later language and reading abilities. *Journal of Early Intervention*, 26(2), 132-145. https://doi.org/10.1177/105381510402600205

Fuligni, A. J. & Yoshikawa, H. (2012). Socioeconomic status, parenting, and child development. M. H. Bornstein ve R. H. Bradley (Ed.) *Socio economic resources, parenting and child development among immigrant families.* (s. 107-124). New York: Routledge.

Gander, M. J., & Gardiner, H. W. (2010). *Çocuk ve ergen gelişimi* [Child and adolescent development] (B. Onur, A. Dönmez & H. N. Çelen, Trans.). Imge. (Original work published 1981)

Gessulat, J., Oppermann, E., Cohen, F., & Anders, Y. (2023). Parental self-efficacy in relation to family characteristics. *Journal of Early Childhood Research*, 21(2), 224-240. doi: 10.1177/1476718X231164133

Ginott, H. G., Ginott, A., & Goddard, W. W. (2009). Between parent and child. Three Rivers Press.

Ginsburg, K. R. (2007). The importance of play in promoting healthy child development and maintaining strong parent-child bonds. *Pediatrics*, 119(1), 182-191. https://doi.org/10.1542/peds.2006-2697

Gordon, T. (2017). *Etkili anne baba eğitiminde uygulamalar* (H. Vardar, Trans.). Profil Kitap. (Original work published 1975)

Gözübüyük, F. (2015). *Maternal self efficacy, mothers' verbal interaction practices and toddlers development* [Unpublished Master Theses]. Maltepe University.

Gözüm, S., & Aksayan, S. (1999). Öz-etkililik-yeterlik ölçeği'nin Türkçe formunun güvenilirlik ve geçerliliği [Construct validation of Turkish form of the self·efficacy scale]. *Anadolu Üniversitesi Hemşirelik Yüksekokul Dergisi,* 2(1), 35-43. https://dergipark.org.tr/en/download/article-file/29103

Güler Yıldız, T., Şahin, F., Haktanır, G., & Holloway, S. (2021). Turkish adaptation of the berkeley parenting self-efficacy scale revised (BPSE-R). *Journal of Education and Future*, 19(2021), 13-23. https://doi.org/10.30786/jef.778666

Güler, T. (2012). Ailenin Tanımı, tarihsel gelişimi ve aile çeşitleri [Definition of family, historical development and family types]. T. Güler (Ed.). *Anne baba eğitimi* [Parent Education] (s. 1-14). Ankara: Pegem Akademi.

Güleşen, A., & Yıldız, D. (2013). Investigation of maternal-infant attachment in the early postpartum period with evidence based practice. *TAF Preventive Medicine Bulletin*, 12(2), 177-182. https://doi.org/10.5455/pmb1-1336130426

Hergenhahn, B. R. & Olson, H. M. (2005). An introduction to theories of learning. New Jersey: Pearson Education.

Holloway, S. D., Suzuki, S., Yamato, Y. & Behrens, K. (2005). Parenting self-efficacy among Japanese mothers. *Journal of Comparative Family Studies*, 36(1), 61-76.

Horstman, H. K., Maliski, R., Hays, A., Cox, J., Enderle, A., & Nelson, L. R. (2016). Unfolding narrative meaning over time: The contributions of mother–daughter conversations of difficulty on daughter narrative sense-making and well-being. *Communication Monographs*, 83(3), 326-348. https://doi.org/10.1080/03637751.2015.1068945

Izzo, C., Weiss, L., Shanahan, T. & Rodriguez-Brown, F. (2000). Parental self-efficacy and social support as predictors of parenting practices and children's socioemotional adjustment in Mexican immigrant families. *Journal of Prevention & Intervention in the Community*, 20(1-2), 197-213.

Jackson, A. P., & Huang, C. C. (2000). Parenting stress and behavior among single mothers of preschoolers: The mediating role of self- efficacy. *Journal of Social Service Research*, 26(4), 29-42. https://doi.org/10.1300/J079v26n04_02

John, A., Halliburton, A., & Humphrey, J. (2013). Child–mother and child–father play interaction patterns with preschoolers. *Early Child Development and Care*, 183(3-4), 483-497. https://doi.org/10.1080/03004430.2012.711595

Jones, T. L., & Prinz, R. J. (2005). Potential roles of parental self-efficacy in parent and child adjustment: *A review. Clinical Psychology Review*, 25(3), 341-363. https://doi.org/10.1016/j.cpr.2004.12.004

Junttila, N., Vauras, M., & Laakkonen, E. (2007). The role of parenting self-efficacy in childrenś social and academic behavior. *European Journal of Psychology of Education*, 22(1), 41-61. https://doi.org/10.1007/BF03173688

Kadan, G. (2018). Oyun ve çocuk" [Play and Children]. In R. Küçükali (Ed.), *Oyun ve çocuk* [Play and Children] (pp. 223-237). Anı Publishing.

Kılıçgün, M. Y. (2017). The examination of the self-efficacy status of the motherswhose children continued to preshool educational courses. Uluslararası Eğitim Yönetimi Forumu EYFOR [International Education Management Forum] VIII içinde (s.1). Ankara, Turkey. Retrieved from https://www.academia.edu/35524816/Okul_%C3%96ncesi_E%C4%9Fitim_Kurumlar%C4%B1na_Devam_Eden_%C3%87ocuklar%C4%B1n_Annelerinin_%C3%96z_Yeterlilik_Durumlar%C4%B1n%C4%B1_%C4%B0ncelenmesi .

Kotil, Ç. (2010). *The effects of mother's parental self-efficacy and adjustment to school expectatıons on socıal-emotıonal adjustment of 5-year-old chıldren who have just started preschool.* [Unpublished Master Theses]. Marmara University, İstanbul.

Kwon, K. A., Bingham, G., Lewsader, J., Jeon, H. J., & Elicker, J. (2013). Structured task versus free play: The influence of social context on parenting quality, toddlers' engagement with parents and play behaviors, and parent–toddler language use. *Child & Youth Care Forum*, 42(3), 207-224. https://doi.org/10.1007/s10566-013-9198-x

Leerkes, E. M., & Crockenberg, S. C. (2002). The development of maternal self-efficacy and its impact on maternal behavior. *Infancy*, 3(2), 227-247. https://doi.org/10.1207/S15327078IN0302_7

Maglica, T., Ercegovac, I. R., & Ljubetic, M. (2020). Mindful parenting and behavioural problems in preschool children. *Hrvatska Revija za Rehabilitacijska Istrazivanja*, 56(1), 44-57. https://doi.org/10.31299/hrri.56.1.4

Mahoney, G., Powell, A. & Finger, I. (1986). The maternal behavior rating scale. *Topics in Early Childhood Special Education*, 6(2), 44-56. https://doi.org/10.1177/027112148600600 2

Mash, E. J., Johnston, C. & Kovitz, K. (1983). A comparison of the mother-child interactions of physically abused and non-abused children during play and task situations. *Journal of Clinical Child & Adolescent Psychology*, 12(3), 337-346. https://doi.org/10.1080/15374418309533154

Morgan, T. C. (1977). *A brief introduction to psychology*. Austin: McGraw-Hill Book Company.

Mouton, B. & Roskam, I. (2015). Confident mothers, easier children: A quasi-experimental manipulation of mothers' self-efficacy. *Journal of Child and Family Studies*, 24(8), 2485-2495. https://doi.org/10.1007/s10826-014-0051-0

Murdock, K. W. (2013). An examination of parental self-efficacy among mothers and fathers. *Psychology of Men & Masculinity*, 14(3), 314-323. https://doi.org/10.1037/a0027009

Özdoğan, B. 2014. *Çocuk ve oyun: Çocuğa oyunla yardım* [Child and play: helping the child with play]. Anı Publishing.

Ozer, E. M. (1995). The impact of childcare responsibility and self-efficacy on the psychological health of professional working mothers. *Psychology of Women Quarterly*, 19(3), 315-335. https://doi.org/10.1111/j.1471-6402.1995.tb00078.x

Öztürk, M. & Giren, S. (2015). Annelerin Ebeveynlik Algıları İle Çocukların Problem Davranışlarının Çeşitli Değişkenler Açısından İncelenmesi. *Journal of Education Faculty*, 17(2), 477-503.

Özyürek, A., & Gürleyik, S. (2016). Anne babaların okul öncesi dönem çocukları ile etkileşimlerinde oyunun yeri [The place of the game in parents' interaction with their children in preschool stage]. *Journal of International Social Research*, 9(42), 1283-1289. https://doi.org/10.17719/jisr.20164216239

Pallant, J. (2017). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS*. Mc Graw Hill Education.

Porter, C. L., & Hsu, H. C. (2003). First-time mothers' perceptions of efficacy during the transition to motherhood: links to infant temperament. *Journal of Family Psychology*, 17(1), 54-64. https://doi.org/10.1037/0893-3200.17.1.54

Root, A., K., & Rubin, K. H. (2010). Gender and parents' reactions to children's emotion during the preschool years. In A. Kennedy Root & S. Denham (Eds.), *The role of gender in the socialization of emotion: Key concepts and critical issues* (pp. 51-64). Jossey-Bass.

Schunk, D. H. (2011). *Öğrenme teorileri-Eğitimsel bir bakışla* [Learning theories - From an educational perspective]. (M. Şahin, Çev.). Ankara: Nobel Yayıncılık.

Seven, S. (2007). Effects of family related factors on social behavior problems of six years old children. *Educational Administration: Theory and Practice*, 51(51), 477-499.

Sevigny, P. R., & Loutzenhiser, L. (2010). Predictors of parenting self- efficacy in mothers and fathers of toddlers. *Child: Care, Health and Development*, 36(2), 179-189. https://doi.org/10.1111/j.1365-2214.2009.00980.x

Sherer, M., Maddux, J. E., Mercandante, B., Prentice-Dunn, S., Jacobs, B., & Rogers, R. W. (1982). The self-efficacy scale: *Construction and validation. Psychological Reports*, 51(2), 663-671. https://doi.org/10.2466/pr0.1982.51.2.663

Sugiana, S., Sasmiati, S., & Yulistia, A. (2020). Relationship between parenting self efficacy and parenting stress on parents to support early children playing at home. *Indonesian Journal of Early Childhood Education Studies*, 9(2), 124-129. https://doi.org/10.15294/ijeces.v9i2.42212

Suzuki, S., Holloway, S. D., Yamamoto, Y., & Mindnich, J. D. (2009). Parenting self-efficacy and social support in Japan and the United States. *Journal of Family Issues*, 30(11), 1505-1526. https://doi.org/10.1177/0192513X09336830

Swick, K. J. & Hassell, T. (1990). Parental efficacy and the development of social competence in young children. *Journal of Instructional Psychology*, 17(1), 2-15. https://files.eric.ed.gov/fulltext/ED306031.pdf

Teti, D. M. & Gelfand, D. M. (1991). Behavioral competence among mothers of infants in the first year: The mediational role of maternal self-efficacy. *Child Development*, 62(5), 918-929.

Wood, E., & Attfield, J. (2007). *Play, learning and the early childhood curriculum*. Paul Chapman.

Yıldırım, A., & Şimşek. H. (2016). *Sosyal bilimlerde nitel araştırma yöntemleri* [Qualitative research methods in the social sciences]. Seçkin Publishing.

Yıldırım, F., & İlhan, İ. Ö. (2010). The validity and reliability of the general self-efficacy scale- Turkish form. *Turkish Journal of Psychiatry*, 21(4), 301-308. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.1072.624&rep=rep1&type=pdf

Investigation of the Change in the Features of Turkish Items in the High School Entrance System 2018-2022

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Abstract

This study aims to examine the structural features of Turkish items in the High School Entrance System (LGS), first implemented in 2018, and to determine changes in these features over the years. This descriptive survey initially investigates how 100 Turkish items administered in the LGS from 2018 to 2022 changed in terms of test difficulty, discrimination, and internal consistency. Subsequently, textual features (sentence, word, and syllable length; readability), contextual features (visuality, meaning of the item stem, common stem), and purpose features (content domain, text type) of the items were determined, and changes in these features over the years were examined. As a result of the study, it was found that the test difficulty of the LGS Turkish test decreased over the years, indicating an increase in item difficulty. While there was no significant overall change in test discrimination, a general decrease in test discrimination was observed. The study also revealed variations in item lengths over the years, with an observed increase in the overall test's average length during the same period. The content of the items predominantly consisted of informative texts; however, in some years, poetry and narrative texts were included in the items.

Keywords: Turkish education, High School Entrance System, reading comprehension items, structural features, readability.

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Introduction

The Turkish language course, in which mother tongue education is carried out systematically, aims to provide primary and secondary school language skills. Students' competence in language skills is directly proportional to their academic success (Sevgi & Karakaya, 2021; Şahin, 2022). The performance indicators for the courses are the result of measurement and evaluation activities. These indicators are also one of the main variables determining students' transition between levels. In Turkey, two central exams determine the transition between levels. The first one is the High School Entrance System (LGS), which regulates the transition from secondary school to high school, and the second one is the Turkish Proficiency Test (known as TYT) and the Field Proficiency Test (known as AYT) used for university entrance. It can be said that LGS has particular importance in terms of the average age of the students and that it is the first centralized exam they face. Students enrolled in the eighth grade of formal schools participate in this verbal and numerical exam. With the exam results, students can be placed in science high schools, social sciences high schools, project schools, and Anatolian technical programs of vocational and technical Anatolian high schools (MEB-LGS Report, 2022, p. 12). The number of Turkish items and the coefficient for scoring are higher in the verbal section than in other verbal subtests. The Turkish items in the central exam are based on the eighth-grade outcomes of the Turkish Curriculum (for grades 1-8) (MEB-LGS Report, 2022, p. 13; MEB-LGS Report, 2021). Although the curriculum includes learning outcomes for listening/monitoring, speaking, reading, and writing skills, the central exams focus on measuring specific learning outcomes (Aydın, 2022; Calp & Alpkaya, 2021; Taşıyaran, 2022).

In line with the Turkish Lesson Teaching Program (for Grades 1-8), the education provided during secondary school serves the purpose of using language skills effectively, making reading and writing skills a habit, developing high-level thinking skills, using information sources effectively, reinforcing national and spiritual values, and gaining aesthetic pleasure (MEB, 2019a). The fact that reading and writing skills are given particular importance in the program can be explained by the fact that both are acquired during the school process. For this reason, it is possible to say that what is expected from students in the central exams is to realize the reading and partial writing achievements. Of course, it is known that this situation is affected by many variables, such as the multiple-choice preparation of central exams, the breadth of the target group taking the exam, and the fact that reading is considered the essential element of personal learning. According to Uluyor and Eryılmaz (2015), among these variables, reading is more effective in raising individuals who can think creatively and critically, cooperate, communicate effectively, take responsibility, try different ways of accessing information, and utilize technology for its purpose. For students, reading is seen as a great source of input in acquiring world knowledge (Januarty & Nima, 2018). According to Hiebert (1983), reading is an essential life skill, and it is not possible to be successful in life without the ability to read well. Accordingly, measuring students' reading skills in central transition exams is essential.

Reading occurs through an interaction between author-reader-text. Many factors, such as prior knowledge, cultural background, value judgments, and expectations, play an active role in realizing this communication (Wigfield & Guthrie, 1997). In this regard, meaning-making in reading is a process in which the reader puts his/her prior knowledge and mental skills to work; variables such as the reader's prior knowledge, interest, need, and reading level can affect the meaning-making process positively or negatively (Melanlıoğlu, 2021). Guthrie and Scafiddi (2004) discuss the factors affecting the meaning-making process of reading as text, reader, the interaction between the reader and the text, and the mental state of the reader after reading the text; Singer (1978) examines them under four main headings: individual differences, reading task, reading purpose and text. Uyar (2015) draws attention to the reader (the reader's prior knowledge and the reading strategy used), motivation, text, and context elements that affect the process. These elements can be considered as determinants of the level of reading comprehension. Reading comprehension refers to the comprehension of the reading material (Özdemir, 2011). The stages that need to be realized to reach comprehension of the reading material are as follows (Davis, 1944):

- Vocabulary
- Predicting the meaning of words or phrases based on context
- Follow the organization of the text and identify antecedents and references within it
- Select the main idea of the text
- Be able to answer items specifically answered in the text
- To be able to answer items that are answered in the text but not in the words in which the item is asked
- Making inferences from the text
- To be able to recognize literary arts in the text
- Identifying an author's purpose, intention, and point of view, making inferences about an author

Considering the nine stages listed, it should only be expected to follow them in some reading texts. For example, when an informative text is read, there is no need to realize the stage of recognizing literary arts to establish meaning in this text. Therefore, the steps followed in reading comprehension differ according to the text type. However, vocabulary knowledge, the first stage, is necessary for making meaning in every text type, including informative, narrative, and poetry. Orasanu (1986) asserts that vocabulary knowledge is the principal determinant influencing the information a reader brings to the text, the comprehension of the text, and the subsequent capacity for learning and retention. There needs to be more than the reader's vocabulary knowledge to understand the text; the reader should also have fluent reading skills. Reading fluency is associated with cognitive processes defined as information retrieval, comprehension, evaluation, and reflection (OECD, 2019), and it includes the speed and accuracy of reproducing text into spoken language (Jiang, Sawaki & Sabatini, 2012). Fluency improves as readers progress in automatic decoding and word recognition, resulting in more accurate and faster reading. As readers develop automaticity in word recognition, text comprehension improves at the cognitive level (Perfetti & Hogaboam, 1975; Stanovich, 1980). For reading fluency to be realized, readers must have automatic recognition, vocabulary knowledge, formal discourse structure knowledge, world knowledge, and the ability to use cognitive and metacognitive strategies (Grabe, 1991). Gabb (2000) asks an essential item about why students face obstacles in moving to the fluency stage despite having basic decoding skills. At this point, variables such as the type of text encountered, readability level, and vocabulary knowledge should not be ignored. Reading fluency is also considered essential to meaning-making in PIRLS and PISA, which are organized internationally and focus on reading comprehension.

In the PISA application, in which students in the same age group as LGS students participate, six competency areas for reading literacy are defined. These competency areas, which are shaped according to the text and the behavior expected from the student, follow a hierarchy. The items in the LGS Turkish test are similar to the reading items in the PISA application. It is known that the skills that the items in the LGS test aim to focus on a higher level than the previous exam - TEOG- items (Ayyıldız & Aktaş, 2022; Azili & Tutkun, 2021; Çepni, 2019; Kızkapan & Nacaroğlu, 2019; Şan & İlhan, 2022). In the 2023 Education Vision Document published by the Ministry of National Education, it is stated that "New generation digital measurement materials that support metacognitive skills will be developed so that students can achieve the desired results in international exams such as PISA." (MEB, 2018a). In this context, it is seen that Turkish items were prepared per visual reading and context-based item logic.

In this context, LGS Turkish items focus on students' analytical and critical thinking, interpretation, and evaluation skills. Batur, Ulutaş, and Beyret (2019) and Çiçek and Dilekçi (2022) found that LGS Turkish items met the PISA reading skills objectives at levels 2, 3, and 4, and explained the reason for this result with the fact that LGS was not prepared at the targeted level in terms of measuring high-level thinking skills. This finding also coincides with the results of Aktaş's (2022) study in which LGS items were associated with PISA reading proficiency levels. Kanık Uysal (2022) determined that there were no items at the 5th and 6th levels, characterized as high-level reading

skills according to PISA reading skills proficiency levels, in LGS. In addition, the researcher, who also evaluated the LGS items according to the revised Bloom's taxonomy, stated that there were only items that could be associated with the creation step for higher-order thinking skills and that the analysis and evaluation steps were not considered. In this sense, Vural (2020) states that the existing exam cannot measure higher-order thinking skills. Gökdemir, Aydaşgil, and Topçuoğlu (2021) also found that the items in the 2020 LGS mainly corresponded to the comprehension and recall levels of the taxonomy. Erden (2020), who reveals the effect of the "new generation items" defined at the point of measuring higher-order thinking skills of the exam in the field in line with teacher opinions, states that Turkish teachers find the new generation items focused on higher-order thinking skills suitable for reading and grammar achievements, they like them in terms of associating them with higher-level achievements, but they find them insufficient in terms of the items being above the achievements, focusing on specific achievements, not including verbal logic items in the achievements, trying to make Turkish items similar to mathematics items and not addressing all learning areas. This result is similar to the results of Aydın (2022), who found that the LGS Turkish items conducted between 2018 and 2021 did not include listening and speaking objectives at all and measured 85% reading and 15% writing objectives. Based on the fact that LGS Turkish items were prepared by taking 8th-grade achievements into consideration, Calp and Alpkaya (2021) concluded in their study that LGS Turkish items were sufficient to measure the level of achievement of the learning outcomes in the Turkish curriculum, but ignored to measure the achievements related to some skill areas.

Studies on LGS Turkish items (Aktaş, 2022; Altun, 2021; Batur, Ulutaş & Beyrut, 2019; Benzer, 2019; Calp & Alpkaya, 2021; Çiçek & Dilekçi 2022; Ekinci & Bal, 2019; Erden, 2020; Kanık Uysal, 2022; Kılkapan & Nacaroğlu, 2019; Ordu, Engin & Topçuoğlu, 2021; Sayın & Takıl, 2023; Soysal & Güngör, 2022;), it is seen that LGS Turkish items are addressed from various perspectives such as reflecting the learning outcomes in the Turkish curriculum, representing language skills, testing higher-order thinking skills, and meeting the reading levels in international exams. The correct answer rate of the items and the variables affecting this rate (such as the educational level of parents) are discussed in the reports published by the Ministry of National Education on the evaluation of LGS (MEB-LGS Report, 2022; MEB-LGS Report, 2021). When the literature on the subject was reviewed, no correlational studies were found on LGS Turkish items from 2018 to date.

Research Questions

The current study aims to examine the structural and psychometric features of LGS Turkish items between 2018 and 2022 in detail and to determine the relationship between these two factors. In line with the stated purpose, the questions sought to be answered within the scope of the research can be listed as follows:

1. How do LGS 2018-2022 Turkish test statistics (test difficulty, discrimination, internal consistency) change?
2. How do the textual features (sentence, word, syllable length, and readability) of LGS 2018-2022 Turkish test items change?
3. How do the contextual features of LGS 2018-2022 Turkish test items (visuality, meaning of the item root, common stem) change?
4. How do the purpose features (sub-topic, text type) of LGS 2018-2022 Turkish test items change?
5. How do the test statistics, textual, contextual, and purpose features of LGS 2018- 2022 Turkish test items change together?

Considering the listed sub-problems, it is aimed to examine the change in test statistics in the context of test difficulty index, test discrimination, and internal consistency of the items; to reveal the structural features by considering textual, content, and objective qualities; and to determine the change in these features. Considering that 1,031,799 (83.46%) of the 1,236,308 eighth-grade students who automatically applied to the 2022 LGS (MEB, LGS-2022 Report, p. 18) participated in the exam (MEB, LGS-2022 Report, p. 18), it is believed that the results of the research are essential for policymakers, teachers, students, parents, and interested parties.

Method

Research Design

Since this study aims to reveal the structural features of LGS Turkish items and determine how these features change over the years, the research was conducted using a descriptive survey research method. Descriptive survey research aims to summarize the features of a given situation (LGS Turkish items) by describing its features as thoroughly and carefully as possible and revealing its features in detail (Büyüköztürk, et al., 2020).

Sample/Documents

In the study, MoNE compiled the changes in LGS Turkish test statistics from post-exam reports. The textual (sentence, word, and syllable length; readability), contextual (visuality, meaning of the item stem, common stem), and purpose features (sub-topic, text type) of the items were analyzed by the researchers. All documents were accessed from MoNE's official website (https://raporlar.meb.gov.tr/); no participants were involved. All human research and all other activities that involve partially human research, regardless of whether there is a sponsor/supporter, must be reviewed and approved by the relevant ethics committee before data collection can begin. All research involving human participants (including interviews, questionnaires, and questionnaires) must be assessed by the relevant ethics committee, except for research that does not require ethics committee approval.

Data Collection Tool

Turkish items of LGS were analyzed in detail. The items are made openly available within days/days following the administration of the exam. However, the data of the students who participated in the exam are not open access; information about the exam results can be accessed from the "Central Examination Report on Secondary Education Institutions" published regularly by MoNE every year. These reports include introductory information on the scope and evaluation of the exam, statistics of students who took the exam, descriptive statistics on correct answers based on subtests, central exam score distribution, and information on the relationship between exam performance and school achievement score. However, the reports do not include any item-based information.

Data Analysis

The current study analyzed 100 Turkish items from LGS 2018-2022 using the features specified in Table 1.

Table 1.
Features in the Items

Features	Variables
Test statistics	Test difficulty
	Test discrimination
	Internal consistency coefficient (KR-20)
Textual features	Sentence, word, and syllable length
	Readability
Content features	Whether it is visual or not
	Positive-negative item stem
	Dependence on a common stem
Purpose features	The sub-topic it aims to measure
	Text type (informative, narrative, poetry)

In the analysis, the contents subject to analysis in Table 1 can be listed as follows:

Examining the change in test statistics: By examining the reports published by MoNE, the results were tabulated, and the change was expressed by creating a graph.

Examining the change in textual features: In the analysis of the textual features of the items, sentence, word, and syllable length for the item stem, sentence, options, and the whole item, and the readability of the items were calculated. Notably, different readability formulas can be used in readability calculations (such as the Dale-Chall readability formula, Flesch readability formula, Coleman readability formula, and Fry readability graph). Some of these formulas have been adapted

into Turkish. For example, the Flesch readability formula was adapted into Turkish by Ateşman (1997) (Equation 1) and has gained widespread use (Baş & Yıldız, 2015; Çiftçi et al., 2007; Durukan, 2014). At this stage, calculations were performed using Python programming language, and the results were shown in tables and graphs.

$$\text{Readability value} = 198.825 - (40.175 \cdot [X1] - 1) - (2.160 \cdot [X2] - 2) \qquad \text{(Equation 1)}$$

X1: Average length of sentences in the text in words

X2: Average length of words in the text in syllables

Although the readability of texts has been calculated, this study calculated the readability values of Turkish items for the first time. For this purpose, the process steps were introduced in detail. In the process of calculating the length and readability values of the items,

- The expressions with Roman numerals such as I and II in the items with premises are written as "one, two." If the bullet points are written as I. and II. in the item, they are edited as they are read as "first, second."
- Phrases are written as numbers, such as "5, 1980", and have been edited to read as "five, one thousand nine hundred and eighty."
- The lines in the poems are put together to form sentences.
- The statements in the options are defined as sentences.
- The words or phrases in the options are also defined as sentences. For example, the expression "Only I" is organized as "Only one," and the expression in each option is counted as a sentence.
- In the Turkish subtest of the LGS 2019 application, visual text was included in 5 items (items 4, 5, 7, 17 a, 18), and verbal expressions were shown in a table in 2 items (items 19 and 20). In the "visual reading" items, the information in the visual was described verbally. The expressions used in the description process were chosen like the expressions in other items (abstract-concrete, length, etc.). For example, visual texts were described verbally in item 4 of the 2019 exam. While the readability rate of the expressions in the item stem and the item sentence is 76.06, the readability value calculated for the whole item because of the verbal descriptions of the visuals in the options is 74.07.

Examining the change in content features: In the examination of the content features of the items, whether the items contained visuals, whether the item stem was positive or negative, and whether the items were dependent on a common stem were examined; frequency and percentage values were calculated, and the results were presented graphically. Although the readability of texts has been calculated, in this study, the readability values of Turkish items were calculated for the first time. For this purpose, the process steps were introduced in detail. In the process of calculating the length and readability values of the items;

Examining the change in the purposeful features: To examine the purpose of the items, the subtopics that the items aimed to measure, and the type of text used in the item were analyzed; frequency and percentage values were calculated, and the results were shown graphically.

Findings

1. How do LGS 2018-2022 Turkish test statistics (test difficulty, discrimination, internal consistency) change?

Based on the results of the central exam reports, the change in LGS 2018-2022 Turkish test statistics was analyzed. In the 2018 numerical report, the mean and standard deviation values for the subtests are reported based on the answers of the students who were placed, not the number of students who participated in the exam. However, the test difficulty of the subtests was calculated based on all candidates who took the test. For comparison, the average value for 2018 was calculated based on the test difficulty. The results for 2018-2022 are shown in Table 2, and the changes over the years are shown in Figure 1.

Table 2.
Changing the Test Statistics for LGS 2018-2022 Turkish Items

Booklet	Number of students	Number of items	X	S_x	Test difficulty	Test discrimination	Internal consistency (KR-20)
LGS 2018	971.657	20	12.40	----	0.62	0.56	0.84
LGS 2019	1.029.555	20	11.75	5.15	0.59	0.59	0.87
LGS 2020	1.472.088	20	10.00	4.49	0.50	0.38	0.82
LGS 2021	1.038.492	20	9.41	4.79	0.47	0.41	0.82
LGS 2022	1.031.799	20	9.22	4.61	0.46	0.39	0.81
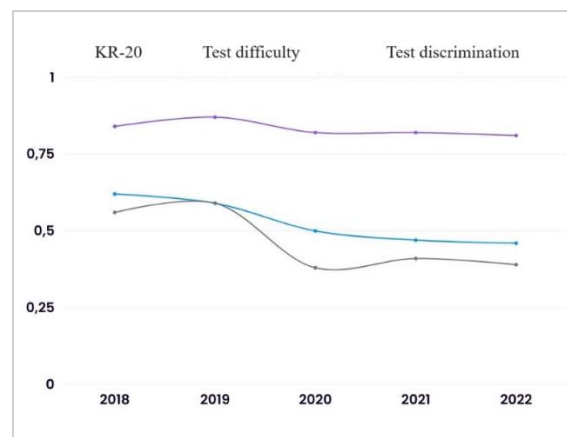
Figure 1. Changing the Test Statistics for LGS 2018-2022 Turkish Items

Average item difficulty is the average of the difficulty levels of the items in a test or subtest. This criterion provides information about the correct answer rates of the items in the test or subtest (Crocker & Algina, 1986). Figure 1 shows that the test difficulty coefficient of the LGS Turkish test has decreased over the years. In 2018, the test difficulty of the test was 0.56, while it was 0.46 in 2022. In other words, while the students who took the test in 2018 answered 56% of the Turkish items correctly on average, the students who took the test in 2022 answered 46% correctly on average. This result shows that the average correct answer rate in the LGS Turkish test has decreased.

The test discrimination coefficient is the average of the discrimination coefficients of the items in a test or subtest. This coefficient measures how much people with different achievement levels can be discriminated by the items in the test or subtest. 0.30 - 0.40 indicates adequate discrimination; 0.40 - 0.50 indicates high discrimination; and 0.50 and above indicates very high discrimination (Mertler, 2003). When Figure 1 is analyzed, it is seen that the test discriminations of the LGS Turkish test differ according to the years. While the test discrimination coefficient was close to each other and above 0.50 (very high) in LGS 2018 and 2019, this ratio decreased to 0.38 in LGS 2020. It took similar values (0.41 and 0.39 - high discrimination) in 2020-2022.

KR-20 coefficient values of 0.70 and above indicate that the internal consistency of measurement tools used in social sciences is sufficient (Cronbach, 1951; Tavakol & Dennick, 2011). When the information in Figure 1 is examined, it is seen that the internal consistency coefficients calculated for the answers given by the students to the LGS 2018-2022 Turkish items are generally similar and calculated above 0.70.

2. How do the textual features (sentence, word, syllable length, and readability) of LGS 2018-2022 Turkish test items change?

2.1. Test Length

In the process of analysing the textual features of LGS Turkish items, firstly, the number of sentences, words, and syllables in the items was calculated to determine the length of the items. The descriptive statistics calculated for the results are given in Table 3.

Table 3.
Descriptive Statistics on the Length of Items in LGS 2018-2022

Item element	Length	N of Items	Minimum	Maximum	X	Sx
All item	Sentence count	100	5.00	35.00	11.94	6.27
	Word count	100	24.00	416.00	111.15	71.53
	Syllable count	100	80.00	899.00	297.25	172.26
Stem	Sentence count	100	0.00	26.00	5.99	5.37
	Word count	100	0.00	267.00	65.63	54.11
	Syllable count	100	0.00	627.00	172.39	136.37
Question prompt	Sentence count	100	1.00	6.00	1.18	0.81
	Word count	100	5.00	54.00	11.08	8.10
	Syllable count	100	17.00	168.00	35.88	22.77
Options	Sentence count	100	4.00	24.00	4.77	2.72
	Word count	100	4.00	288.00	34.44	41.11
	Syllable count	100	4.00	600.00	88.98	100.31

When the length of a total of 100 Turkish items in the LGS in 2018-2022 is analyzed in Table 5, it is seen that there are 11.94 (±6.27) sentences, 111.15 (±71.53) words, and 297.25 (±172.26) syllables on average in the items, including item stem, item sentence, and options. It was determined that there were 5 items with direct item sentences without an item root (For example, "In which of the following sentences was a mistake made regarding the use of punctuation marks? -LGS 2018, item17). While two of these items were about spelling and punctuation, three belonged to the word meaning subtest. It was determined that the texts in the item stem had an average of 5.99 (±5.37) sentences. There were 65.63 (±54.11) words and 172.39 (±136.37) syllables on average. LGS 2018-2022 LGS Turkish items had an average of 1.18 (±0.81) sentences, 11.08 (±8.10) words, and 35.88 (±22.77) syllables. Although item sentences usually consist of 1 sentence, there are also item sentences in which other sentences are connected to the antecedents within the item sentence. The following item can exemplify this situation:

– *"According to this, in the explanations of the word "test", which of the following qualities are expected to be found in dictionaries; I. Defining the word and exemplifying its use following the definition, II. Including idioms and proverbs in which the word is used, III. It shows the meanings of some concepts with pictures. IV. Please give information about the language in which the word originated and its state in that language. V. Specify the local uses of the word. (LGS 2019; Item 18)*

There are 4.77 (±2.72) sentences, 34.44 (±41.11) words, and 88.98 (±100.31) syllables on average in all options A, B, C and D of the items. Even if there is only one word in the options, it is seen that there are at least 4 sentences since the expressions are defined as sentences. To assess the variation in item length over the years, an analysis was conducted on the word count of the item stem, item sentence, and options. The findings are illustrated in Figure 2.
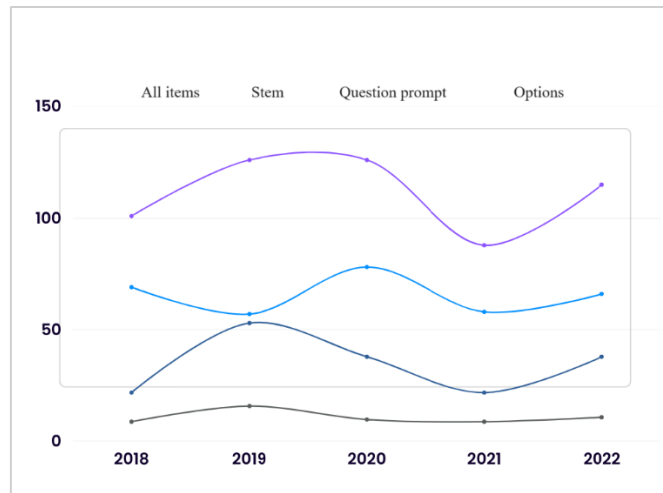
Figure 2. Changing the Length of Items in LGS 2018-2022

2.2. Readability

The calculated readability values for the Turkish items in LGS 2018-2019 are shown in Table 4 and the changes are presented in Figure 3.

Table 4.
Descriptive Statistics for the Readability Values of Items in LGS 2018-2019

Readability	Item element	N of Items	Minimum	Maximum	X	Sx
	All items	100	20.35	91.96	64.28	13.87
Atesman	Item sentence	100	0.00	77.51	39.90	15.21
	Options	100	0.00	156.04	80.93	37.26
	Item root	95	3.74	100.39	58.42	18.48

The readability values presented in Table 6 were calculated using Ateşman's (1997) readability formula. When Table 6 was analyzed, it was found that the average readability of the statements in the item stem was 58.42 (±18.48), the item sentence was 39.90 (±15.21), and the options were 80.93 (±37.26). The average readability value of all items was calculated as 64.28 (±13.87). When the calculated readability values are analyzed, it is understood that the readability of the items is generally at a medium level. It was determined that the readability of the options was easy, the item stems were medium, and the readability of the item sentences was difficult.
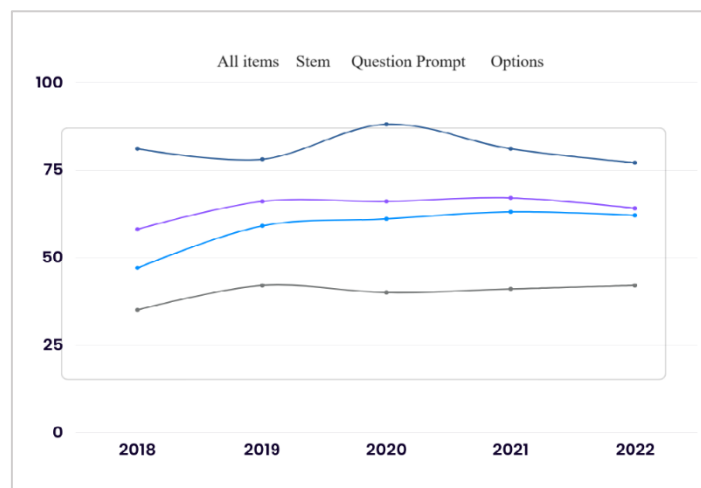

Figure 3. Changing the Readability of Items in LGS 2018-2022

Figure 3 shows that the readability of Turkish items was relatively more difficult in 2018. It is seen that the readability of the item stem, item sentence, and the whole LGS item list in 2019-2022 is consistent. Although the readability of the options was easy every year, it was determined that the readability of the options was easier in 2020 compared to other years.

2.3. Length-Readability

The Pearson correlation coefficient was calculated to determine the relationship between the length and readability of LGS 2018-2022 Turkish items. It was found that there was no significant relationship between the average word count in the items and the readability value (r=0.037; p=0.717>0.05). Relationships were also analyzed based on options. One of the principles of item writing is that the options should be equally difficult (Tekindal, 2008). For this purpose, the options should be equal in many respects, such as structure, meaning, expression, and length. In this direction, the relationship between the length and readability of the options was analyzed with Pearson correlation coefficient. The results are shown in Table 5.

Table 5.
Relationships Between the Length and Readability of the Options of the Items in LGS 2018-2022

Options	Length (number of words)				Readability			
	A	B	C	D	A	B	C	D
A	1	,976**	,969**	,982**	1	,762**	,771**	,782**
B	,976**	1	,978**	,970**	,762**	1	,774**	,873**
C	,969**	,978**	1	,973**	,771**	,774**	1	,804**
D	,982**	,970**	,973**	1	,782**	,873**	,804**	1

**p<0.001

When Table 5 is analyzed, it is seen that there is a positive and high level of correlation between the lengths of the options of the LGS 2018-2022 items (r=0.969-0.982; p<0.05). In other words, the word-based lengths of the options A, B, C, and D of the items are mainly similar. It is also understood that there are positive and high relationships between the readability of the options (r=0.771-0.873). However, the relationship between the readability of the options is lower than the word lengths. In other words, although the lengths of the options are very similar, their readability is not similar at the same rate.

3. How do the contextual features of LGS 2018-2022 Turkish test items (visuality, meaning of the item root, common stem) change?

In the study, to determine the content features of LGS 2018-2022 Turkish items, it was examined whether the items contained visual texts and poems, whether the item stem was positive or not, and whether it depended on a common stem. The calculated frequency and percentage values are given in Table 6. The change according to years is also shown in Figure 5.

Table 6.
Distribution of LGS 2018-2022 Turkish Items According to Content Features

Booklet	Content features	Yes		No	
		f	%	f	%
	Contains visual text	19	19,0	81	81,0
LGS 2018-2022	Positive item sentence	71	71,0	29	29,0
	Dependence on a common stem	7	7,0	93	93,0

When Table 8 is analyzed, it is seen that 19% of the Turkish items in LGS 2018-2022 included visual and written text. It is understood that 71% of the items consisted of positive item stems, and 29% consisted of negative item stems. 7% of the items were based on a common stem (two common stems).
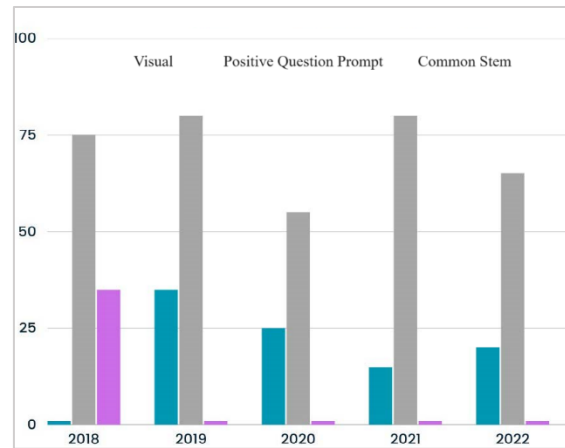
Figure 4. Changing in the Content Features of LGS 2018-2022 Turkish Items by Years

When Figure 6 is analyzed, while there were no items with visual text in 2018, 35% of the items in 2019, 25% in 2020, 15% in 2021, and 20% in 2022 included visual text. While 75% of the Turkish items in LGS 2018 were written in positive stem, 80% of the items in 2019, 55% in 2020, 80% in 2021, and 65% in 2022 were written in positive stem. In LGS, only in 2018, the first year of implementation, were items based on common stems used. A total of 7 items were asked in two common stems, 4 items based on the first common stem, and 3 items based on the second common stem. Between 2019 and 2022, no items were based on the common stem.

4. How do the purpose features (sub-topic, text type) of LGS 2018-2022 Turkish test items change?

4.1. Change in the sub-topic that the items aim to measure

The sub-subjects that LGS 2018-2022 Turkish items aimed to measure were examined in the context of curriculum outcomes. The results are presented in Table 7.

Table 7.
Distribution of LGS 2018-2022 Turkish Items According to the Sub-Subjects They Aim to Measure

Booklet	Subtopics	f	%
LGS 2018-2022	Meaning in the Word	10	10,0
	Meaning in Sentence	17	17,0
	Meaning in a Fragment	31	31,0
	Language and expression	4	4,0
	Text type	3	3,0
	Reasoning	16	16,0
	Language knowledge	11	11,0
	Spelling and punctuation	8	8,0

When Table 7 is examined, it is seen that 31% of the 100 Turkish items in LGS 2018-2022 are about meaning in passage, 17% about meaning in sentence, 16% about reasoning, 11% about grammar, 10% about meaning in word, 8% about spelling and punctuation, 4% about language and expression, and 3% about text type. In addition, 3 of the grammar items are related to expression disorder, 2 to sentence type, 1 to the elements of a sentence, 1 to roof, and 3 to structure. In addition, it is seen that the highest number of items in the LGS Turkish test in 2018-2022 belong to the topic of meaning in the passage (31%) and the lowest number of items belong to the topic of text type (3%). At the same time, the items on the meaning in the passage were the most predominant topics in all years. It is understood that the weight distribution of grammar, spelling and punctuation items is generally similar across years (this topic was not included in 2021 due to the COVID-19 pandemic). The weights of language and expression, text type, and reasoning differ between years.

4.2. Change in text type

In 13% (n=13) of the 100 Turkish items in LGS 2018-2022, it was determined that the item started with a direct item sentence or the statements in the item stem did not show a text feature. The 87 items with a textual context in the item stem were analyzed in terms of the type of text they contained, and the results are presented in Table 8.

Table 8.
Distribution of LGS 2018-2022 Turkish Items According to the Text Types

Booklet	Text type	f	%
	Informative	63	63,0
LGS 2018-2022	Narrative	3	3,0
	Poetry	1	1,0
	Informative and visual	19	19,0
	Informative and narrative	1	1,0

When Table 8 is examined, it is seen that most of the Turkish items in LGS 2018-2022 were in the informative text type. Informative text was used in 63% of the items, informative text and visual content were used in 19%, and both informative and narrative text were used together in 1% of the items. Based on all these data, 83% of the Turkish items in the exam were in the informative text type. Narrative text was used in 3% of the items, and narrative text was used together with informative text in 1%. Only 1% of the 100 Turkish items in LGS 2018-2022 utilized poetry text type. Since informative text type was used in more than 90% of the items, the change over the years is not shown graphically, but the levels of text types in LGS 2018-2022 Turkish test items according to years are as follows:

- Informative text type was used in 17 items in LGS 2018, 10 items in 2019, 13 items in 2020, 12 items in 2021, and 12 items in 2021.
- While there was no narrative text type in the LGS items in 2018 and 2019, narrative text type was used in 1 item in 2020, 1 item in 2021, and 1 item in 2021.
- While poetry was included in 1 item in LGS 2018, poetry text type was not used in the exams held between 2019-2021.
- However, in LGS 2019, informative and visual text were used together in 7 items. In LGS 2020, informative and visual text were used together in 5 items, and informative and narrative text were used together in 1 item. In LGS 2021, informative and visual text were used together in 3 items, while informative and visual text were used together in 4 items in 2022.
- In addition, it was determined that there was no text in the item stem of 2 items in LGS 2018 or the expressions were not in a context that would constitute a text.

5. How do the test statistics, textual, contextual, and purpose features of LGS 2018-2022 Turkish test items change together?

The changes in test statistics, textual features, contextual features, and purposeful features of LGS 2018-2022 Turkish test items are shown in Table 9.

Table 9.
Relationships between Psychometric and Structural Features of LGS 2018-2022 Turkish Items

Booklet	Psychometric Features ($\overline{X}$)				Textural Features ($\overline{X}$)		Content Features (%)			Purposive Features (%)		
	Test difficulty	Test discrimination	KR-20	Word count	Readability	Visual	Positive Question Prompt	Common Stem	Informative text	Comprehension	Grammar	Reasoning
LGS 2018*	0.62	0.56	0.84	100.7	58.3	0.0	75.0	35.0	85.0	70.0	25.0	5.0
LGS 2019	0.59	0.59	0.87	126.3	65.8	35.0	80.0	0.0	85.0	50.0	25.0	25.0
LGS 2020	0.50	0.38	0.82	125.9	66.3	25.0	55.0	0.0	95.0	55.0	20.0	20.0
LGS 2021	0.47	0.41	0.82	88.4	67.2	15.0	80.0	0.0	75.0	85.0	0.0	15.0
LGS 2022	0.46	0.39	0.81	114.7	63.9	20.0	65.0	0.0	75.0	65.0	25.0	10.0

The results obtained when Table 9 is analyzed stated that LGS 2018-2022 Turkish test statistics are considered together; it is seen that the test difficulty coefficient for the Turkish test was 0.62 and 0.59 in 2018 and 2019, respectively, when the test discrimination was the highest. In the years when the Turkish test was the easiest for the students on average, the discrimination values and internal consistency coefficient were also the highest. As the test difficulty decreased, test discrimination also showed a general decrease. However, it was determined that the internal consistency of the tests and the curves of change in test difficulty and discrimination were different.

The average number of words in the tests increased and decreased over the years, which is similar to the changes in test difficulty and discrimination. It was determined that the test difficulty of the items in 2019, which had the highest test length (average word count), was the highest (easiest), and the test discrimination and internal consistency were the highest. However, the change curves were not similar.

Similarly, the test with the highest proportion of items with visual text (LGS 2019) also had the highest test discrimination and difficulty. The average word count was also the lowest in the years when visual text was not included at all (LGS 2018) and when it was included the least (LGS 2021). In other words, it was determined that the length of the visual items was longer than the other items. Since the common stem item was only in 2018, it is impossible to talk about a change in this regard. In 2020, the year with the lowest number of affirmative item sentences, the average stoicism was calculated to be the lowest. While there was a slight increase in test discrimination in 2021, when the number of affirmative item sentences increased, there were slight decreases in affirmative item sentences and test discrimination in 2022. No similar change was observed for the change in test difficulty and whether the item stem was affirmative or negative. The composition of the items in the tests with affirmative-negative stems also varies by year.

In 2020, when informational text was used the most, test discrimination was the lowest. However, test discrimination was lower in 2021 and 2022, when this text type was used the least. It is seen that the changes in test difficulty and discrimination are not similar to the changes in the sub-subjects that the items aim to measure.

Conclusion, Discussion and Suggestions

This study aims to examine the structural and psychometric features of LGS Turkish items implemented since 2018 and determine their relationship. For this purpose, 100 LGS Turkish items were analyzed psychometrically in terms of test difficulty index and item difficulty index and structurally in terms of textual, content, and purpose features. As a result of the evaluation, firstly, the results obtained within the scope of the research, the discussion of these results in the literature, and finally, the recommendations are given.

Test statistics

It is understood that the test difficulty of LGS Turkish items has decreased over the years; in other words, the items have become more difficult over time. While the discrimination levels of the tests were relatively high in 2018 and 2019, they were found to be low in 2020-2022 (although they still had high discrimination).

Textural features

The number of words was chosen to compare the length of the items. It is seen that the part with the most expressions among the elements that make up the item is the item stem, then the options, and finally, the item sentence. This is expected, considering that most of the items aim to measure reading comprehension skills. Although the length of the items based on the number of words is generally similar, it is understood that the item lengths in 2018 and 2021 are shorter than the exams in other applications. This may be because LGS was implemented for the first time in 2018, and there were 7 items based on the common stem. In 2021, there was a partial shortening in the item lengths due to the suspension of education for a certain period due to the COVID-19 outbreak and the realization of online training.

The readability of the items was generally at a medium level. The readability of the options was found to be easy, the item stems were found to be medium, and the readability of the item sentences was found to be difficult. One of the reasons for this situation is that the item sentences usually consist of a single sentence and, therefore, include expressions in the question prompt. The readability of the LGS items in 2019-2022 was found to be of medium difficulty and consistent. Although the lengths of the options were very close to each other on a word basis, the readability of Option B was generally more difficult than the other options.

Content features

In 2018, the first year of implementation, there were no items with visual texts to measure visual reading skills, while the number of items with visual texts was consistent in 2019-2022. It has been determined that the distribution of positive and negative roots of Turkish items in LGS 2018 showed inconsistencies. Regarding measurement and evaluation principles, items should be written in a positive stem. Due to their nature and the small number of items in the exam, some items can be expected to be written in negative stems. For example, an item aimed at measuring the acquisition of "Determines the main idea / main emotion of the text" should be written in the positive root. However, given that a text in an item aimed at assessing the outcome 'Identifies the auxiliary ideas in the text' may contain multiple auxiliary ideas, it is impractical to create individual items for each. Consequently, the item designed to measure this outcome may adopt a negative format. Notably, in the inaugural year of LGS implementation in 2018, items based on common stems were employed. A total of 7 items were presented, with 4 items centered on the first common stem and 3 items on the second common stem. Subsequently, between 2019 and 2022, no items were framed around common stems. The absence of common stem-related items during this period, attributed to the limited item count, is considered a positive outcome.

Purposive features

In the LGS applications of 2018 and 2019, the poetry text type was incorporated into only one item. Notably, in 2019, it was discerned that the verses within the item's options were intended not for poetry interpretation but for the comprehension of visual texts. Furthermore, it was observed that no items for poetry interpretation were present in the Turkish sections of the applications from 2020 to 2022. Considering the inclusion of the outcome 'Writes poetry' in the 8th-grade curriculum, incorporating items featuring poetry becomes essential for ensuring content validity. Despite the emphasis on narrative texts in both the curriculum and textbooks, the sporadic exclusion or minimal utilization of narrative texts in LGS in certain years is inconsistent with content validity principles.

Changing together

A relatively inverse correlation was observed between test discrimination and the positivity of the item stem. As the items were written in negative stems, a decrease was observed in test discrimination. It is a necessity to analyze these descriptive results on an item basis in further studies. The test in 2019, the longest test, was determined to be the test with the easiest test difficulty and the highest discrimination. However, item-by-item examinations are necessary to determine whether the test becomes easier or harder as the item length increases. It was found that the readability of the items, the inclusion of visuals, being in positive or negative stems, and the type of text did not directly affect the items' difficulty levels. While some visual items focus on comprehension, some are aimed at measuring reasoning skills. Therefore, what the visual text measures is more important than the text itself. At the same time, it was determined that the length of the visual items was longer than the other items. However, the effect of this situation on difficulty should also be examined based on student data.

There are many studies in the literature on LGS Turkish items (Aktaş, 2022; Altun, 2021; Batur et al., 2019; Benzer, 2019; Calp & Alpkaya, 2021; Çiçek & Dilekçi 2022; Ekinci & Bal, 2019; Erden, 2020; Kanık Uysal, 2022; Kılkapan & Nacaroğlu, 2019; Ordu et al., 2021; Soysal & Güngör, 2022). For example, Calp and Alpkaya (2021) found that LGS items predicted the learning outcomes related to reading and writing skill areas in the Turkish curriculum but did not include any content related to the learning outcomes related to listening/watching and speaking skill areas. When the outcomes included were examined, it was understood that items covering reading interpretation, making

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inferences, spelling, punctuation, sentence types, verbs, and expression disorders were included. It is stated that items on similar topics were asked in all LGSs from 2018 to 2022 (Aydın, 2022). Erden (2020) and Sayın and Takıl (2023) stated that Turkish teachers think that skill-based items focus on specific learning outcomes and do not cover all learning areas. Therefore, content validity in LGS exams cannot be fully ensured. These issues overlap with Benzer's (2019) study examining Turkish textbooks for LGS exams. Another related result was found in Diker Coşkun's (2013) study, which examined textbooks in terms of PISA reading criteria, and it was concluded that textbooks were insufficient in developing reading skills that require higher-order thinking skills. In Altun's (2021) study examining the theme evaluation items in the 8th-grade Turkish textbook according to PISA levels and Bloom's revised cognitive domain taxonomy, it was found that there were no items belonging to the steps of analysis, evaluation, and creation. Erden (2020) states that Turkish teachers also state that textbooks are not compatible with skill-based items and that they experience a shortage of resources. Again, the items asked of the students in Turkish exams were also examined in this context, and it was determined that there were only items for the creation step among the higher-level thinking skills according to the cognitive process dimension of Bloom's taxonomy; there were no items for the analysis and evaluation steps, and there were no items for higher level reading skills (5th and 6th level) according to PISA reading skills proficiency levels. These results indicate that Turkish course written exams are insufficient in measuring higher-level thinking skills (Kanık Uysal, 2022). In the study conducted by Büyükalan Filiz and Yıldırım (2019), the secondary school Turkish curriculum was examined according to the renewed Bloom's taxonomy. It was understood that the gains were concentrated in the comprehension and application steps in the cognitive process dimension. There were very few gains in the knowledge accumulation dimension at the metacognitive level. A similar study conducted by Çerçi (2018) determined that the learning outcomes were insufficient to represent the steps of analyzing, evaluating, and creating, which require high-level thinking skills. It was observed that the skills addressed in all test types and activities in the textbook did not show a balanced distribution in cognitive stages and were concentrated in the comprehension and analysis stages. In addition, it was concluded that the recall stage was not included in the LGS Turkish test, the application stage was not included in the LGS Turkish test and sample items, the evaluation stage was not included in the LGS Turkish test, sample items and theme evaluation items, and the creation stage was not included in the LGS Turkish test and sample items (Taşıyaran, 2022).

The content that students encounter in the Turkish course has also been compared with PISA, an international exam. It has been determined that the reading skill outcomes in the Turkish curriculum do not match the PISA content, and the outcomes that do match are concentrated at levels 1, 2, 3, and 4 (Batur & Ulutaş, 2013; Batur et al., 2019; İnce, 2016, Karabulut, 2017; Koç, 2021). When the items in Turkish textbooks were compared according to PISA reading proficiency levels, it was found that the items measured subcognitive processes (Benzer, 2019; Bozkurt et al., 2015; Yağmur, 2009), there were almost no items at the 5 and 6 levels in Turkish textbooks, the weight of the items was in the cognitive process of accessing and remembering information (Bozkurt et al., 2015) and the principles of the current reading approach were not used in reading activities (Yağmur, 2009). However, 75% of the PISA reading skill assessment framework includes metacognitive level items (Bozkurt et al., 2015). An indicator of this is the timing of graph/table reading and visual interpretation skills. This item type is also included in LGS and sample items published by the ministry. Köse and Kanık Uysal (2020) state that visual literacy, which is based on understanding and solving expressions in visual elements, is considered an essential skill in today's conditions. Success in a centralized exam is important for evaluating students' academic achievement. Turkish items in these exams are interpreted not only as an indicator of academic success but also as an output that shows that individuals who can communicate effectively with society have grown up. In this respect, learning to read is the foundation of academic success and is considered one of the most outstanding achievements in childhood (Ehri, 1995; Paris, 2005). Pressley (1998) argues that it is important for students to perceive themselves as successful readers for their academic success. It is only possible for a student to characterize himself/herself as a successful or active reader when he/she makes sense of what he/she reads, in other words, when he/she reaches meaning from the text. Research on reading emphasizes that reading is a process of making meaning (Dadandı, 2020; Temizkan, 2008,

2009; Uyar, 2015; Yılmaz, 2008). In LGS, students' realization of this meaning-making process is itemized. In this inquiry, students are expected to use their world knowledge while reaching meaning in the text they read.

The Ministry of National Education's 2023 Education Vision Document states that one of the goals is to reduce the need for competitive and qualifying exams. In this context, the central exam's purpose, content, and item types should be reconsidered, and the level of students' internalization and use of 21st-century skills should be measured. Thus, it aims to adopt a measurement and evaluation approach in which basic cognitive skills are measured (MEB, 2018a). The change in the system applied in the transition to high schools in 2018 was also influenced by this education policy. Batur and colleagues (2019) state that Turkey's central exams for transition to high school were conducted with a system that asked for memorized knowledge until 2018 and did not focus on reading comprehension and interpretation. Therefore, an inference can be made regarding the level of Turkish that students transfer to daily life in creating the content of LGS items.

In this study, the items were evaluated in terms of text type, readability, and visual usage, and an attempt was made to present a perspective by including the results of the studies in the literature on the subject. Based on the findings and results obtained, the following suggestions can be made:

- In this study, it was determined that there was no direct relationship between test length and test difficulty and that the student average was the highest in the test with the highest test length. These results should be analyzed on an item basis to prevent the perception that longer items are more difficult.
- Since exam duration remains constant, it is recommended that the average length and readability of the items should be organized in such a way that they are consistent across years.
- The readability values of LGS items should also be determined to assess the extent to which students are exposed to a reading load. It was observed that although the length of the options was the same, their readability was different. It is recommended that this issue should also be taken into consideration in item writing principles.
- To ensure content validity in LGS Turkish items, content from each text type should be included so that students can complete the process of reaching an understanding of different text types. LGS should adopt a holistic approach that includes reading and writing outcomes and listening and speaking outcomes.
- A conscious choice should be made as to which achievements can be measured with positive item stems and which with negative item stems. In this context, it is recommended to prepare a taxonomy and an item writing principle guide for constructing reading comprehension items.
- Pre-calibration studies should be conducted to ensure that the psychometric features of the items are consistent across years.
- It is recommended to publish statistics on an item-by-item basis.
- It is recommended that similar studies be conducted in exams related to different transition systems.

Limitations of the Study

In this study, changes in the structural features of the tests were analyzed based on descriptive statistics. More detailed relationship examinations can be made based on real data from students.

we declare that there is no conflict of interest between the authors, which all authors contribute to the study, and that all the responsibility belongs to the article authors in case of any ethical violations.

References

Aktaş, E. (2022). 2018-2021 LGS Türkçe sorularının PISA okuma yeterlik düzeylerine göre değerlendirilmesi *Uluslararası Türkçe Edebiyat Kültür Eğitim Dergisi, 11*(1), 258-276.

Altun, K. (2021). *8. sınıf Türkçe ders kitabındaki tema değerlendirme sorularının PISA düzeylerine ve yenilenmiş Bloom Taksonomisi'ne göre incelenmesi* (Yayımlanmamış yüksek lisans tezi). Necmettin Erbakan Üniversitesi Eğitim Bilimleri Enstitüsü, Konya

Ateşman, E. (1997). Türkçede okunabilirliğin ölçülmesi. *Ankara Üniversitesi TÖMER Dil Dergisi*, 58, 171–174.

Aydın, İ. (2022). *Liselere geçiş sınavında (LGS) yer alan Türkçe sorularının Türkçe dersi öğretimi programı ve PISA okuma becerileri yeterlikleri bağlamında incelenmesi* (Yayımlanmamış yüksek lisans tezi). Akdeniz Üniversitesi Eğitim Bilimleri Enstitüsü, Antalya.

Baş, B. & Yıldız F. İ. (2015). Türkçe ders kitaplarındaki metinlerin okunabilirlik açısından incelenmesi. *Mersin Üniversitesi Eğitim Fakültesi Dergisi*, 11 (1), 52-61.

Batur, Z., Ulutaş, M. & Beyret, T. N. (2019). 2018 LGS Türkçe sorularının PISA okuma becerileri hedefleri açısından incelenmesi. *Milli Eğitim Dergisi, 48*(1), 595-615.

Benzer, A. (2019). Türkçe ders kitaplarının PISA okuma yeterlik düzeyleri ile imtihanı. *Okuma Yazma Eğitimi Araştırmaları, 7*(2), 96-109.

Bozkurt, B., Uzun, G. L. & Lee, Y. (2015). Korece ve Türkçe ders kitaplarındaki metin sonu sorularının karşılaştırılması: PISA 2009 sonu sorularına dönük bir tartışma. *International Journal of Language Academy, 3*(4), 295-313.

Büyükalan Filiz, S. & Yıldırım, N. (2019). Ortaokul Türkçe dersi öğretim programı kazanımlarının revize edilmiş Bloom taksonomisine göre analizi. *İlköğretim Online, 18* (4), 1550-1573.

Büyüköztürk, Ş., Çakmak, E.K., Akgün, Ö.E, Karadeniz, Ş. ve Demirel, F. (2021). *Bilimsel araştırma yöntemleri*. PegemA Akademi, Ankara.

Calp, M. & Alpkaya, C. (2021). LGS Türkçe sorularının Türkçe dersi öğretim programı kazanımlarına uygunluğu üzerine bir çalışma. *Ana Dili Eğitimi Dergisi*, *9*(2), 632-654.

Çerçi, A. (2018). Türkçe dersi öğretim programı kazanımlarının (5, 6, 7, 8. sınıf) yenilenen Bloom taksonomisine göre incelenmesi. *Okuma Yazma Eğitimi Araştırmaları, 6*(2), 70-81.

Çiçek, S. & Dilekçi, A. (2022). LGS Türkçe sorularının PISA okuma ölçütlerine göre değerlendirilmesi. *Gazi Üniversitesi Gazi Eğitim Fakültesi Dergisi*, 42(2), 1535-1553.

Çiftçi, Ö, Çeçen, M. A. & Melanlıoğlu, D. (2007). Altıncı sınıf Türkçe ders kitaplarındaki metinlerin okunabilirlik açısından değerlendirilmesi. *Elektronik Sosyal Bilimler Dergisi*, 6 (22), 206-219.

Dadandı, U. P. (2020). *Okuduğunu anlamanın bilişsel-motivasyonel faktörlerle açıklanması ve okuduğunu anlama güçlüklerine yönelik bir müdahale program* (Yayımlanmamış Doktora Tezi). Trabzon Üniversitesi Lisansüstü Eğitim Enstitüsü, Trabzon.

Davis, F. B. (1944). Fundamental factors of comprehension in reading. *Psychometrika*, 9 (3), 185-197.

Diker Coşkun, Y. (2013). Türkçe ders kitaplarının PISA sınavı okuma ölçütleri açısından incelenmesi. *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi,* (26), 22-43.

Durukan, E. (2014). Metinlerin okunabilirlik düzeyleri ile öğrencilerin okuma becerileri arasındaki ilişki. *Ana Dili Eğitimi Dergisi*, 2 (2), 68-76.

Ehri, L.C. (1995). Phases of development in learning to read words by sight. *Journal of Research in Reading*, *18*, 116–125.

Ekinci, O. & Bal, A. P. (2019) 2018 yılı liseye geçiş sınavı (LGS) matematik sorularının öğrenme alanları ve yenilenmiş Bloom taksonomisi bağlamında değerlendirilmesi. *Anemon Muş Alparslan Üniversitesi Sosyal Bilimler Dergisi*, 7 (3).

Erden, B. (2020). Türkçe, matematik ve fen bilimleri dersi beceri temelli sorularına ilişkin öğretmen görüşleri. AJER, 5 (2), 270-292.

Frankel, J. R. & Wallen, N. E. (2009). *How to design and evaluate research in education*. (7th Ed.). New York, NY: McGraw-Hill International Edition.

Gabb, Sally. (2000). From talk to print: Preparing students to read with ease. *Field Notes*, *10*(2).

Grabe, William. (1991). Current developments in second language reading research. *TESOL Quarterly*. 25 (3), 375-406.

Guthrie, J. T. & Scafiddi, N. T. (2004). Reading comprehension for information text: Theoretical meanings, developmental patterns, and benchmarks for instruction. In J. T. Guthrie, A. Wigfield & K. C. Perencevich (Eds.), *Motivating reading comprehension: Concept- Oriented Reading Instruction* (ss. 225–248). Mahwah, NJ: Erlbaum.

Hiebert, E. H. (1983). An examination of ability grouping for reading instruction. *Reading Research Quarterly*, 18, 231-255.

Januarty, R. & Nima, H. N. A. (2018). Energizing students' reading comprehension through multimodal texts. *International Journal of Language Education*, 2(2), 14–22.

Jiang, X., Sawaki, Y. & Sabatini, J. (2012). Word reading efficiency and oral reading fluency in ESL reading comprehension. *Reading Psychology*, *33*, 323–349.

Kanık Uysal, P. (2022). Türkçe dersi sınavlarında yer alan soruların üst düzey düşünme becerileri açısından incelenmesi. *Ana Dili Eğitimi Dergisi*, *10* (1), 136-156.

Kızkapan, O. & Nacaroğlu, O. (2019). Fen bilimleri öğretmenlerinin merkezi sınavlara (LGS) ilişkin görüşleri. *Nevşehir Hacı Bektaş Veli Üniversitesi SBE Dergisi, 9*(2), 701–719.

Köse, S. & Kanık Uysal, P. (2020, Ekim). Türkiye'de görsel okuma ve görsel sunu alanında yapılan çalışmaların betimsel içerik analizi. XII. Uluslararası Dünya Dili Türkçe Sempozyumu'nda sunulan bildiri, Ankara.

Linacre, J. M. (1993). Rasch-based generalizability theory. *Rasch Measurement Transaction*, 7(1), 283-284.

MEB (2018a) *2023 eğitim vizyonu*. http://2023vizyonu.meb.gov.tr/doc/2023_EGITIM_VIZYONU.pdf, web adresinden 15.11.2022 tarihinde indirilmiştir.

MEB (2018b). 2018 Liselere geçiş sistemi (LGS): merkezî sınavla yerleşen öğrencilerin performansı (Eğitim analiz ve değerlendirme raporları serisi 3). Ankara: MEB Yayınları.https://www.meb.gov.tr/meb_iys_dosyalar/2018_12/17094056_2018_lgs_rapor.pdf

MEB (2019a). *Türkçe dersi öğretim program (1-8. Sınıflar için)*. Ankara: MEB

MEB (2019b). 2019 Ortaöğretim kurumlarına ilişkin merkezi sınav (Eğitim analiz ve değerlendirme raporları serisi 7). Ankara: MEB Yayınları.

MEB (2021). *2021 Liselere geçiş sistemi merkezî sınavla yerleşen öğrencilerin performansı*. Ankara: MEB Yayınları.

MEB (2022). *2022 Ortaöğretim kurumlarına ilişkin merkezî sınav.* Ankara: MEB Yayınları.

Melanlıoğlu, D. (2021). Okumada anlam kurma süreci ve PISA sınavı. (Editörler: Seçkin Aydın ve Ömer Yahşi). *PISA ve okuma kültürü*. Ankara: Nobel Yayıncılık. s.159-197.

Myford, C. M., & Wolfe, E. W. (2003). Detecting and measuring rater effects using many-facet Rasch measurement: Part I. *Journal of Applied Measurement*, 4(4), 386-422.

OECD (2019). *PISA 2018 assessment and analytical framework*. Paris: OECD Publishing.

Orasanu, Judith (Ed.). (1986). *Reading comprehension: From research to practice*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Ordu, H. H., Engin, A. S., & Topçuoğlu Ü. F. (2021). Comparison of Turkish lesson sample items for LGS published by MEB in 2018-2019 academic year and 2019 LGS Turkish items. *SDU International Journal of Educational Studies, 8*(2), 102-113.

Özdemir, E. (2011). *Eleştirel okuma*. Ankara: Bilgi Yayınevi.

Paris, S. G. (2005). Reinterpreting the development of reading skills. *Reading Research Quarterly*, 40 (2), 184-202.

Perfetti, C. A. & Hogaboam, T. (1975). Relationship between single word decoding and reading comprehension skill. *Journal of Educational Psychology, 67*(4), 461–469.

Pressley, M. (1998). Comprehension strategies instruction. I. Osborn & F. Lehr (Ed.), *Literacy for all: Issues in teaching and learning*. New York: Guilf, 113-133.

Sayın, A., & Takıl, N. B. (2023). Üst Düzey Düşünme Becerilerinin Ölçülmesine Yönelik Soruların Hazırlanmasında Karşılaşılan Zorluklar ve Çözüm Önerileri: Okuduğunu Anlama. *Gazi Üniversitesi Gazi Eğitim Fakültesi Dergisi, 43*(1), 531-561.

Sevgi, S. & Karakaya, M. (2021). Ortaokul öğrencilerinin okuma alışkanlığı ve problem çözme becerisinin incelenmesi. *Gazi Üniversitesi Gazi Eğitim Fakültesi Dergisi*, 41 (2), 1203-1225.

Singer, H. (1978). Active comprehension: From answering to asking items. *The Reading Teacher, 31,* 901–908.

Soysal, T. & Güngör, H. (2022). LGS'de dil bilgisi sorularının gerekliliği üzerine öğretmen görüşleri. *Ondokuz Mayıs Üniversitesi Eğitim Fakültesi Dergisi* 41(1), 275-310

Stanovich, K. E. (1980). Toward an interactive-compensatory model of individual differences in the development of reading fluency. *Reading Research Quarterly, 16,* 32-71.

Şahin, M. (2022). *Akıcı okuma ve temel işlem akıcılığına yönelik etkinliklerin ilkokul öğrencilerinin matematik problemi çözme başarısına etkisi (Yayımlanmamış Doktora Tezi).* İstanbul Üniversitesi-Cerrahpaşa Lisansüstü Eğitim Enstitüsü, İstanbul.

Taşıyaran, M. (2022). *LGS Türkçe sorularının öğretim programı, ders kitabı ve bilişsel alan sınıflaması açılarından incelenmesi (Yayımlanmamış yüksek lisans tezi).* Hacettepe Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara.

Tekindal, S. (2008). *Eğitimde ölçme ve değerlendirme*. Ankara: Pegem Akademi.

Temizkan, M. (2008). Bilişsel okuma stratejilerinin Türkçe derslerinde bilgiye dayalı metinlerin okuduğunu anlama üzerindeki etkisi. *Gazi Eğitim Fakültesi Dergisi*, 28(2), 129-148.

Temizkan, M. (2009). İlköğretim öğrencilerinin okuduğunu anlama düzeyleri ile yazılı anlatım beceri düzeylerinin karşılaştırılması. *Milli Eğitim*, 183, 42-66.

Uluyol, Ç. & Eryılmaz, S. (2015). 21. yüzyıl becerileri ışığında FATİH projesi değerlendirmesi. *Gazi Eğitim Fakültesi Dergisi*, 35(2), 209-229.

Uyar, Y. (2015). *Öz düzenlemeye dayalı okuma becerisinin geliştirilmesi ve anlamaya etkisi* (Yayınlanmamış doktora tezi). Gazi Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara.

Vural, C. (2020). *Son 10 yılda yapılan liselere giriş sınavlarında (SBS, TEOG ve LGS) yer alan Türkçe dersi sorularının yenilenmiş Bloom taksonomisi açısından değerlendirilmesi (Yayımlanmamış yüksel lisans tezi).* Gaziantep Üniversitesi Eğitim Bilimleri Enstitüsü, Gaziantep.

Wigfield, A. ve Guthrie, J. T. (1997). Relations of children's motivation for reading to the amount and breadth of their reading. *Journal of Educational Psychology*, 89, 420 – 432.

Yılmaz, M. (2008). Türkçede okuduğunu anlama becerilerini geliştirme yolları. *Mustafa Kemal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 5(9), 131-139.

Investigation of The Effectiveness of Positive Psychotherapy-Based 0-6 Age Family Education Program

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Abstract

In this study, the effect of the 0-6 Age Family Education Program based on Positive Psychotherapy, which was developed for parents with children between the ages of 0-6, knowledge and awareness levels, parent competencies, parental stress and parental attitudes were examined. The sample of the study consisted of 34 parents with children between the ages of 0-6 who participated from various provinces of Turkey. Data collection was carried out in the spring semester of the 2020-2021 academic year. Positive Psychotherapy Based 0-6 Age Family Education Program consisting of 4 sessions was applied online to the participants. Before training, the Parental Competence Scale, The Mother-Father Stress Scale, the Parental Attitude Scale, the Personal Information Form created by the researcher to collect the demographic information of the participants, and the Program Evaluation Questionnaire created by the researcher to determine the knowledge and awareness levels of the participants have been applied. After the training, in addition to the forms and scales applied before the training, the End of Program Evaluation Form created by the researcher was applied in order to get the subjective opinions of the participants about the training and the research data were obtained. In data analysis studies, t test for the analysis of quantitative data, frequency and percentage analysis, content analysis for qualitative data were used. As a result of all these analyzes, it was determined that the Positive Psychotherapy Based 0-6 Age Family Education Program applied to the participants positively increased the knowledge and awareness levels and parental competencies of the participants, and reduced parental stress, authoritarian and protective parental attitudes. It was observed that there was no significant difference on democratic and permissive parental attitudes.

Keywords: Positive Psychotherapy, family education, educational effectiveness

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Introduction

Human beings continue their lives as they complete the developmental periods that are considered turning points for them (Levinson, 1986). Parenting is also among the developmental tasks within the developmental periods of a person. According to Erikson (1993), a person wishes to fulfill the psychosocial developmental task of reproduction in adulthood, which continues from the end of young adulthood until the sixties. In this context, reproduction, which is the psychosexual adaptation mode of adulthood, is defined as the creation of the next generation, becoming a parent, and guiding the next generation. Individuals choose to become parents to complete their developmental tasks on their way to self-realization and not to face stagnation, which is the psychosocial complexity of this period (Yazgan İnanç & Yerlikaya, 2012).

Parents take responsibility for their children's survival and development by being attached to them with love (Erikson, 1993; as cited in Yazgan İnanç & Yerlikaya, 2012). Therefore, parents have a great influence on children's social, mental, emotional, and physical development. As the first social environment in which the child finds himself/herself after birth, the family has an important task such as meeting the child's main needs as well as ensuring that the developmental stages are accomplished in a healthy way. Every behavior and attitude towards the child is of great importance for the formation of the child's personality in the first years of his/her life. The child's bond and communication with family members constitute the foundation of the behaviors and attitudes that the child adopts towards his or her whole life (Yavuzer, 1996).

The importance of parents' attitudes and behaviors in raising children has been demonstrated by many studies (Grusec & Davidov, 2007). The child-rearing behaviors of parents are closely related to not only their own experiences but also the upbringing behaviors applied to parents in their childhood (Yavuzer, 1996). While fulfilling this crucial task, parents model their parents' behaviors while raising their children and exhibit the behaviors they observe from their parents as they raise their children (Grusec & Davidov, 2007). However, the accumulation of behaviors that individuals bring with their life cycle may not always yield positive results. The approaches followed by parents for raising their children, their methods of punishments and rewards, their teaching procedures, and the values they try to convey to the child may cause negative consequences in the child's life (Olcay, 2008).

In our rapidly developing and changing world, societies' views on family and children are differentiating with advances in science and technology. There is a consensus that parents should abandon traditional behaviors in child rearing (Duruhan & Şad, 2008; Nelsen, Lott, & Glenn, 1993). In addition, parents need help with getting to know their children, helping them in their development, and developing positive feelings about parenting (Tezel Şahin & Cevher Kalburan, 2007). In line with the contemporary requirements, education programs that only focus on changing the unwanted behaviors of the child are insufficient in understanding the child and establishing healthy relationships with him/her. Traditional methods and behavioral approaches based on reward and punishment can even be harmful to the child (Miller, 1996).

Positive psychotherapy, one of the most recent approaches, is a school of psychotherapy that focuses on positive emotion, cooperation with people in solving problems, and the hope that problems can be solved. It utilizes the principle of balance when evaluating the solution to the negativities in which individuals find themselves. It focuses on the reactions of individuals to negative situations and the functions of these reactions. Positive psychotherapy emphasizes that behavioral patterns that individuals describe as negative have in fact a function in their lives. Thus, the individual is expected to create a balanced life and future by helping the individual to interpret these functions positively (Peseschkian, 2009). Positive psychotherapy is a multicultural psychotherapy with applicability in different cultures. Positive psychotherapy aims to increase awareness and application of the field and to contribute to the well-being of society and the field of psychological assistance (Henrichs, 2012). This objective is made possible through the flexible and adaptable structure of positive psychotherapy, which is designed to increase its prevalence. In this context, it is used in many different fields from industry to education, from medicine to mental health. Although it is primarily used in individual therapy, it can also be used in group counseling, family therapy, family training, and group guidance. As a result of the teaching, awareness, and healing functions of therapy, it is appropriate for use in family education and group

guidance (Cope, 2014). It can be said that this type of therapy is suitable for family education, especially when considering the view that conflicts in interpersonal relationships in positive psychotherapy is a result of the individuals' own family history, socialization process, and culture, and that the main causes of the conflicts experienced by individuals in life occur in childhood based on their relationships with their parents or caregivers. In addition, the self-help principle of positive psychotherapy, which includes teaching the therapy method to individuals during therapy, facilitates the use of positive psychotherapy in the family education process as well. After the therapy process is complete, the individual will continue to use these methods for himself and his family (Peseschkian, 2000). In reviewing the literature, it is apparent that positive psychotherapy is used with students in the context of group guidance, but there are no programs for parents (Eryılmaz; 2012; Eryılmaz, 2015). It is more important for group guidance activities to focus on the individual, including group activities that assist individuals in becoming more aware of themselves, realizing their environment and the possibilities that surround them, and directing themselves by making realistic and appropriate plans for themselves (Özgüven, 1999). A family education program, on the other hand, provides training for parents and helps to raise healthy individuals by enhancing the relationship between children, mother, and father (Eryorulmaz, 1993). As a result, it has been of interest to study the use of positive psychotherapy in family education, which advocates that the individual who evaluates the client as a whole along with his family and culture should both integrate with his family as well as become independent of his family in a healthy manner.

In the related literature review, it was observed that there are no parent education programs that are free from traditional methods and are suitable for the needs and existence of the child, that the healing effect of positive psychotherapy, which is an effective method in group guidance, has not been used in parent education programs before, and that parents who try to raise children with their personal experiences by modeling their parents are forced to apply intervention methods that are considered ineffective today (Grusec & Davidov, 2007). Thus, it was a matter of interest to examine the effectiveness of a parent education program based on positive psychotherapy and it was decided to investigate the effectiveness of the Positive Psychotherapy-Based 0-6 Age Family Education Program.

The Aim of the Study

This study aims to examine the effectiveness of positive psychotherapy-based parent education program in depth. In this respect, the following questions will be addressed.

1. Is there a significant difference between the Perceived Parenting Self-Efficacy Scale pre-test and post-test scores of the parents who participated in the Positive Psychotherapy-Based 0-6 Age Parent Education Program?

2. Is there a significant difference between the pre-test and post-test scores of the Parental Attitude Scale's subscales and the total score's pre-test and post-test scores of the parents who participated and did not participate in the Positive Psychotherapy-Based 0-6 Age Parent Education Program?

3. Is there a significant difference between the Parent Stress Scale's pre-test and post-test scores of the parents who participated in the Positive Psychotherapy-Based 0-6 Age Parent Education Program?

4. What are the pre- and post-education scores of the Program Evaluation Questionnaire of the parents who participated in the Positive Psychotherapy-Based 0-6 Age Parent Education Program?

5. What are their views on the Positive Psychotherapy-Based 0-6 Age Family Education Program?

Method

In the study, a mixed method was utilized that combines quantitative and qualitative methods. Among the mixed method types, the validating quantitative data model was used, which is one of the triangulation designs. Triangulation Design is the most common and best-known among mixed methods (Tashakkori & Teddlie, 2003). This design is a single-stage design in which researchers apply qualitative and quantitative methods at the same time and with equal importance. Researchers collect and analyze qualitative and quantitative data separately to better understand a research problem. Separately collected data are then combined by interpreting or by transforming qualitative data into quantitative data (Creswell & Plano Clark, 2007). The validating quantitative data model is made use of in cases where researchers wish to extend or validate the quantitative results from a questionnaire by including a few

open-ended qualitative questions. In this model, the researcher collects both quantitative and qualitative data with a questionnaire. To analyze the quantitative data, a quasi-experimental design was utilized since the study aimed to test the effectiveness of a family education program based on positive psychotherapy. A quasi-experimental design with a pre-test-post-test model was used in the study (Büyüköztürk, 2010). In classical experimental designs, some participants are subjected to interventions throughout the research, evaluations are made before and after these interventions, and participants are randomly selected. In cases where participants are not randomly selected, quasi-experimental designs can be chosen as an alternative to the classical experimental design (Greeno, 2002). Regarding the detailed information provided in the population and sampling section, the quasi-experimental design was preferred as there would be no randomization when selecting the groups.

The participants in the experimental group were first administered a pre-test. Afterwards, they were asked to participate in the Positive Psychotherapy-Based 0-6 Age Family Education Program. They were also requested to fill in the scales included in the post-test at the end of the program.

Participants

When creating the study group, convenient sampling method was made use of, which is one of the non-random sampling methods. Accordingly, the voluntary, easily accessible participants were selected considering various factors such as time, cost, and labor.

In this regard, 40 parents who responded to the program application announcement and volunteered to participate in the program took part in the education program. However, six parents could not continue the education program for various reasons and were therefore not included in the sample.

Regarding the research sample, Table 1 presents information on gender, age, marital status, employment status, education level, number of children, and their ages.

Table 1.
Demographic Characteristics of the Participants in the Sample

Demographic Characteristics of the Participants		Participant Group (N = 34)	
Gender		n	%
	Female	31	91.2
	Male	3	8.8
Age Group			
	24-30 years	9	26.5
	31-35 years	13	38.2
	36-40 years	8	23.5
	41-45 years	3	8.8
	46 years and older	1	2.9
Marital Status			
	Married	32	94.1
	Divorced	2	5.9
Employment Status			
	Employed	30	88.2
	Unemployed	4	11.8
Education Level			5.9
	High School	2	

Table 1 continuing

	Associate Degree	4	11.8
	Bachelor's Degree	19	55.9
	Master's Degree	5	14.7
	Doctorate Degree	4	11.8
Number of Children			
	One Child	31	91.2
	Two Children	3	8.8
Age of Children			
	0-24 Months	9	24.3
	25-48 Months	18	48.7
	49-72 Months	10	27

Data Collection Tools

Personal Information Form: The researcher prepared a "Personal Information Form" to find out the demographic characteristics of the participants who participated in the study. Introductory information was collected from the participants with the prepared form. This included age, gender, educational status, marital status, occupation, number of children, and their ages. The personal information form was filled out by the participants before the education program.

Perceived Parenting Self-Efficacy Scale (PPSE): The Perceived Parenting Self-Efficacy Scale was developed by Caprara, Regalia, Scabini, Barbanelli, and Bandura in 2004 (Caprara et al., 2004). In 2014, Demir and Gündüz completed the Turkish adaptation study and introduced it to Turkish literature. Turkish version of the scale is a 7-point Likert-type scale consisting of 11 items. Participants are required to respond to the 11 items in the scale based on the question "How adequately do you exhibit the following behaviors in your relationships with your son or daughter?" on a scale from "I am quite inadequate (1)" to "I am quite adequate (7)". The lowest score that can be received from the scale is 11, whereas the highest score is 77 (Demir & Gündüz, 2014).

The item pool consists of 15 items. As a result of the factor analysis, items with factor loadings lower than .40 were not included in the scale and a finalized form was re-arranged into 12 items. The reliability of the scale was measured by the test-retest method. In the measurements conducted at 2-week intervals, the reliability coefficients were .99, .98, .96, and the internal consistency coefficient was between .92 and .94. In addition, the construct validity showed that a single-factor significant structure was obtained (Caprara et al., 2004).

When adaptation study processes were investigated, it was observed that Turkish translation was conducted first and then the translation validity was examined. A Turkish translation was created by taking 16 expert opinions. To achieve translation validity, the original form and the translated form were administered to 18 English teachers. After the Turkish translation procedure, 510 parents were contacted in the factor analysis and the KMO value was found .91. The 7th item in the scale was removed because it did not work since it was not compatible with Turkish culture, and a single-factor structure was obtained. To assess the criterion-related validity study, General Self-efficacy Scale developed by Çelikkaleli and Çapri (2008) and Parenting Self-efficacy Scale were randomly administered to 115 parents and a correlation of .78 was found. To achieve test-retest reliability, 104 parents were tested at 3-week intervals and the correlation between them was observed as .94. All these analyses concluded that the Turkish form of the scale is valid and reliable (Demir & Gündüz, 2014).

Parent Stress Scale (PSS): The Parent Stress Scale was developed by Kaymak Özmen and Özmen in 2012. With the aid of this scale, it was intended to determine the parental stress regarding the bond between them and their children in daily life. It is a 4-point Likert-type scale consisting of 16 items. Participants are asked to select one of the following options for each item: "Always", "Frequently", "Sometimes", and "Never". When evaluating the answers, "Always" is considered as 4 points, "Frequently" as 3 points, "Sometimes" as 2 points, and "Never" as 1 point. Getting a high score on the scale is considered a high level of parental stress (Kaymak Özmen & Özmen, 2012).

When developing the scale, a literature review was first conducted and then an item pool was created with 68 items. The item pool was inspected by 5 experts and 16 items were removed. As a result, a pre-test form was prepared with 52 items. The form was given to 35 parents to assess the comprehensibility of the items as well as the duration of administration. Afterwards, feedback was received and necessary adjustments were made. The prepared form was applied to 438 parents for psychometric analysis and its validity and reliability were determined. When the construct validity of the parent stress scale was analyzed, it was observed that it had a single-factor structure that was composed of 16 items as a result of the exploratory factor analysis. The results of the confirmatory factor analysis of the finalized scale were X^2=252.98 (N=438, sd=104,p=.000), X^2/sd=252.98/104=2.43, RMSEA=0.05, RMR=0.03, RMS=0.04, GFI=0.93, AGFI=0.91 and CFI=0.91. When the internal consistency reliability of the scale was evaluated, Cronbach's alpha value was found to be .85 and Spearman-Brown Split-Half Test reliability .82. When these values are taken into consideration, it can be argued that the scale has valid and reliable psychometric properties (Kaymak Özmen & Özmen, 2012).

Parental Attitude Scale (PAS): The Parental Attitude Scale was developed by Karabulut Demir and Şendil in 2008. The developed scale aims to determine parents' parenting attitudes. It is a 5-point Likert-type scale consisting of 46 items. For each item, the participants were asked to select one of the following options according to their frequency: "Always like this", "Mostly like this", "Sometimes like this", "Rarely like this", and "Never like this". In the evaluation process, the option "Always like this" is rated as 5 points, "Mostly like this" as 4 points, "Sometimes like this" as 3 points, "Rarely like this" as two points, and "Never like this" as one point. It is considered that whichever aspect the participant gets a higher score from, he/she shows more attitudinal behaviors belonging to that aspect (Karabulut Demir & Şendil, 2008).

When developing the scale, a draft form with 62 items was formed to measure "permissive", "democratic", "authoritarian", and "protective" parental attitudes, which are acknowledged in the literature. The validity and reliability studies were conducted on 420 parents from different socio-economic levels with children between the ages of 2 and 6, while the construct validity was tested with 56 parents. As a result of the analyses conducted within the scope of construct validity, 16 items were removed from the scale and the finalized form of the scale was created with 46 items and 4 aspects. The Cronbach's alpha reliability coefficient of the "permissive" subscale was .74, the Cronbach's alpha reliability coefficient of the "democratic" subscale was .83, the Cronbach's alpha reliability coefficient of the "authoritarian" subscale was .76, and the Cronbach's alpha reliability coefficient of the "protective" subscale was .75 (Karabulut Demir & Şendil, 2008).

Program Evaluation Questionnaire : The researcher developed a "Program Evaluation Questionnaire" to measure the awareness and knowledge levels of the participants about the education content. The content of the questionnaire included items that contained information about the topics to be presented by the researcher in the 4 sessions of the program. A total of 19 5-point Likert-type items make up the questionnaire; four are devoted to bonding with your child, four are devoted to understanding and expressing emotions, four are devoted to cooperating with your child, and six are devoted to bonding with yourself.

Participants are required to answer the 19 items provided according to their level of knowledge and awareness by choosing one of the following options: "Strongly disagree", "Disagree", "Neutral", "Undecided", "Agree", and "Strongly agree". Getting a low score on the questionnaire suggests a low level of knowledge and awareness, while a high score indicates a high level of knowledge and awareness.

End-of-Program Evaluation Form: The End-of-Program Evaluation Form was created by the researcher in an effort to find out the participants' opinions about the education program. By using the form, it was aimed to identify the strengths and weaknesses of the program that need to be developed. There are 5 open-ended questions in the form.

Data Collection

Data collection was carried out in the spring semester of the 2020-2021 academic year. After the experimental group was identified, the participants first signed the Consent Form indicating their willingness to participate in the program. Personal Information Form, Perceived Parenting Self-Efficacy Scale, Parent Stress Scale, Parental Attitude Scale, and Program Evaluation Questionnaire were applied. Upon administering the tests and forms, the Positive Psychotherapy-Based 0-6 Age Family Education Program was applied to the experimental group. After completing the program, in addition to the scales administered as a pre-test at the beginning of the research, the End-of-Program Evaluation Form was also applied to the participants. Then, the effectiveness of the education was evaluated by investigating whether there was a significant difference between the pre-test and post-test. The implementation stages of the data collection tools are presented in Figure 1.
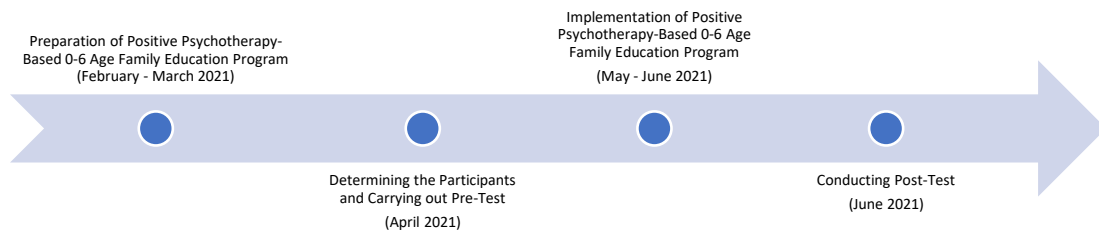

Figure 1. Flow diagram of the data collection process of the Positive Psychotherapy-Based 0-6 Age Family Education Program

Data Analysis

The quantitative data in the research were analyzed with SPSS 22.0 statistical package software. The data from the personal information form and program evaluation questionnaire created by the researcher were analyzed and presented using frequency and percentage measurements. The normality analyses were carried out by examining skewness and kurtosis coefficients for the data obtained from the scales such as the Perceived Parenting Self-Efficacy Scale, the Parent Stress Scale, and the Parental Attitude Scale, for which validity and reliability studies were conducted. For the data to be normally distributed, skewness and kurtosis values should be between -2 and +2 according to some authors, and between -3 and +3 to others (Kalaycı, 2014). In line with these facts, skewness and kurtosis analyses were performed to uncover whether the scales and subscales were normally distributed.

Table 2.
Analysis Results for the Assumption of Normality

		N	$\bar{x}$	Median	Skewness	Kurtosis
Perceived Parenting Self-Efficacy Scale	Pre-Test	34	56.76	58.50	-.798	.122
	Post-Test	34	62.05	63.00	.312	-.043
Parent Stress Scale	Pre-Test	34	33.14	33.00	.376	-.631
	Post-Test	34	30.17	30.00	.394	.1,08
	Post-Test	34	25.08	24.50	.412	.1,73

Table 2 continuing

Parental Attitude Scale	Permissive	Pre-Test	34	24.88	25.00	.530	.439
		Post-Test	34	25.08	24.50	.412	.1,73
	Democratic	Pre-Test	34	73.73	74.00	-.823	.868
		Post-Test	34	74.52	74.50	-.017	-.356
	Authoritarian	Pre-Test	34	19.58	20.00	-.199	.539
		Post-Test	34	17.55	17.50	.145	-.410
	Protective	Pre-Test	34	27.79	27.00	.332	.1,34
		Post-Test	34	25.14	24.50	.094	.127

Skewness and kurtosis analyses revealed that the data in all scales and subscales were normally distributed. Consequently, parametric techniques were chosen for comparing the groups.

Median and arithmetic mean values are also important in normality assessment. When the data are normally distributed, the median and arithmetic mean are close to each other (Kalaycı, 2014). Table 2 demonstrates that the median and arithmetic means of the data are close to each other.

Upon discovering that the data were normally distributed and the number of participants was sufficient (n = 34), parametric methods were used. Afterwards, the t-test was utilized to investigate whether there was a significant difference between the pre-test and post-test data obtained from the participants.

Content analysis was used for the analysis of qualitative data. Tavşancıl and Aslan (2001) defined content analysis as a research method that enables verbal or written data to be analyzed with regard to meaning, presented message, or linguistics. Systematicity, objectivity, qualitativeness, and clarity are considered indispensable in content analysis. In this regard, content analysis is a scientific method in which the researcher investigates social reality by obtaining certain results. In content analysis, the researcher selects the appropriate content analysis method among different content analysis types in line with the research purpose (Gökçe, 2006). Content analysis types have distinctive characteristics and no one type of content analysis can be used for all research purposes (Krippendorff, 2003). In this study, frequency and categorical analysis were used as content analysis techniques (Tavşancıl & Aslan, 2001). Frequency analysis, which aims to determine the frequency of message elements, is the first technique historically used in content analysis (Bilgin, 2006). In frequency analysis, countable units are collected and the frequency of occurrence of the units is revealed in quantitative terms (percental and proportional) (Tavşancıl & Aslan, 2001). Categorical analysis is one of the most frequently used types of content analysis along with frequency analysis (Bilgin, 2006). It involves dividing a certain content into specific units and then grouping these units into categories according to pre-defined criteria (Tavşancıl & Aslan, 2001). Categories can be created in different forms in accordance with the research purpose. The subject of the message, its tendency (negative or positive), the values it carries, the features used in the description, study themes, etc. can be identified as categorization criteria (Bilgin, 2006). Inter-rater reliability was calculated to measure the reliability of the analysis conducted during the content analysis process. To this end, the reliability formula created by Miles and Huberman (1994) (Reliability = Agreement/Agreement + Disagreement) was used. As a result, the similarity between the researchers was found to be 87.9%.

Findings

Below are the findings on whether there is a significant difference between the pre-test and post-test scores of the participant parents regarding the Perceived Parenting Self-Efficacy Scale.

Table 3.
Paired Samples T-Test Results of Perceived Parenting Self-Efficacy Scale

PPSE	N	$\bar{x}$	SD	t-test		
				t	SD	p
PPSE Pre-Test	34	56.76	9.55	-2.972	33	.005
PPSE Post-Test	34	62.05	5.36			

The analysis of the pre-test and post-test results of the Perceived Parenting Self-Efficacy Scale in Table 3 shows that there was a significant difference between them (t=-2.97, SD=33, p=.005). This finding indicates that the education given to the parents had an impact on their parenting self-efficacy. Therefore, it can be suggested that the parenting self-efficacy levels of the participants increased upon their participation in the Positive Psychotherapy-Based 0-6 Age Family Education Program.

Below are the findings on whether there is a significant difference between the pre-test and post-test scores of the participant parents concerning the Parent Stress Scale.

Table 4.
Paired Samples T-Test Results of Parent Stress Scale

PSS	N	$\bar{x}$	SD	t-test		
				t	SD	p
PSS Pre-Test	34	33.14	5.62	3.142	33	.004
PSS Post-Test	34	30.17	4.71			

Table 4 shows that there is a significant difference between the pre-test and post-test data of the Parent Stress Scale (t=3.14, SD=33, p=.004). The arithmetic mean of the pre-test was 33.14 and its standard deviation was 5.62. The arithmetic mean of the post-test was 30.17 and its standard deviation was 4.71. It is seen that there is a decrease in the arithmetic mean scores of the participants based on the post-test data. Thus, it is observed that the participants who took part in the Positive Psychotherapy-Based 0-6 Age Family Education Program had lower levels of parental stress. Both the t-test results and the arithmetic mean value unearthed that the education program had an impact on the participants' parental stress.

Table 5 presents the findings on whether there is a significant difference between the pre-test and post-test scores of the participant parents about the sub-tests of the Parental Attitude Scale.

Table 5.
Paired Samples T-Test Results of Permissive Parental Attitude Subtest of Parent Attitude Scale

PAS	N	$\bar{x}$	SD	t-test		
				t	SD	p
Permissive Subscale Pre-Test	34	24.88	4.07	-.295	33	.770
Permissive Subscale Post-Test	34	25.88	4.76			
Democratic Subscale Pre-Test	34	73.73	6	-.87	33	.386
Democratic Subscale Post-Test	34	74.52	5.65			
Authoritarian Subscale Pre-Test	34	19.58	3.28	3.30	33	.002
Authoritarian Subscale Post-Test	34	17.55	3.71			
Protective Subscale Pre-Test	34	27.79	5.07	3.27	33	.002

Protective Subscale Post-Test	34	25.14	5.10

Table 5 presents data on the subtests of the Parental Attitude Scale. Accordingly, there is no significant difference between the pre-test and post-test data of Permissive Parental Attitude (t=-.29, SD=33, p=.770) and Democratic Parental Attitude (t=-.87, SD=33, p=.386) subtests. This shows that the education program had no effect on permissive and democratic parental attitudes.

When the pre-test and post-test data of the Authoritarian Parental Attitude subtest are analyzed, it is observed that there is a significant difference between the data (t=3.30, SD=33, p=.002). The arithmetic mean of the pre-test was 19.58 and the standard deviation was 3.28. The arithmetic mean of the post-test was 17.55 and the standard deviation was 3.71. It is observed that there is a decrease in the arithmetic mean scores of the participants according to the post-test data. This finding posits that the participants perceived themselves as less authoritarian after the education. Both the t-test results and the arithmetic mean value suggest that the family education program had an impact on the authoritarian parental attitude.

The analysis of data on the Protective Parental Attitude subtest uncovered that there was a significant difference between the pre-test and post-test data (t=3.27, SD=33, p=.002). The arithmetic mean of the pre-test was 27.79 and the standard deviation was 5.07. The arithmetic mean of the post-test was 25.14 and the standard deviation was 5.10. It can be seen that there is a decrease in the arithmetic mean scores of the participants according to the post-test data. This puts forward that participants perceived themselves as less protective after the education. Not only the t-test results but also the arithmetic mean value point out that the family education program had an impact on protective parental attitude.

The researcher developed the Program Evaluation Questionnaire to assess the change in the participants' knowledge and awareness of the program content before and after the education. The data from the Program Evaluation Questionnaire were analyzed through percentage and frequency values.

When the data of the Program Evaluation Questionnaire are examined, it is seen that the data section with the answers given before the education is distributed among the options, whereas the data section with the answers given after the education focuses more on the "agree" and "strongly agree" options.

The first question in the End-of-Program Evaluation Form is "Did the program meet your expectations?". The analysis of the participants' responses to this question is provided in Table 6.

Table 6.
Frequency and Percentage Values of the Program's Meeting the Participants' Expectations

The status of the program meeting the expectations of the participants	f	%
Yes	34	100
Total	34	100

Table 6 shows that 100% of the participants (n=34) answered "yes" to the first question of the End-of-Program Evaluation Form, which is "Did the program meet your expectations?".

The second question of the End-of-Program Evaluation Form is "What are the three concepts you remember from the program? Please specify". In response to this question, 3 concepts emerged from the responses of each participant, and the analysis was conducted over 102 concepts. The results of these analyses as well as the data are presented in Table 8.

Table 7.
Frequency and Percentage Values of the Concepts Remembered at the End of the Program by Themes

Frequency and percentage values of the concepts remembered at the end of the program by themes	f	%
Bonding	16	15.69
Functioning of the brain in the attachment process	14	13.73

	18	17.65
Recognizing the needs of the child	18	17.65

Table 7 continuing

Coping with unwanted behavior	22	21.57
Positive psychotherapy	15	14.71
Good enough parenting	17	16.67
Total	102	100

Table 7 indicates that 15.69% (n=16) of the 102 concepts are about the theme of "bonding", 13.73% (n=14) "functioning of the brain in the attachment process", 17.65% (n=18) "recognizing the needs of the child", 21.57% (n=22) "coping with unwanted behavior", 14.71% (n=15) "positive psychotherapy", and 16.67% (n=17) "good enough parenting".

The responses acquired through the third question in the End-of-Program Evaluation Form were also assessed in terms of which session they belonged to. These responses are shown in Table 8.

Table 8.
Frequency and Percentage Values of the Concepts Remembered at the End of the Program by Sessions

Frequency and percentage values of the concepts remembered at the end of the program by session	f	%
Bonding with the child (First Session)	37	36.27
Understanding and expressing the emotions of the child (Second Session)	17	16.67
Cooperating with the child (Third Session)	19	18.63
Bonding with yourself (Fourth Session)	29	28.43
Total	102	100

The table points out that 36.27% (n=37) of the 102 concepts that emerged from the third question in the End-of-Program Evaluation Form were included in the first session called "bonding with the child", 16.67% (n=17) in the second session "understanding and expressing the emotions of the child", 18.63% (n=19) in the third session "cooperating with the child" and 28.43% (n=29) in the fourth session "bonding with yourself". As a result, it is seen that at the end of the program, most of the concepts were remembered from the first session, whereas the least amount of concepts belongs to the second session. Regarding the program content, this may be because the first session was where the most intensive theoretical knowledge and conceptual content is delivered, whereas the second session focused on sharing participant experiences rather than theoretical knowledge and conceptual content.
Responses to question 4 of the End-of-Program Evaluation Form, "What changes occurred in your life and your relationship with your child at the end of the program?" were first scrutinized as to whether there were changes or not. The relevant data are shown in Table 9.

Table 9.
Frequency and Percentage Values of Participants' Awareness of Whether They Experienced Change at the End of the Program

Participants' Awareness of Whether They Experienced Change at the End of the Program	f	%
There has been a change	33	97.06
There has been no change	1	2.94
Total	34	100

Table 9 shows that 97.06% (n=33) of the participants responded, "There has been a change" and 2.94% responded "There has been no change" to question 3 of the End-of-Program Evaluation Form. The participants' responses about whether there had been a change were also interpreted with regard to the aspect in which the change took place. The results of the evaluation are demonstrated in Table 10.

Table 10.
Frequency and Percentage Values of the Type of Change Experienced by the Participants Who Stated that They Experienced Change at the End of the Program

The Type of Change Experienced by the Participants Who Stated that They Experienced Change at the End of the Program	f	%
There has been an increase in awareness and knowledge	17	51.52
There has been a behavioral change	16	48.48
Total	33	100

Table 10 indicates that of the 33 participants who responded, "There has been a change" to the question "What changes occurred in your life and your relationship with your child at the end of the program?", 51.52% (n=17) responded "There has been an increase in awareness and knowledge" and 48.48% (n=16) responded "There has been a behavioral change".

The fourth question in the End-of-Program Evaluation Form is "Did you find the duration of the program sufficient?". The analysis of the participants' responses to this question is provided in Table 11.

Table 11.
Frequency and Percentage Values of Participants' Evaluation of the Duration of the Program

Did you find the duration of the program sufficient?	f	%
Yes	18	52.94
No	16	47.06
Total	34	100

Table 11 reveals that 52.94% (n=18) of the participants answered "Yes" and 47.06% (n=16) answered "No" to the question "Did you find the duration of the program sufficient?".

Regarding the participants' suggestions about the program, since one participant made more than one suggestion, the percentage values of the data were not calculated and the evaluation was made based on frequency values. The data concerning the suggestions of the participants about the program are presented in Table 12.

Table 12.
Frequency Values of Participants' Suggestions About the Program

Participants' suggestions of about the program	f
Dissemination of the program	7
Extending the duration of the program	8
Conducting the program with fewer participants	5
Holding a supervision meeting at the end of the sessions	3
Increasing the number of daily life examples in the session content	1

Table 12 shows that there are seven suggestions about disseminating the program to reach more parents, eight suggestions about extending the duration, five suggestions about conducting the education program with fewer participants, three suggestions about holding a supervision meeting at the end of

the sessions, and one suggestion about increasing the number of daily life examples in the session content.

Discussion, Conclusion, and Suggestions

This study investigated the effect of the program on both the knowledge and awareness levels of parents with children between the ages of 0-6, as well as the participants' parenting self-efficacy, parental stress, and parental attitudes. In this section, the findings acquired from this study are compared and discussed with the studies in the literature.

As a result of the analyses conducted on the parenting self-efficacy of the parents who participated in the Positive Psychotherapy-Based 0-6 Age Family Education Program, a significant difference was found between the pre-test and post-test total mean scores of the participants. This finding shows that the Positive Psychotherapy-Based 0-6 Age Family Education Program is effective in increasing parents' parenting self-efficacy. It can be argued that the education program, whose effectiveness was investigated within the framework of the concept of parenting self-efficacy, increased the degree to which parents perceived themselves as competent in their parenting roles. Individuals' perceptions of parenting self-efficacy are affected by many factors. According to the literature, one of the most vital factors positively affecting parenting self-efficacy is providing parental education (Barnard, 1994). Likewise, Mindfulness Parent Training Programme implemented by Işık (2020), the mother-child interaction focused early intervention training program implemented by Boyce et al. (2017), and Parent Education Program implemented by Bağartan (2012) also increased the parenting self-efficacy of the participants. Parenting self-efficacy, as previously explained in the literature, can be interpreted as parents' perceptions of their ability to influence their children's development and behavior in a purposeful, useful, and constructive way (Coleman & Karraker, 2003). It is considered that increasing knowledge about parenting is influential in developing an individual's perception of parenting self-efficacy. It can be suggested that parents' acquisition of knowledge and skills that can positively support their children's development also changes their perceptions of parenting self-efficacy in a positive fashion (Benasich & Brooks-Gunn, 1996). The aforementioned studies and these statements show that the literature supports the research data. Parents were educated on parenting skills through the Positive Psychotherapy-Based 0-6 Age Family Education Program, and this training led to an improvement in parental perceptions of self-efficacy.

The research shows that the Positive Psychotherapy-Based 0-6 Age Family Education Program is influential in reducing the parental stress of the participants. One study conducted by Çiftçi (2020) examined the effect of the psychoeducation program developed for parents of gifted children on parental stress and pointed out that there had been a decrease in stress levels. In a study by Löfgren et al. (2017), a parent education program was provided to 83 parents with children between the ages of 1 and 10 with an emphasis on behavioral, cognitive-behavioral, Adlerian, and family systems theories. Consequently, it was observed that there was a decrease in the participants' stress in terms of parental health.

The current study investigated the parental attitudes of the Positive Psychotherapy-Based 0-6 Age Family Education Program under 4 main aspects: democratic, permissive, authoritarian, and protective parental attitudes. As a result, the analyses unearthed that there was no significant difference between the pre-test and post-test total mean scores of the participants' permissive and democratic parental attitudes, whereas there was a significant difference between the pre-test and post-test total mean scores of authoritarian and protective parental attitudes. In the study conducted by Tönbül (2019), a family education program was administered to 15 parents over the course of 10 weeks and the results posited that the family education program was useful in reducing authoritarian parental attitudes, but no significant difference was found in democratic attitude. Moreover, the data acquired from the study by Alkan Ersoy, Kurtulmuş, and Çürük Tekin (2014) suggested that there was a decrease in protective and authoritarian parental attitudes and an increase in democratic parental attitudes. Demircioğlu (2012) investigated the effect of a family education program on parental attitudes. The parental attitude analysis was scrutinized with the Family Attitude Scale and the findings demonstrated that there was a significant difference in the pre-test and post-test results for democratic and authoritarian parental attitudes in all three education groups. Parental attitudes point out that the democratic parental attitude is characterized

as balanced, compatible with the child, and healthy in the literature. It was uncovered that the democratic parental attitude, which has its foundation in empathy, unconditional love, and sincerity, is the desired and expected parental attitude to be adopted by parents. Psychological interventions, psychoeducation programs, and parent education programs are anticipated to change parents' parental attitudes towards democratic parental attitudes (Aksoy, 2015; Tuzcuoğlu, 2003; Çağdaş, 2003; Yavuzer, 1999). When the findings in the present study and the ones in similar studies in the literature are compared, it is considered an expected result that there was no change in the democratic parenting practices of parents who have already adopted democratic parenting attitudes as a result of the parent education. In relation to the findings on permissive parental attitudes, it is understood that they contradict other studies in the literature. Concerning the findings related to authoritarian and protective parental attitudes, it can be argued that similar results were received compared to other studies in the literature.

In this study, the Program Evaluation Questionnaire was used to assess the changes in the knowledge and awareness levels of parents who participated in the Positive Psychotherapy-Based 0-6 Age Family Education Program. In the analyses, the responses given to the Program Evaluation Questionnaire before and after the education were compared by considering frequency and percentage values. As a result, it can be stated that there is a positive change in the knowledge and awareness levels of the parents in terms of percentage and frequency values after the Positive Psychotherapy-Based 0-6 Age Family Education Program. Sahillioğlu (2016) found that the parent education program for the prevention of child neglect and abuse applied to parents with children between the ages of 0-12 created an effective and permanent change in the knowledge and awareness levels of the participants. Üstündağ, Şenol, and Mağden (2015) conducted a study to identify the knowledge levels of parents about child abuse. They aimed to raise the awareness level of parents by organizing education programs to eliminate the lack of knowledge. Consequently, they reported that the education program applied in their study created a positive increase in the knowledge levels of the participants. Aksoy (2015) found that the "Mother-Child Education Program" applied to mothers with children between the ages of 0-4 increased the knowledge levels of the participating mothers about child development and education.

At the end of the study, the perceptions of the parents who participated in the Positive Psychotherapy-Based 0-6 Age Family Education Program were assessed with the End-of-Program Evaluation Form. Based on these analyses, it can be argued that the program met the expectations of the participants, that the participants experienced positive changes in terms of knowledge, awareness, and behavior at the end of the program, that they found the duration of the program sufficient, and that they left the program with positive feelings and were satisfied. In a study conducted by Yılmaz (2019), as a result of the school-based psychoeducation program for protection from sexual abuse, it was revealed that all parents who participated in the study made positive comments about the program. A study conducted by Şeker (2013) that investigates the effectiveness of family education activities organized for parents who have children with special needs uncovered that while the participating parents had difficulty in responding to the needs of their children before the educational activities, they were able to solve the problems they experienced with their children thanks to the information they acquired after the educational program. Gardner, Burton, and Klimes (2006) applied the Incredible Years program to the parents of children diagnosed with conduct disorder and examined its effects. The findings indicated that parents who participated in the program had high levels of satisfaction with the program.

Based on the findings of this study, the following recommendations can be made for researchers and practitioners: other researchers can apply the Positive Psychotherapy-Based 0-6 Age Family Education Program to a larger sample group; the research can be repeated by selecting a more specific sample group such as only mothers, only fathers or only parents who have children with special needs; the education program can be provided to parents who have adopted a child or foster parents and then its effect on bonding processes can be investigated; since the education program was prepared for parents with children aged 0-6 years, it can be expanded to include 7-12 and 13-18 years of age. A suggestion for the education program implementers is that just as the education program can be delivered in 4 sessions, the sessions can also be held individually or grouped according to the needs. Although the education program in this study was conducted online, it can also be provided face-to-face. By cooperating with non-governmental organizations and local governments, the education program can

reach out to more parents. Parenting support groups can be founded with the parents who participate in the education program to increase the effectiveness of the process and ensure its sustainability.

References

Aksoy, A. B. (2015). *Aile eğitimi ve katılımı.* Ankara: Hedef CS Yayıncılık.

Alkan Ersoy, Ö., Kurtulmuş, Z., & Tekin Çürük, N. (2014). Aile çocuk eğitim programının annelerin çocuk yetiştirme tutumlarına ve ev ortamını düzenlemelerine etkisinin incelenmesi. *Kastamonu Eğitim Dergisi*, 22(3), 1077-1090.

Bağatarhan, T. (2012). *Ebeveyn eğitim programının annelerin ebeveyn öz – yeterlilik üzerine etkisi* [Unpublished master's thesis]. Ankara Üniversitesi, Ankara.

Barnard K.E. (1994), Parent- child interaction model. In A. Tomey (Ed.) *In nursing theorists and their* (pp. 406-422). Missouri: Mosby.

Benasich, A. A., & Brooks-Gunn, J. (1996). Maternal attitudes and knowledge of child-rearing: Associations with family and hild outcomes. *Child development*, *67*, 1186-1205. doi: 10.2307/1131887

Bilgin, N. (2006). *Sosyal bilimlerde içerik analizi: Teknikler ve örnek çalışmalar.* Ankara: Siyasal Kitabevi.

Boyce, L. K., Seedall, R. B., Innocenti, M. S., Roggman, L. A., Cook, G. A., Hagman, A. M., & Jump Norman, V. K. (2017). Influence of a parent–child interaction focused bookmaking approach on maternal parenting self-efficacy. *Infants & Young Children*, *30*, 76-93. doi: 10.1097/iyc.0000000000000085

Büyüköztürk, Ş. (2010). *Sosyal bilimler için veri analizi el kitabı: İstatistik, araştırma deseni SPSS uygulamaları ve yorum*. Ankara: Pegem Yayınları.

Caprara, G., Pastorelli, C., Regalia C., Scabini, E., & Bandura A. (2005). Impact of adolescents filial self-efficacy on quality of family functioning and satisfaction. *Journal of Research on Adolescence*, *15*, 71-97. doi: 10.1111/j.1532-7795.2005.00087.x

Creswell, J. W., & Plano Clark, V. L. (2007). *Designing and conducting mixed methods research.* California: SAGE Publications.

Coleman, P. K., & Karraker, K. H. (2003). Maternal self-efficacy beliefs, competence in parenting, and toddlers' behavior and developmental status. *Infant Mental Health Journal: Official Publication of The World Association for Infant Mental Health*, *24*, 126-148. doi: 10.1002/imhj.10048

Cope, T. (2014). Positive psychotherapy: Let the truth be told. *International Journal of Psychotherapy, 18*(2), 62-71.

Çağdaş, A. (2003). *Anne-baba-çocuk iletişimi*. Konya: Eğitim Kitabevi Yayınları.

Çiftçi, M. (2020). *Özel yetenekli çocukların anne – babalarına yönelik geliştirilen psiko – eğitim programının akılcı olmayan inançlar, psikolojik sağlamlık ve ebeveyn stresi üzerindeki etkisi* [Doctoral dissertation]. Marmara Üniversitesi, İstanbul.

Demir, S., & Gündüz, B. (2014). Ebeveyn yetkinlik ölçeği'nin uyarlanması: geçerlik ve güvenirlik çalışmaları. *Mustafa Kemal Üniversitesi Sosyal Bilimler Üniversitesi Dergisi, 11*(25), 309-322.

Demircioğlu, H. (2012). *Altı yaşında çocuğu olan annelere uygulanan aile eğitim programının aile işlevleri ve anne baba tutumları ile çocuğun gelişimi üzerindeki etkisinin incelenmesi* [Doctoral dissertation]. Gazi Üniversitesi, Ankara.

Duruhan, K., & Şad, N. (2008). Active raising versus traditional raising for child's behavioral development in turkish families. *Aile ve Toplum, 4*(13), 85 – 96.

Eryılmaz, A. (2012). Pozitif psikoterapi bağlamında geliştirilen ergenler için amaçları genişletme grup rehberliği programının etkililiğinin incelenmesi. *Eğitim ve Bilim, 37*(164), 3-19.

Eryılmaz, A. (2015). Pozitif grup psikoterapisinin etkililiğinin incelenmesi: bir ön çalışma. *Kesit Akademi Dergisi,1*, 13-24. doi: 10.18020/kesit.13

Eryorulmaz, A. (1993). *Kurumsal okul öncesi eğitiminde ailenin rolü. Okul Öncesi Eğitimi ve Yaygınlaştırılması Semineri* (pp. 90-95). İstanbul: YA-PA Yayıncılık.

Gardner, F., Burton, J., & Klimes, I. (2006). Randomised controlled trial of a parenting intervention in the voluntary sector for reducing child conduct problems: outcomes and mechanisms of change. *Journal Of Child Psychology And Psychiatry*, *47*, 1123-1132. doi: 10.1111/j.1469-7610.2006.01668.x

Greeno, C.G. (2002). Major alternatives to the classic experimental design. *Family Process, 41*, 733-736. doi: 10.1111/j.1545-5300.2002.00733.x

Grusec, J. E., & Davidov, M. (2007). Socialization in the family: The role of parents. In J. E. Grusec & P. D. Hastings (Eds.), *Handbook of Socialization* (pp. 284-308). New York: Guilford Press.

Gökçe, O. (2006). *İçerik analizi: Kuramsal ve pratik bilgiler.* Ankara: Siyasal Kitabevi.

Henrichs, C. (2012). Psychodynamic positive psychotherapy emphasizes the impact of culture in the time of globalization. *Psychology, 3*, 1148-1152. doi: 10.4236/psych.2012.312a169

Kalaycı, Ş. (2014). *SPSS uygulamalı çok değişkenli istatistik teknikleri*. İstanbul: Asil Yayınevi.

Karabulut Demir, E., & Şendil, G. (2008). Ebeveyn tutum ölçeği (ETÖ). *Türk Psikoloji Yazıları, 11* (21), 15-25.

Kaymak Özmen, S., & Özmen A. (2012). Anne baba stres ölçeğinin geliştirilmesi. *Milli Eğitim,* 196, 20-35.

Krippendorf, K. (2003). *Content analysis: An introduction to its methodology.* California: SAGE Publications.

Levinson, D. J. (1986). A conception of adult development. *American Psychologist*, *41*, 3-13. doi: 10.1037/0003-066X

Löfgren, H. O., Petersen, S., Nilsson, K., Padyab, M., Ghazinour, M., & Hägglöf, B. (2017). Effects of parent training programs on parental stress in a general Swedish population sample. *Psychology*, *8*, 700. doi: 10.4236/psych.2017.85045

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. California: SAGE Publications.

Miller, A. (1996). *Yetenekli çocuğun dramı.* İstanbul: Profil Yayınları.

Nelsen, J., Lott, L., & Glenn, S. H. (2007). *Çocuk eğitiminde pozitif disiplin.* Yakamoz Yayınları.

Peseschkian, N. (2000). *Positive psychotherapy*. New York: Sterling Publishers. doi: 10.1007/978-3-642-70715-5

Peseschkian, N. (2009). Three pillars of positive psychotherapy: about depression in different cultures. *Int J Psychother, 13*(2), 11-17. doi: 10.1007/978-3-642-70680-6_20

Olcay, O. (2008). *Bazı kişisel ve ailesel değişkenlere göre okulöncesi dönemdeki çocukların sosyal yetenekleri ve problem davranışlarının analizi* [Unpublished master's thesis]. Selçuk Üniversitesi, Konya.

Özgüven, İ. E. (1999). *Çağdaş eğitimde psikolojik danışma ve rehberlik*. Ankara: PDREM Yayınları.

Sahillioğlu, D. (2016). *0-12 yaş çocukların istismar ve ihmalini önlemeye yönelik anne baba eğitim programı önerisi* [Doctoral dissertation]. Hacettepe Üniversitesi, Ankara.

Şeker, E. (2013). *Özel gereksinimli çocuğa sahip ebeveynlere yönelik olarak düzenlenen aile eğitimi etkinliklerinin değerlendirilmesi* [Unpublished master's thesis]. Marmara Üniversitesi, İstanbul.

Tashakkori, A., & Teddlie, C. (2003). *Handbook of mixed method in social and behavioral research.* California: SAGE Publications.

Tavşancıl, E., & Aslan, A. E. (2001). *Sözel, yazılı ve diğer materyaller için içerik analizi ve uygulama örnekleri*. İstanbul: Epsilon Yayıncılık.

Tezel Şahin, F., & Cevher Kalburan, F. (2009). Aile eğitim programları ve etkililiği: dünyada neler uygulanıyor?. *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi, 25* (25), 1-12.

Tönbül, Ö. (2019). Aile eğitim programının annelerin çocuk yetiştirme tutumlarına etkisinin incelenmesi. *Okul Psikolojik Danışmanlığı Dergisi, 2*(1), 46 – 72.

Tuzcuoğlu, N. (2003). *Anne baba olmanın altın kuralları, Bir aile olmak*. İstanbul: Morpa Yayınları

Üstündağ, A., Şenol, F. B., & Mağden, D. (2015). Ebeveynlerin çocuk istismarına yönelik bilgi düzeylerinin belirlenmesi ve bilinçlendirilmesi. *Hacettepe University Faculty of Health Sciences Journal. 1,* 212 – 227.

Yavuzer, H. (1996). *Anne – baba ve çocuk: ailede çocuk eğitimi*. İstanbul: Remzi Kitabevi

Yavuzer, H. (1999). *Çocuk psikolojisi*. İstanbul: Remzi Kitabevi.

Yazgan İnanç, B., &Yerlikaya, E. E. (2012). *Kişilik kuramları*. Ankara: Pegem Yayıncılık

Yılmaz, Y. (2019). *Okul temelli cinsel istismardan korunma psiko – eğitim programının öğrenciler, öğretmenler ve ebeveynlerin bilgi düzeyine etkisi* [Doctoral dissertation]. Çukurova Üniversitesi, Adana.