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School Administrators and Teachers' Moral Understandings Scale: Validity and Reliability Studies

Okul Yöneticileri ve Öğretmenlerin Ahlak Anlayışları Ölçeği: Geçerlik ve Güvenirlik Çalışması

Cihat Arslan¹, Mehmet Üstüner²

Keywords	Abstract
Morality Moral understandings Moral philosophy Ethic	This study aims to develop a scale to determine the moral understanding of school administrators and teachers. After the necessary literature review, a trial form consisting of 42 items was prepared from the item pool created in the light of the opinions of field experts. Data were collected and analyzed by administering the trial form to 119 school administrators and teachers serving in the province of Sivas, Türkiye. 14 items with a corrected item total correlation below .30 were removed from the scale form. Then, exploratory factor analysis was performed with the data obtained from the candidate scale form applied to 260 participants. In the exploratory factor analysis stage, the suitability of the data for factor analysis was determined according to the Kaiser Meyer Olkin test result. In cases where the Kaiser Meyer Olkin value was above .60, the Bartlett Sphericity test result was examined. Since the Bartlett Sphericity test result was also significant, it was said that the data were suitable for factor analysis. When the exploratory factor analysis results were examined, it was seen that a scale structure consisting of 3 factors and explaining 45% of the total variance was formed. Four more items with factor loadings below .30 and overlapping items were removed from the candidate scale. The candidate scale, consisting of a total of 24 items, was applied to a participant group of 394 school administrators and teachers, and confirmatory factor analysis was performed with the collected data. According to the analysis results, it was seen that all necessary fit statistics were met. As a result; a scale with a 3-factor structure consisting of 24 items was obtained.
Anahtar Sözcükler	Öz
Ahlak Ahlak anlayışları Ahlak felsefesi Etik	Bu çalışmada, okul yöneticilerinin ve öğretmenlerin ahlak anlayışlarını belirlemeye yönelik bir ölçek geliştirmek amaçlanmaktadır. Gerekli literatür taraması yapıldıktan sonra alan uzmanlarının da görüşleri ışığında oluşturulan madde havuzundan 42 maddeden oluşan bir deneme formu hazırlanmıştır. Deneme formu Türkiye'de Sivas ilinde görev yapan 119 okul yöneticisi ve öğretmene uygulanarak veriler toplanmış ve analiz edilmiştir. Düzeltilmiş madde toplam korelasyonu .30'un altında olan 14 madde ölçek formundan çıkarılmıştır. Daha sonra 260 katılımcıya uygulanan aday ölçek formundan elde edilen verilerle açımlayıcı factor analizi yapılmıştır. Açımlayıcı factor analizi aşamasında verilerin factor analizine uygunluğu Kaiser Meyer Olkin testi sonucuna göre belirlenmiştir. Kaiser Meyer Olkin değeri .60'ın üzerinde olduğu durumda Bartlett Sphericity testi sonucuna bakılmıştır. Bartlett Sphericity test sonucu da anlamlı çıktığı için verilerin factor analizine uygun olduğu söylenmiştir. Açımlayıcı factor analizi sonuçları incelendiğinde 3 faktörden oluşan ve toplam varyansın %45'inin açıklandığı bir ölçek yapısı olduğu görülmüştür. Faktör yük değeri .30'un altında olan ve binişik maddeler içeren 4 madde daha aday ölçekten çıkarılmıştır. Toplam 24 maddeden oluşan aday ölçek, toplam 394 okul yöneticisi ve öğretmenden oluşan bir katılımcı grubuna uygulanarak toplanan verilerle doğrulayıcı faktör analizi yapılmıştır. Analiz sonuçlarına göre gerekli tüm uyum istatistiklerinin karşılandığı görülmüştür. Sonuç olarak; 24 maddeden oluşan 3 faktörlü yapıya sahip ölçek elde edilmiştir.

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Introduction

Morality has long been regarded as one of the fundamental pillars of both individual and organizational life (Akarsu, 1970). In educational organizations, where human development, value transmission, and social responsibility constitute the core mission, morality extends beyond compliance with formal regulations and professional standards. It shapes how educational professionals interpret their responsibilities, make decisions, interact with others, and balance individual rights with the common good (Arslan & Üstüner, 2024). Educational institutions therefore serve not only as places where knowledge is transmitted but also as environments in which moral values are cultivated, modeled, and sustained. Consequently, the moral understandings of educators have become increasingly important for ensuring trustworthy, democratic, and effective school environments (Carr, 2014).

Rather than referring merely to the distinction between right and wrong, moral understanding represents the cognitive and value-based framework through which individuals interpret moral situations and justify their actions (Ülken, 1946). Contemporary theories suggest that moral understanding is a multidimensional construct involving moral reasoning, personal values, virtues, beliefs, and perceptions of justice and rights (Carr, 2014). Kohlberg's theory of moral development explains how individuals progressively develop increasingly sophisticated moral reasoning, whereas virtue-based approaches emphasize the importance of enduring character traits in guiding moral behavior (Thomas, 1996). Likewise, research on moral identity argues that moral values become influential when they are integrated into individuals' self-concepts and professional identities (Thomas, 1996). Together, these perspectives indicate that moral understanding reflects not only how individuals think about moral issues but also the values and beliefs that shape their professional conduct (Aquino & Reed, 2002).

Teaching is inherently a moral profession because teachers continuously make decisions that influence students' academic, social and moral development (Lickona, 1996). Beyond the transmission of academic knowledge, teachers are expected to serve as role models who cultivate values, support character development and contribute to students' understanding of moral life (Ata & Şahin, 2020). In this respect, schools may be regarded as environments in which positive character traits and moral values are acquired, while teachers occupy a central role in modelling and transmitting these values to younger generations (Ata & Şahin, 2020). Teachers' own values and moral orientations therefore influence not only their professional practices but also students' cognitive, affective and behavioural understanding of morality (Balay et.al., 2014).

Within educational organizations, school administrators occupy a unique position because their decisions influence not only organizational processes but also the moral climate of the school. Administrators are expected to demonstrate fairness, respect individual rights, promote trust, and establish organizational practices consistent with shared moral values (Tüysüz et. al., 2022). Their moral understanding guides decision-making in situations involving conflicts of interest, resource allocation, disciplinary practices, and relationships with teachers, students, and parents (Arslan & Üstüner, 2024). Consequently, administrators' moral understanding contributes substantially to creating educational environments characterized by justice, transparency, and mutual respect. Previous studies examining educational leadership have consistently emphasized that effective school leadership requires strong moral foundations in addition to managerial competence (Carr, 2014).

Another factor that can influence educators' moral understanding is their professional and organizational commitment. Teacher unions are socio-political organizations established to protect professional rights, promote social justice, and represent educators in education policy processes (Mahiroğulları, 2013). Participation in union activities can shape educators' perspectives on justice, equality, individual rights, collective responsibility, and professional solidarity (Arslan and Uğurlu, 2021). While union membership does not determine an individual's morality, it can influence how educators interpret the moral issues they encounter in school environments through shared professional experiences and collective identities. Therefore, examining educators' moral understanding without considering this organizational context may overlook an important dimension of professional life. Accordingly, investigating moral understanding among educators with different union memberships contributes to a more comprehensive

understanding of morality within educational organizations. For this reason, it was deemed appropriate to include union membership status as one of the independent variables in this research.

The theoretical structure of the scale was derived from the major philosophical and psychological approaches to morality discussed in the literature. The first dimension, Personal Rights, was primarily grounded in justice-oriented approaches emphasizing individual rights, equality, freedom and fairness in moral decision making. In particular, Kohlberg's theory of moral development highlights the increasing importance of universal ethical principles, justice and rights as individuals progress toward higher stages of moral reasoning (Thomas, 1996). Similarly, rights-based and duty-based moral philosophies emphasize the protection of individual rights and responsibilities as essential components of moral conduct (Carr, 2014).

The second dimension, Virtue, Happiness and Social Values, was derived from virtue-based traditions that associate morality with the cultivation of desirable character traits and the pursuit of the good life. Philosophers such as Socrates and Aristotle emphasized concepts such as virtue, happiness, goodness and social harmony as central elements of morality. Likewise, the literature indicates that concepts including honesty, responsibility, helping others, social solidarity and the pursuit of collective well-being constitute important components of moral life (Akarsu, 1970).

When the literature on morality-based scales is examined, it is seen that various measurement tools have been developed to evaluate different dimensions of morality. One of these is the "Moral Maturity Scale" developed by Şengün (2008). Moral maturity is defined as the level of perfection that enables individuals to recognize immoral practices in their feelings, thoughts, attitudes, and behaviors through their conscience (Şengün, 2008). However, when the content of the scale is examined, it is understood that it does not comprehensively address the perception of morality and is not specifically designed for educational staff.

Similarly, the "Moral Indifference Scale" developed by Bandura et al. (1996) and adapted into Turkish by Yavuz et al. (2017) focuses on determining individuals' levels of indifference toward behaviors considered moral (Yavuz et al., 2017). In addition, the "Moral Identity Scale" developed by Aquino and Reed (2002) and adapted into Turkish by Yılmaz, F. and Yılmaz, F. (2016) was designed to examine the relationship between moral identity and various social behaviors.

Another scale encountered in the literature is the "Moral Maturity Scale" developed by Ay (2021), which aimed to determine the moral maturity levels of high school students. Likewise, the "Moral Development Scale," adapted into Turkish by Seçer et al. (2006), was developed to investigate whether there are significant differences between moral, social, and relative rules, approaching morality from a developmental perspective.

The "Moral Literacy Scale" developed by Tekin (2022) aimed to determine individuals' abilities to take responsibility by reflecting on their moral values and making logical decisions regarding their actions. Furthermore, the "Moral Value Scale," developed by Abdullah et al. (2010) and adapted into Turkish by Sarıçam et al. (2013), was intended to measure moral values in relation to psychology, education and religion.

In addition to these general morality-oriented instruments, several studies have focused specifically on teachers and prospective teachers. One of these studies employed the Moral Virtues Scale developed by Balay (2011) to determine the moral value orientations of prospective teachers and examined dimensions such as respect, justice, loyalty, courage, honesty, elegance and trust. Similarly, studies conducted with prospective teachers investigated moral maturity in relation to educational beliefs through the use of the Moral Maturity Scale and demonstrated that morality constitutes an important component of educational philosophy and professional orientation. Furthermore, studies involving in-service teachers examined the relationship between teachers' moral judgment and variables such as multicultural competence and personality characteristics by using the Moral Judgment Test adapted into Turkish by Çiftçi (2001). These findings indicate that teachers' morality has generally been examined through concepts such as moral maturity, moral judgment and moral value orientations rather than through a broader understanding of morality within educational organizations.

Overall, the morality-based scales in the literature are generally shaped either according to the values of foreign cultures or around specific dimensions of morality such as developmental, psychological, child, or adolescent morality. Moreover, although several studies have examined morality-related constructs among

teachers and prospective teachers, these studies have generally focused on specific dimensions of morality rather than on educators' overall moral understanding with in educational settings. These studies indicate that morality has been approached from different perspectives; however, they also reveal a lack of measurement tools specifically aimed at evaluating the moral understanding of educational administrators and teachers.

Researchers consider the lack of a field-specific measurement tool to determine the moral understanding of school administrators and teachers working in educational institutions to be a significant deficiency. Based on this assessment, this research aims to develop a validated and reliable scale that can measure the moral understanding of school administrators and teachers.

The primary purpose of this study was to develop and validate a theoretically grounded and psychometrically sound scale for assessing the moral understandings of school administrators and teachers. By conceptualizing moral understanding as a multidimensional construct, the study sought to provide a culturally appropriate measurement instrument that can be used in educational research and practice. To achieve this overall purpose, the study pursued the following specific objectives:

- To generate an initial pool of items based on the relevant literature and theoretical foundations of moral understanding.
- To examine the content validity of the proposed items through expert evaluation.
- To determine the underlying factor structure of the scale using Exploratory Factor Analysis.
- To verify the proposed factor structure through Confirmatory Factor Analysis.
- To evaluate the construct validity of the developed scale.
- To examine the reliability of the scale and its dimensions using appropriate reliability coefficients.
- To develop a valid and reliable instrument that can be used to assess the moral understandings of school administrators and teachers in educational settings.

Accordingly, the study is expected to contribute to the literature by providing a theoretically grounded and empirically validated instrument for investigating educators' moral understandings and supporting future research on morality in educational organizations

Method

The stages of the development of the "School Administrators' and Teachers' Moral Understandings Scale" and the characteristics of the working group are presented below.

Working Group

Three different study groups were used within the scope of scale development studies. The first study group consisted of participants from whom data were collected to be used in the reliability studies of the trial scale. The second study group consisted of participants from whom data were collected to be used in exploratory factor analysis. The third study group consisted of participants from whom data were collected to be used in confirmatory factor analysis. Ethical approval for the study was obtained from the İnönü University Ethics Committee on December 1, 2022, at session number 22, with decision number 2022/22-3.

Participants in the first study group were selected from among teachers and school administrators working in high schools, special education schools, secondary schools, primary schools and kindergartens in Sivas province, Türkiye. The participant selection process was carried out using a random sampling method, selecting participants who were requested from the aforementioned institutions through official written notices and who responded positively. The characteristics of the participants are given in Table 1 below. According to this data; according to the gender variable, 68 of the participants were male (57.1%) and 51 were female (42.9%). According to the age variable, 17 of the participants (14.3%) were between the ages of 21-30, 65 (54.6%) were between the ages of 31-40, 30 (25.2%) were between the ages of 41-50 and 7 (5.9%) were 51 years of age and over. According to the union membership variable; 55 (46.2%) people are members of The Educators' Union (Eğitimciler Birliği Sendikası: Eğitim-Bir Sen), 20 (16.8%) people are members of Turkish Education, Training and Science Services Branch Public Employees Union (Türkiye Eğitim, Öğretim ve Bilim Hizmetleri Kolu Kamu Çalışanları Sendikası: Türk-Eğitim-Sen), 3 (2.5%) people are members of

Education and Science Employees' Union (Eğitim ve Bilim İşgörenleri Sendikası: Eğitim İş), 6 (5%) people are members of Education and Science Workers' Union (Eğitim ve Bilim Emekçileri Sendikası: Eğitim Sen), 5 (4.2%) people are members of one of the other unions and 30 (25.2%) people are not members of any union.

Table 1*Statistics for the First Working Group*

Variables			Frequency (f)	Percentage (%)
First Working Group (n=119)	Gender	Woman	51	42,9
		Man	68	57,1
	Age	21-30	17	14,3
		31-40	65	54,6
		41-50	30	25,2
		51 and over	7	5,9
		Eğitim-Bir Sen	55	46,2
		Türk Eğitim Sen	20	16,8
	Union Membership Status*	Eğitim İş	3	2,5
		Eğitim Sen	6	5
		Other	5	4,2
		Not Member	30	25,2

Note. Eğitim-Bir Sen: Educators' Trade Union [Eğitimciler Birliği Sendikası]; Türk-Eğitim-Sen : Turkish Education, Training and Science Services Branch Public Employees Union [Türkiye Eğitim, Öğretim ve Bilim Hizmetleri Kolu Kamu Çalışanları Sendikası]; Eğitim İş: Education and Science Employees' Union [Eğitim ve Bilim İşgörenleri Sendikası]; Eğitim Sen: Education and Science Workers' Union [Eğitim ve Bilim Emekçileri Sendikası]

The participants in the second study group were selected using a random sampling method, in which participants working in high schools, special education schools, middle schools, primary schools, and kindergartens in Sivas province of Türkiye were selected based on official written requests and positive responses. The selection process was carried out using the random sample selection method. Characteristics of these participants are outlined in Table 2 below.

When the data regarding the second study group of the research is examined, 151 (58.1%) of the participants are male and 109 (41.9%) are female according to the gender variable. In terms of age variable; 35 (13.5%) of the participants were between the ages of 21-30, 109 (41.9%) were between the ages of 31-40, 77 (29.6%) were between the ages of 41-50 and 39 (15%) appear to be 51 years or older. In terms of union membership variable; 120 (46.2%) are The Educators' Union (Eğitimciler Birliği Sendikası: Eğitim-Bir Sen) members, 56 (21.5%) are Turkish Education, Training and Science Services Branch Public Employees Union (Türkiye Eğitim, Öğretim ve Bilim Hizmetleri Kolu Kamu Çalışanları Sendikası: Türk-Eğitim-Sen) members, 4 (1.5%) are Education and Science Employees' Union (Eğitim ve Bilim İşgörenleri Sendikası: Eğitim İş) members, 11 (4.2%) are Education and Science Workers' Union (Eğitim ve Bilim Emekçileri Sendikası: Eğitim Sen) members, 11 (4.2%) are members of one of the other unions and 58 (22.3%) are not members of any union.

Table 2*Statistics for the Second Working Group*

Variables			Frequency (f)	Percentage (%)
Second Working Group (n=260)	Gender	Woman	109	41,9
		Man	151	58,1
	Age	21-30	35	13,5
		31-40	109	41,9
		41-50	77	29,6
		51 and over	39	15
		Eğitim-Bir Sen	120	46,2
		Türk Eğitim Sen	56	21,5
	Union Membership Status	Eğitim İş	4	1,5
		Eğitim Sen	11	4,2
		Other	11	4,2
		Not Member	58	22,3

Note. Eğitim-Bir Sen : Educators' Trade Union [Eğitimciler Birliği Sendikası]; Türk-Eğitim-Sen : Turkish Education, Training and Science Services Branch Public Employees Union [Türkiye Eğitim, Öğretim ve Bilim Hizmetleri Kolu Kamu Çalışanları Sendikası];

Eğitim İş: Education and Science Employees' Union [Eğitim ve Bilim İşgörenleri Sendikası]; Eğitim Sen: Education and Science Workers' Union [Eğitim ve Bilim Emekçileri Sendikası]

The participants in the third study group were selected using a random sampling method, in which participants working in high schools, special education schools, middle schools, primary schools, and kindergartens in Sivas province of Türkiye were selected based on official written requests and positive responses. The participants were teachers and school administrators working in high schools, special education schools, secondary schools and kindergartens in Sivas province who accepted to participate in the research voluntarily. Characteristics of these participants are outlined in Table 3 below.

Table 3

Statistics for the Third Working Group

Variables			Frequency (f)	Percentage (%)
Third Working Group (n=394)	Gender	Woman	172	43,7
		Man	222	56,3
	Age	21-30	47	11,9
		31-40	171	43,4
		41-50	120	30,5
		51 and over	56	14,2
		Eğitim-Bir Sen	184	46,7
		Türk Eğitim Sen	103	26,1
	Union Membership Status	Eğitim İş	7	1,8
		Eğitim Sen	9	2,3
		Other	17	4,3
		Not Member	74	18,8

Note. Eğitim-Bir Sen: Educators' Trade Union [Eğitimciler Birliği Sendikası]; Türk-Eğitim-Sen: Turkish Education, Training and Science Services Branch Public Employees Union [Türkiye Eğitim, Öğretim ve Bilim Hizmetleri Kolu Kamu Çalışanları Sendikası]; Eğitim İş: Education and Science Employees' Union [Eğitim ve Bilim İşgörenleri Sendikası]; Eğitim Sen: Education and Science Workers' Union [Eğitim ve Bilim Emekçileri Sendikası]

When the data regarding the third study group of the research is examined, it is seen that 172 of the participants are female (43.7%) and 222 are male (56.3%) in terms of gender variable. In terms of age variable; 47 (11.9%) of the participants were between the ages of 21-30, 171 (43.4%) were between the ages of 31-40, 120 (30.5%) were between the ages of 41-50 and 56 (14.2%) appear to be 51 years or older. In terms of union membership variable; 184 (46.7%) are The Educators' Union (Eğitimciler Birliği Sendikası: Eğitim-Bir Sen) members, 103 (26.1%) are Turkish Education, Training and Science Services Branch Public Employees Union (Türkiye Eğitim, Öğretim ve Bilim Hizmetleri Kolu Kamu Çalışanları Sendikası: Türk-Eğitim-Sen) members, 7 (1.8%) are Education and Science Employees' Union (Eğitim ve Bilim İşgörenleri Sendikası: Eğitim İş) members, 9 (2.3%) are Education and Science Workers' Union (Eğitim ve Bilim Emekçileri Sendikası: Eğitim Sen) members, 17 (4.3%) are members of one of the other unions and 74 (18.8%) are not members of any union.

Development of the Measurement Tool

The process of creating the data collection tool was carried out with a comprehensive literature review. Opinions of faculty members working in the departments of educational management, measurement, evaluation and guidance and psychological counseling were obtained. In the light of the obtained data and opinions, an attempt was made to ensure face and content validity of the trial form created. The trial form was created both in print and electronically. In response to participants' requests, a draft form was provided. This trial form was administered to 17 teachers working at a school in Sivas, Türkiye, which includes a preschool, primary, and secondary school. Following discussions to ensure clarity, necessary corrections were made. The 42-item trial form, consisting entirely of positive points, was then administered to a total of 119 school administrators and teachers. Reliability analysis was performed on the obtained data. According to the analysis results, the reliability of the trial form was applied to a total of 260 participants consisting of teachers and school administrators.

Exploratory factor analysis was performed using data collected from 260 participants via printed forms over a period of approximately one month. IBM SPSS Statistics 25 package program was used in exploratory

factor analysis processes. The suitability of the data in exploratory factor analysis was determined by examining Bartlett Sphericity and KMO (Kaiser Meyer Olkin) tests. In order to understand whether the data to be used in exploratory factor analysis is suitable for factor analysis, the KMO value must be above .60 and the Bartlett Sphericity test result must be significant (Büyüköztürk, 2002). In the exploratory factor analysis process of the data, the varimax rotation method, one of the rotation methods, was used in factor interpretation. The item loading values of the scale items were required to be .30 and above (Büyüköztürk, 2002). As a result of the analysis processes, it was accepted that the variance explained was between 40% and 60% (Büyüköztürk, 2012).

Finally, confirmatory factor analysis processes were performed with the data obtained with the candidate scale form whose factor structure was formed with the exploratory factor analysis processes. At this stage, the LISREL 8.80 package statistics program was used. The goodness of fit indices used as a reference in interpreting the results of confirmatory factor analysis conducted using the principal components technique are shown in Table 4 below.

Table 4

Referenced Confirmatory Factor Analysis Fit Statistics

Goodness of Fit Indices	Acceptable Fit	Perfect Fit
χ^2/sd	$2 < \chi^2/sd < 5$	$0 < \chi^2/sd < 2$
RMSEA	$0,05 \leq RMSEA \leq 0,08$	$0,01 \leq RMSEA \leq 0,05$
RMR	$0,05 \leq RMR \leq 0,08$	$0,01 \leq RMR \leq 0,05$
AGFI	$0,85 \leq AGFI \leq 0,90$	$0,90 \leq AGFI \leq 1,0$
NFI	$0,90 \leq NFI \leq 0,95$	$0,95 \leq NFI \leq 1,0$
NNFI	$0,90 \leq NNFI \leq 0,95$	$0,95 \leq NNFI \leq 1,0$
CFI	$0,90 \leq CFI \leq 0,95$	$0,95 \leq CFI \leq 1,0$
GFI	$0,85 \leq GFI \leq 0,90$	$0,90 \leq GFI \leq 1,0$

Note. Table adapted from Meydan & Şeşen (2011), Tabachnick & Fidell (2013), Yılmaz & Çelik (2009).

Findings

Findings Regarding the Creation of Test Items for the Scale of Moral Understandings of School Administrators and Teachers

The 42-item trial form of the Scale of Moral Understanding of School Administrators and Teachers was prepared by the researcher. Before preparing the trial form, a literature review was conducted and the concept of morality, philosophical foundations of moral understanding, moral development theories and previously developed scales thought to be related to this subject were examined. In the creation of the test items in the trial form, the moral principles of Socrates, Plato, Aristotle, Kant, Farabi, Bacon, Hobbes, Locke, Russell and Mill, whose ideas have survived to the present day in terms of moral understanding, were also taken into account. Care was taken to write the created scale items with understandable and up-to-date expressions. After the preparation of the 42-item trial items, two faculty members from the Department of Educational Administration, one faculty member from the Department of Measurement and Evaluation, one faculty member from the Department of Guidance and Psychological Counseling and one faculty member working in one of the secondary education institutions affiliated to the Ministry of National Education were used. The opinions of a Turkish and Literature Teacher were consulted. In the light of the opinions obtained, necessary arrangements were made both theoretically and in terms of grammar and meaning.

After the necessary arrangements were made, the form containing the trial items was given to 17 teachers and in the light of the feedback from the teachers, the necessary arrangements were made both in terms of form and meaning.

Findings Regarding the Validity Studies on the Moral Understandings of School Administrators and Teachers Scale

After the writing and checking process of the trial items was completed, a draft form consisting of 42 items, all written as positive items, was created. The 42-item draft scale form was applied to a total of 119

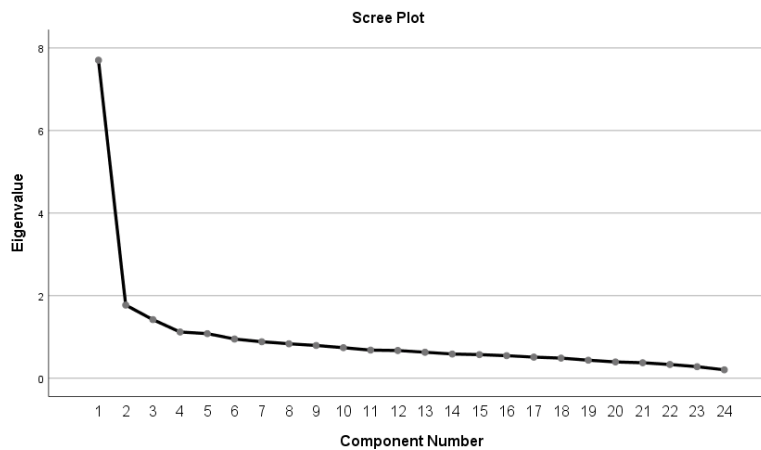
teachers and school administrators. When the types of schools where the participants worked were examined, it was seen that they worked in 1 high school, 5 middle schools, 2 primary schools and 1 kindergarten. The data obtained from the preliminary application were processed and 14 items with a corrected item total correlation below .30 were found. These items are; Item 1, Item 3, Item 6, Item 7, Item 8, Item 9, Item 10, Item 12, Item 13, Item 14, Item 35, Item 36, Item 37 and Item 42. These 14 items were analyzed one by one and removed from the scale, and the reliability level of the candidate scale was calculated as .920 in the last stage of the pre-application.

Findings Regarding the Exploratory Factor Analysis of the School Administrators' and Teachers' Moral Understandings Scale

The suitability of the data obtained for use in exploratory factor analysis was tested. For this purpose, exploratory factor analysis was conducted with data obtained from a total of 260 teachers and school administrators working in high schools, special education schools, middle schools, primary schools and kindergartens. Instead of reducing variables and naming the revealed factors, exploratory factor analysis reveals whether the factors revealed by factor analysis are similar to the theoretical structure on which the research topic is based. The suitability of the data obtained for use in the analyses was checked with KMO and Bartlett Sphericity tests. If the Bartlett Sphericity test result is significant and the KMO value is above .60, the obtained data is accepted to be suitable for factor analysis. (Büyüköztürk, 2002). The varimax vertical rotation method was used to interpret the found factors. As a result of this study, item loading values were required to be .30 and above. If the chi-square value, which is one of the calculated statistical values, is significant, it is stated that the data matrix is appropriate. In the light of this information, it was determined that the data collected to be used in the exploratory factor analysis was appropriate for use in the exploratory factor analysis of the candidate scale (KMO = .904, Bartlett's Test of Sphericity=2195.912 $p=.000$). The number of factors for the scale on which factor analysis was performed according to the principal component analysis method was determined by the researcher according to the Scree test diagram. It was seen that the curve progressed in approximately the same direction after 3 factors in the Scree test diagram. For this reason, it was decided that the number of sub-dimensions would be 3.

Figure 1

Explained Variance Diagram for the Factors of the School Administrators' and Teachers' Moral Understandings Scale



According to the factor analysis results; It was seen that the first factor explained 19.172% of the total variance of the scale. This rate was calculated as 14.500% for the second factor and 11.723% for the third factor. It was seen that the three factors explained 45.395% of the total variance. Since this rate is between 40% and 60%, it is considered sufficient (Büyüköztürk, 2012).

In order for an item to be shown in a factor, it was required to have a factor loading of at least ".30" and when the loading values of the items were compared with the loading values of the factor with the highest loading value on another factor, the difference between them was required to be ".10" or higher (Büyüköztürk, 2002). In the scale that was re-evaluated in 3 dimensions according to the Scree Plot diagram

and total variance, the factor loading value remained below .30 and the 4th item overlapped, item 19, item 24 and item 39 were removed and the factor loading distributions of the items as a result of the re-processing are shown in Table 5 below.

Table 5

Factor Loadings of the School Administrator and Teacher Moral Understandings Scale

Item Number	Factor 1	Factor 2	Factor 3
2	,513		
5	,673		
11	,530		
23	,526		
25	,488		
26	,649		
27	,542		
28	,691		
29	,591		
32	,520		
33	,587		
40	,447		
15		,553	
16		,741	
17		,714	
18		,670	
20		,631	
21		,514	
22		,632	
30			,635
31			,707
34			,521
38			,632
41			,627

Findings on Regarding the Reliability Studies of the Moral Understandings of School Administrators and Teachers Scale

Cronbach Alpha reliability coefficient for the overall scale was calculated as .920. Since the reliability coefficient of the developed data collection tool was above .700 (Büyüköztürk, 2002), it was seen that the scale reliability had an acceptable value. Cronbach Alpha values calculated for the obtained dimensions are given in Table 6 below.

Table 6

Reliability Coefficients of School Administrators and Teachers' Moral Understandings of Scale and its Sub-Dimensions

Factor	Items	Cronbach Alpha Coefficient
Personal Rights -Virtue	2,5,11,23,25,26,27,28,29,32,33,40	.854
Happiness	15,16,17,18,20,21,22	.802
Social Values -Belief	30,31,34,38,41	.688

Findings on Confirmatory Factor Analysis of School Administrators and Teachers' Moral Understandings of Scale

For the confirmatory factor analysis, which is the other stage of the scale development process, data obtained from a total of 394 teachers and school administrators working in high schools, special education institutions, middle schools, primary schools and kindergartens were used. After the factor analysis was completed for the "Scale of Moral Understanding of School Administrators and Teachers", the principal components technique was used in CFA. First of all, fit statistics were calculated for the 3-variable model. As a result of the modifications made between items 28 and 29 and items 38 and 41, chi-square, root mean square error of approximation (RMSEA), normed fit index (NFI), non-normed fit index (NNFI) and comparative fit index (CFI) values were examined. According to the results obtained from the analyses; chi-square (469.31/248=1.89) was found significant and RMSEA=.048, CFI=.96, NFI=.90, NNFI=.95 values were obtained. According to these values, it was seen that the structure related to the scale consisted of values with the least acceptable range of fit. As a result of the analyses, the scale development process was completed. It was seen that the scale consisted of 24 items and three dimensions. When naming the factors of the scale, the items collected in the same dimension were examined and the decision was made.

Table 7

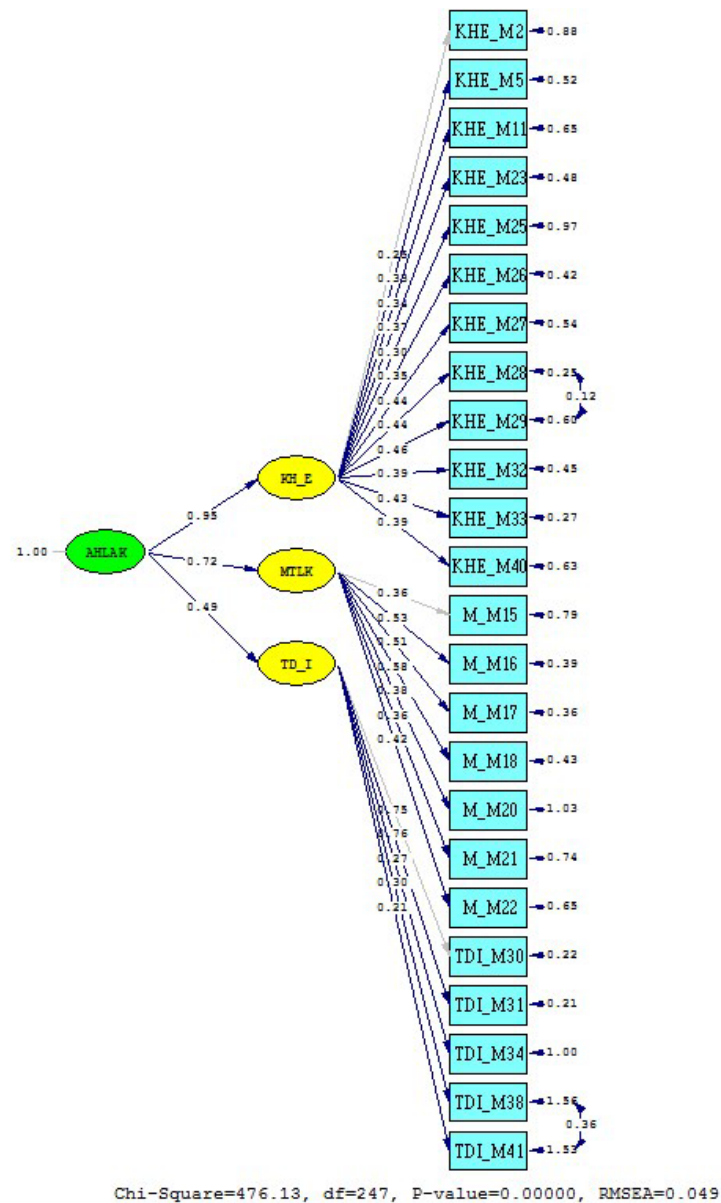
Confirmatory Factor Analysis Compliance Statistics for the School Administrators' and Teachers' Moral Understandings Scale

Goodness of Fit Indices	Perfect Fit	Acceptable Fit	Values
χ^2/sd	$0 < \chi^2/sd < 2$	$2 < \chi^2/sd < 5$	1.92
RMSEA	$0,01 \leq RMSEA \leq 0,05$	$0,05 \leq RMSEA \leq 0,08$	0.049
RMR	$0,01 \leq RMR \leq 0,05$	$0,05 \leq RMR \leq 0,08$	0.054
GFI	$0,90 \leq GFI \leq 1,0$	$0,85 \leq GFI \leq 0,90$	0.91
CFI	$0,95 \leq CFI \leq 1,0$	$0,90 \leq CFI \leq 0,95$	0.95
NFI	$0,95 \leq NFI \leq 1,0$	$0,90 \leq NFI \leq 0,95$	0.90
NNFI	$0,95 \leq NNFI \leq 1,0$	$0,90 \leq NNFI \leq 0,95$	0.95
AGFI	$0,90 \leq AGFI \leq 1,0$	$0,85 \leq AGFI \leq 0,90$	0.89

Note. Table adapted from Meydan & Şeşen (2011), Tabachnick & Fidell (2013), Yılmaz & Çelik (2009).

Figure 2

Confirmatory Factor Analyzes for the School Administrators and Teachers' Moral Understandings of Scale



**Note: School Administrators and Teachers' Moral Understandings of Scale, Factor 1 (KHE): Personal Rights - Virtue, Factor 2 (M): Happiness, Factor 3 (TDI): Social Values - Belief*

To evaluate the suitability of the established model, comparisons were made regarding Chi Square (χ^2), RMSEA, RMR, AGFI, NFI, NNFI, CFI and GFI values. According to these results, the Chi Square (χ^2) result was 1.92 ($P=0.0$) significant, the RMSEA value was 0.049 and the level of fit was excellent in the range of $0.01 \leq \text{RMSEA} \leq 0.05$. It was seen that the standardized RMR value was 0.054; AGFI value was 0.89 and $0.85 \leq \text{AGFI} \leq 0.90$ was in the acceptable range. It was seen that the NFI value was 0.90 and the NNFI value was 0.95 and there was a perfect fit. It was observed that the CFI value was 0.95 and had a perfect fit value. The GFI value was 0.91 and was at a perfect fit level in the range of $0.90 \leq \text{GFI} \leq 1.00$.

As a result of confirmatory factor analysis, it is seen that the scale consists of 24 items. The scale was created in Likert type by offering the options "Strongly Agree": 5, "Mostly Agree": 4, "Moderately Agree": 3, "Somewhat Agree": 2 and "Strongly Disagree": 1.

When the items related to its sub-factors are examined, the first factor is collected under the name "Personal Rights-Virtue" and includes the items m2, m5, m11, m23, m25, m26, m27, m28, m29, m32, m33,

m40. The second factor is collected under the name "Happiness" and includes items m15, m16, m17, m18, m20, m21, m22. The third factor is collected under the name "Social Values-Belief" and includes items m30, m31, m34, m38, m41.

Since the scale consists of 24 items, the lowest possible score is 24 and the highest is 120. The total score obtainable from the "Personal Rights and Virtue" subscale is at least 12 and at most 60; from the "Happiness" subscale is at least 7 and at most 35; and from the "Social Values-Beliefs" subscale is at least 5 and at most 25. The complete list of items is provided in the Appendix in Turkish (Appendix A) and English (Appendix B).

As the scores obtained from the "Personal Rights and Virtue" sub-dimension increase, it means that the participant's perception of "morality" consists of the protection of personal rights and the existence of virtuous behaviors. As the scores obtained from the "happiness" sub-dimension increase, it can be interpreted that the participant's perception of "morality" is parallel to the behaviors that provide happiness. As the scores obtained from the "Social Values-Belief" sub-dimension increase, it can be interpreted that this means that the participant's perception of "morality" is in parallel with the values and belief judgments in the society he lives in.

Discussion

The primary aim of this study was to develop a valid and reliable measurement tool that can be used to determine the moral understandings of school administrators and teachers working in educational organizations. Although morality has long been examined within the fields of philosophy, psychology, religion, and education, the literature reveals a lack of measurement tools specifically designed to assess the moral understandings of educational professionals. Existing scales generally focus on moral maturity (Şengün, 2008; Ay, 2021), moral identity (Aquino & Reed, 2002), moral disengagement (Bandura et al., 1996), moral literacy (Tekin, 2022), or moral values (Abdullah et al., 2010). Therefore, the present study contributes to the literature by introducing a field-specific scale developed directly for school administrators and teachers.

The findings of the exploratory and confirmatory factor analyses demonstrated that the developed scale has a three-factor structure consisting of Personal Rights-Virtue, Happiness, and Social Values-Belief dimensions. These dimensions are largely consistent with major traditions in moral philosophy. The Personal Rights-Virtue dimension reflects virtue-based and duty-oriented moral approaches emphasizing justice, fairness, respect, and individual rights. This finding is compatible with the moral perspectives of philosophers such as Socrates, Plato, Aristotle, and Kant, who associated morality with virtues, duties, and respect for human dignity (Akarsu, 1970; Ülken, 1946). The emergence of this factor suggests that educational professionals tend to evaluate moral behavior primarily through concepts related to fairness, respect, responsibility, and personal rights.

The second factor, Happiness, reflects a consequentialist understanding of morality in which the outcomes of actions and the well-being of stakeholders are emphasized. This finding is theoretically compatible with utilitarian traditions represented by philosophers such as Mill and Bentham, who argued that moral actions are those producing the greatest happiness for the greatest number of people (Ülken, 1946). The presence of this factor indicates that many school administrators and teachers consider positive outcomes, satisfaction, and happiness as important criteria when evaluating moral behavior in educational settings. Since educational institutions are expected to promote not only academic achievement but also psychological well-being, this finding appears particularly meaningful within the educational context.

The third factor, Social Values-Belief, highlights the influence of cultural norms, traditions, and belief systems on moral judgments. Morality is not formed solely through individual reasoning but is also shaped by the social and cultural environment in which individuals live (Carr, 2014). The emergence of this dimension supports the argument that educational professionals may interpret moral behavior through the lens of shared social values and beliefs. This finding is particularly important in the Turkish educational context, where cultural values, social expectations, and belief systems continue to play a significant role in shaping educational practices and interpersonal relationships.

Another important contribution of this study is that it demonstrates the multidimensional nature of moral understanding among educational professionals. Previous morality-related scales generally focused on a single dimension such as moral maturity, moral identity, or moral disengagement (Aquino & Reed, 2002; Şengün, 2008; Yavuz & Bacanlı, 2017). In contrast, the present study revealed that school administrators and teachers evaluate morality through multiple and complementary perspectives. This multidimensional structure provides a broader understanding of how educational professionals conceptualize moral behavior and decision-making processes.

The findings of the present study also support the results obtained in the authors' previous research examining school administrators' and teachers' understandings of morality and their decision-making strategies (Arslan & Üstüner, 2024). In that study, concepts such as justice, honesty, equality, fairness, and responsibility emerged as the most frequently emphasized components of morality. The prominence of the Personal Rights-Virtue dimension in the current scale is largely consistent with these findings. Furthermore, the earlier study reported significant differences in moral understandings according to demographic variables such as age, gender, and union membership. The scale developed in the present study provides researchers with a psychometrically sound instrument that can be used to investigate such differences more systematically in future studies.

The present study differs from previous morality-related research in several respects. First, unlike scales developed for adolescents, university students, or general adult populations, this scale specifically targets school administrators and teachers. Second, while many existing instruments measure moral competencies, moral identity, or moral development levels, the current scale focuses directly on individuals' understandings and perceptions of morality. Third, the scale was developed within the cultural and educational context of Türkiye and therefore reflects moral perspectives that are meaningful within this context. These characteristics increase both the practical and theoretical value of the instrument.

Despite these contributions, some limitations should be acknowledged. The data were collected only from school administrators and teachers working in a single province of Türkiye. Therefore, future studies should test the scale with larger and more diverse samples from different regions and educational levels. In addition, cross-cultural validation studies may provide further evidence regarding the generalizability of the scale structure. Future research may also investigate the relationships between moral understandings and variables such as ethical leadership, organizational justice, professional ethics, school climate, teacher commitment, and decision-making processes.

In addition, this scale development study was produced from the author's doctoral dissertation and supported by findings obtained in a previous study examining school administrators' and teachers' understandings of morality and their decision-making strategies. In that study, it was found that the concepts of "justice," "honesty," and "equality" came to the forefront in participants' definitions of morality, while "justice" and "fairness" were emphasized in decision-making situations. Furthermore, significant differences were identified in school administrators' and teachers' understandings of morality and decision-making strategies according to variables such as age, gender, and union membership status (Arslan and Üstüner, 2024). These findings further support the need for a valid and reliable measurement tool specifically designed to evaluate the moral understandings of educational administrators and teachers.

In conclusion, the School Administrators and Teachers' Moral Understandings Scale fills an important gap in the literature by providing a valid and reliable instrument specifically designed to assess the moral understandings of educational professionals. The three-dimensional structure obtained in this study reflects both classical moral philosophy and contemporary educational realities, offering researchers a comprehensive framework for examining morality in educational organizations.

Limitations

Despite its theoretical and methodological contributions, this study has several limitations that should be considered when interpreting the findings. First, the scale was developed and validated using data collected from teachers working in Turkish public schools. Therefore, the findings reflect perceptions formed within a specific educational and cultural context, and caution should be exercised when generalizing the results to different educational systems or cultural settings.

Second, the study relied exclusively on self-report data. Although participants' perceptions constitute an appropriate source of information for evaluating school administrators' ethical behaviors, self-report measures may be influenced by factors such as social desirability, response bias, and individual subjective evaluations. Future studies may strengthen the validity of the findings by incorporating multiple data sources, including peer evaluations, administrator self-assessments, or qualitative evidence.

Third, although participants' union membership status was considered as one of the demographic variables during data collection, the present study did not examine whether perceptions of school administrator ethics differed across union affiliations. Since professional union membership may be associated with differences in organizational experiences, professional expectations, and perceptions of administrative practices, future research could investigate the measurement invariance of the scale across different union membership groups and examine whether the scale functions equivalently for participants with different union affiliations. Such analyses would provide additional evidence regarding the generalizability and robustness of the instrument across diverse professional groups.

Conclusion

This study aimed to develop and validate a psychometrically sound instrument for assessing the moral understandings of school administrators and teachers within the educational context. Although morality constitutes one of the fundamental dimensions of educational organizations and has been associated with leadership, professional responsibility, organizational trust, and school effectiveness, the literature has lacked a comprehensive measurement instrument specifically designed to assess the moral understandings of both school administrators and teachers. By addressing this gap, the present study provides a theoretically grounded and empirically validated scale that conceptualizes morality as a multidimensional construct within educational settings.

The findings demonstrated that the developed scale possesses a clear and theoretically meaningful factor structure supported by both exploratory and confirmatory factor analyses. In addition, the reliability analyses indicated high internal consistency across the scale and its dimensions. These results provide strong evidence that the scale is a valid and reliable instrument for assessing the moral understandings of school administrators and teachers.

Beyond its psychometric properties, the study contributes to the literature by offering a contextually relevant framework for examining morality in educational organizations. While previous research has frequently investigated related concepts such as ethical leadership, professional ethics, or organizational values, relatively few studies have directly focused on the moral understandings that shape the professional practices of both school administrators and teachers. By operationalizing these understandings within a single measurement framework, the present study contributes to a more comprehensive conceptualization of morality in educational settings and expands the methodological resources available for future research.

The developed scale also has important practical implications. It can be used in studies examining the relationships between the moral understandings of school administrators and teachers and various educational variables, including organizational trust, school climate, organizational justice, professional commitment, teacher well-being, collaboration, and school effectiveness. Furthermore, the scale may assist researchers, policymakers, and educational institutions in generating empirical evidence to support professional development initiatives and to strengthen the moral foundations of educational organizations.

In conclusion, the present study provides a valid and reliable instrument for assessing the moral understandings of school administrators and teachers. By offering a theoretically grounded, culturally appropriate, and psychometrically robust measurement tool, the study contributes to the literature on educational administration and teacher professionalism while providing researchers with a comprehensive instrument for future empirical studies. It is expected that the scale will facilitate a deeper understanding of morality in educational organizations and support efforts to foster morally grounded educational environments.

Author's Note

This study is based on the first author's doctoral thesis that was completed at İnönü University.

CRedit authorship contribution statement

C. Arslan: Conceptualization, Methodology, Data collection, Analysis, Writing – original draft, review & editing.

M. Üstüner: Conceptualization, Supervision, Methodology, Analysis, Writing – original draft.

Declaration of Conflicting Interests

The authors declare that they have no conflict of interest.

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Ethics Approval and Consent to Participate

Ethical approval for the study was obtained from the Inonu University Ethics Committee on December 1, 2022, at session number 22, with decision number 2022/22-3.

Declaration of AI Usage Statement

The authors affirm that no AI tools were employed in the preparation of this article.

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Appendix A

The Turkish Version of the Scale Measuring School Administrators' and Teachers' Concepts of Morality

Okul Yöneticileri ve Öğretmenlerin Ahlak Anlayışları Ölçeği

Bu ölçek, okul yöneticileri ve öğretmenlerin ahlak anlayışlarını belirlemek amacıyla hazırlanmıştır. Aşağıda yer alan her bir ifadeler eğitim ortamlarındaki ahlaki olarak değerlendirilebilecek çeşitli durum ve düşünceleri içermektedir. Her bir maddeyi dikkatli bir şekilde okuyunuz ve ifadenin kendi düşünce ve görüşlerinizi ne derece yansıttığını değerlendiriniz.

Her ifade için uygun gördüğünüz seçeneği işaretleyiniz. Ölçekte doğru ya da yanlış cevap bulunmamaktadır. Önemli olan, her ifadeye kendi görüşlerinizi en doğru şekilde yansıtan cevabı vermenizdir.

		1	2	3	4	5
	"1" : Hiç Katılmıyorum					
	"2" : Az Katılıyorum					
	"3" : Orta Düzeyde Katılıyorum					
	"4" : Çoğunlukla Katılıyorum					
	"5" : Tamamen Katılıyorum					
1	Okul yöneticilerinin ders dağılımlarında, ders programı yapımında öğretmenler arasında adil olduğu oranda ahlaki olduğunu düşünüyorum.	1	2	3	4	5
2	Öğretmenlerin etkin dinleme becerisine sahip olmasının öğrencilerine karşı adil davranmasını sağlayacağını düşünüyorum.	1	2	3	4	5
3	Sınav puanına itiraz eden öğrencimin itirazından rahatsız olmadığım gibi sınav sonucunu yeniden kontrol etmek de zoruma gitmez.	1	2	3	4	5
4	Okul yöneticisinin kişiliğiyle güvenilir kişi olduğunu göstermesinin lider kabul edilebilmesi için önemli olduğunu düşünüyorum.	1	2	3	4	5
5	Öğretmenlerin öğrencilerine karşı kırıcı davranmamasının ahlaki bir zorunluluk olduğunu düşünüyorum.	1	2	3	4	5
6	Öğrencilerimin kalbini kırdığımda vicdanen rahatsız olurum.	1	2	3	4	5
7	Herhangi bir mesai arkadaşım hakkında kendisinin bulunmadığı bir ortamda eleştirel şekilde konuşulmasının ahlaki olmadığını düşünüyorum.	1	2	3	4	5
8	Verilen bir söze uymanın ahlaki bir zorunluluk olduğunu düşünüyorum.	1	2	3	4	5
9	Öğrencilere doğa ve hayvan sevgisi kazandırılmasının ahlaki bir zorunluluk olduğunu düşünüyorum.	1	2	3	4	5
10	Öğrencilerimin davranışlarını değerlendirirken aile yapısını ve yetiştirme ortamını göz önünde bulundururum.	1	2	3	4	5
11	Çalışma arkadaşlarımla ve öğrencilerimin farklı inançlara sahip olabileceğini düşünerek söylemlerime dikkat ederim.	1	2	3	4	5
12	Okul yönetimince belirlenen çeşitli kurallar öğretmenlere veya öğrencilere fayda sağlamıyorsa değiştirilmesinin ahlaki bir zorunluluk olduğunu düşünüyorum.	1	2	3	4	5
13	Öğretmenlerin ders programlarının istekleri göz önünde bulundurularak düzenlenmesi gerektiğini düşünüyorum.	1	2	3	4	5
14	Okul yöneticilerinin öncelikli amacının mutlu okul ortamları oluşturmak olması gerektiğini düşünüyorum.	1	2	3	4	5
15	Öğretmenlerin mutsuz olduğu okullarda diğer çalışanların da mutsuz-huzursuz olacağını düşünüyorum.	1	2	3	4	5
16	Bir okulda paydaşlarını mutlu eden uygulamaların doğru uygulamalar olduğunu düşünüyorum.	1	2	3	4	5
17	Okul yöneticilerinin bütün yasal düzenlemelere rağmen çalışanlarının memnuniyetini önemelemez/gözetmesi gerektiğini düşünüyorum.	1	2	3	4	5
18	Mesai arkadaşlarımla özel günlerinde yanlarında olmaya gayret gösteririm.	1	2	3	4	5
19	Öğrencilerin bir derse mutlu bir şekilde geliyor olması öğretmenin işini iyi yaptığının göstergesi olduğunu düşünüyorum.	1	2	3	4	5
20	Okul yöneticileri ve öğretmenlerin içinde bulundukları toplumun örf, adet ve geleneklerini göz önünde bulundurarak görev yapmaları gerektiğini düşünüyorum.	1	2	3	4	5

21	Okul yöneticileri ve öğretmenlerin içinde bulunduğu toplumun inanç değerlerini göz önünde bulundurarak görev yapmaları gerektiğini düşünüyorum.	1	2	3	4	5
22	Dini inancım ahlak anlayışım üzerinde etkilidir.	1	2	3	4	5
23	Bir öğretmenin okuldaki giyim-kuşamını sınırlayıcı bazı kurallar bulunmasının ahlaki bir zorunluluk olduğunu düşünüyorum.	1	2	3	4	5
24	Ahlaki olarak tanımlanan bir davranışın bütün toplumlarda hoş karşılanan bir davranış olacağını düşünüyorum.	1	2	3	4	5

Appendix B

English Translation of the Scale of School Administrators' and Teachers' Concepts of Morality

School Administrators and Teachers' Moral Understandings Scale

This scale has been prepared to determine the moral understanding of school administrators and teachers. Each statement below includes various situations and thoughts that can be considered morally acceptable in educational settings. Carefully read each item and evaluate how well the statement reflects your own thoughts and opinions.

For each statement, mark the option you deem appropriate. There are no right or wrong answers on this scale. The important thing is to give the answer that best reflects your own views for each statement.

"1" : I completely disagree. "2" : I somewhat agree. "3" : I agree moderately. "4" : I mostly agree. "5" : I completely agree.		1	2	3	4	5
1	I believe that school administrators are ethical to the extent that they are fair to teachers in assigning lessons and creating class schedules.	1	2	3	4	5
2	I believe that teachers having effective listening skills will enable them to treat their students fairly.	1	2	3	4	5
3	I am not bothered by my student's appeal against their exam score, nor do I have any difficulty re-checking the exam results.	1	2	3	4	5
4	I believe it's important for a school administrator to demonstrate trustworthiness through their personality in order to be recognized as a leader.	1	2	3	4	5
5	I believe it is a moral obligation for teachers not to treat their students harshly.	1	2	3	4	5
6	I feel guilty when I hurt my students' feelings.	1	2	3	4	5
7	I believe it is unethical to speak critically about a colleague in their absence.	1	2	3	4	5
8	I believe that keeping a promise is a moral obligation.	1	2	3	4	5
9	I believe it is a moral obligation to instill a love of nature and animals in students.	1	2	3	4	5
10	When evaluating my students' behavior, I take their family structure and upbringing into consideration.	1	2	3	4	5
11	I am careful with my words, considering that my colleagues and students may have different beliefs.	1	2	3	4	5
12	I believe it is a moral obligation to change various rules set by school administration if they do not benefit teachers or students.	1	2	3	4	5
13	I believe that teachers' schedules should be arranged taking their requests into consideration.	1	2	3	4	5
14	I believe that the primary goal of school administrators should be to create happy school environments.	1	2	3	4	5
15	I believe that in schools where teachers are unhappy, other staff members will also be unhappy and restless.	1	2	3	4	5
16	I believe that practices that make stakeholders happy in a school are the right practices.	1	2	3	4	5
17	I believe that school administrators should prioritize/consider employee satisfaction despite all legal regulations.	1	2	3	4	5
18	I try to be there for my colleagues on their special days.	1	2	3	4	5
19	I believe that students coming to class happily is an indication that the teacher is doing their job well.	1	2	3	4	5
20	I believe that school administrators and teachers should perform their duties while taking into account the customs, traditions, and values of the society in which they live.	1	2	3	4	5
21	I believe that school administrators and teachers should perform their duties while taking into account the religious values of the society in which they live.	1	2	3	4	5

22	My religious beliefs influence my moral understanding.	1	2	3	4	5
23	I believe it is a moral imperative that there are some rules regarding a teacher's dress code at school.	1	2	3	4	5
24	I believe that behavior defined as morally acceptable would be acceptable in all societies.	1	2	3	4	5

Examining the Relationship Between Primary School Teachers' Number Sense and Mathematical Problem Solving Beliefs

Sınıf Öğretmenlerinin Sayı Hissi ve Matematiksel Problem Çözme İnançları Arasındaki İlişkinin İncelenmesi

Zeliha Kılıç¹, Gönül Güneş²

Keywords	Abstract
Mathematical problem solving belief	The purpose of the study is to examine the relationship between primary school teachers' number sense and their beliefs about mathematical problem solving. A correlational survey model method was used in the study. The sample for this study consists of 200 primary school teachers working in the Eastern Black Sea region of Türkiye. In the study, the "Personal Information Form," the "Mathematical Problem Solving Belief Scale" and "The Number Sense Test" were used as data collection tools. The data obtained were analyzed using parametric and nonparametric tests and Pearson correlation analysis in SPSS 24. The results of the study revealed that primary school teachers' beliefs about mathematical problem solving and their number sense were below average, and that they used rule-based strategies more often in number sense questions. The study found that primary school teachers' number sense and beliefs about mathematical problem solving did not show significant differences based on gender and educational status, but did show significant differences based on professional seniority. Furthermore, a positive correlation was found between primary school teachers' sense of number and their belief in mathematical problem solving. It is recommended that pre-service and in-service training programs that support the development of primary school teachers' number sense be delivered with content integrated with mathematical problem solving.
Primary school teacher	
Number sense	
Anahtar Sözcükler	Öz
Matematiksel problem çözme inancı	Araştırmanın amacı sınıf öğretmenlerinin sayı hissi ve matematiksel problem çözme inançları arasındaki ilişkinin incelenmesidir. Araştırmada ilişkisel tarama modeli yöntemi kullanılmıştır. Araştırmanın örneklemini Türkiye'de Doğu Karadeniz bölgesinde görev yapan 200 sınıf öğretmeni oluşturmaktadır. Araştırmada veri toplama aracı olarak, "Kişisel Bilgi Formu", "Matematiksel Problem Çözmeye İlişkin İnanç Ölçeği" ve "Sayı Hissi Testi" kullanılmıştır. Elde edilen veriler SPSS 24 programında parametrik ve parametrik olmayan testler ile Pearson korelasyon analizi kullanılarak analiz edilmiştir. Araştırmanın sonucunda sınıf öğretmenlerinin matematiksel problem çözmeye ilişkin inançlarının ve sayı hissinin ortalamasının altında olduğu, sayı hissi sorularında daha çok kural temelli stratejileri kullandığı tespit edilmiştir. Araştırmada sınıf öğretmenlerinin sayı hissi ile matematiksel problem çözmeye ilişkin inançlarının cinsiyet ve eğitim durumuna göre anlamlı farklılık göstermediği, mesleki kıdeme göre anlamlı farklılık gösterdiği tespit edilmiştir. Ayrıca sınıf öğretmenlerinin sayı hissinin ve matematiksel problem çözmeye ilişkin inancı arasında pozitif yönlü ilişkin olduğu bulunmuştur. Hizmet öncesinde ve hizmet içinde sınıf öğretmenlerinin sayı hissi gelişimini destekleyen eğitimlerin matematiksel problem çözme ile bütünleştirilmiş içerikler ile sunulması önerilebilir.
Sınıf öğretmeni	
Sayı hissi	

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Introduction

Mathematics education is a process based on teachers' cognitive skills and educational beliefs. In this regard, teachers' number sense and beliefs about mathematical problem solving can influence their approach to teaching. Number sense, which involves flexible and varied thinking in numerical operations, is essential for elementary students to establish a strong foundation in mathematics. In this context, the significance of primary school teachers possessing adequate number sense becomes clear. Beyond this cognitive skill, teachers' educational beliefs—including their skill to recognize problems, set expectations for solutions, and their perspectives on the nature of mathematics—also play a crucial role in shaping the mathematics teaching process. For this reason, exploring primary school teachers' number sense alongside their beliefs about mathematical problem solving is considered valuable for enhancing the effectiveness of mathematics instruction for young learners.

Number Sense

Number sense encompasses understanding numbers, comparing their magnitudes (Reys et al., 1999; Yang, 2005), establishing meaningful relationships among numbers (Nejem & Muhanna, 2013), making estimates (McIntosh et al., 1992), and generating various strategies through flexible and adaptive thinking (Dehaene, 2020). Key characteristics of number sense include mental arithmetic (Sowder, 1992), flexible thinking (Reys et al., 1995) and estimation (Heirdsfield & Cooper, 2004). In their classification of the components of number sense, McIntosh et al. (1992) grouped these into three main components: knowledge of numbers and the skills to use them, knowledge of operations and the skills to use them, and the skill to apply knowledge of numbers and operations in calculation-based tasks. Yang (1995) grouped the components of number sense into six main components: understanding the meaning of numbers, number magnitudes, use of a reference point, understanding the relative effects of operations on numbers, decomposing and recomposing numbers, and flexibility in applying number and operation knowledge in computational situations. Reys et al. (1999), on the other hand, have grouped these into five main components: understanding the meaning and magnitude of numbers, performing mental calculations and being flexible in counting strategies and calculations during written computations, the effects and meanings of operations, using a reference point in measurement, and using equivalent representations of numbers. As can be seen, there is no universally accepted framework regarding the components of number sense in the literature (Gülbağcı-Dede & Şengül, 2016; McIntosh et al., 1992; Reys et al., 1999; Yang, 1995). To synthesize the literature, Gülbağcı-Dede and Şengül (2016) examined common themes and proposed a new classification, defining these components of number sense as “the meaning of numbers,” “the magnitude of numbers,” “flexible operations and the evaluation of whether results are reasonable,” and “estimation.” However, the literature lacks a universally agreed-upon framework for the components of number sense (Gülbağcı-Dede & Şengül, 2016; McIntosh et al., 1992; Reys et al., 1999; Yang, 1995). In an effort to synthesize the literature, Gülbağcı-Dede and Şengül (2016) examined common themes and proposed a new classification, defining the components as “the meaning of numbers,” “the magnitude of numbers,” “flexible operations and judging the plausibility of results,” and “estimation”. Individuals with well-developed number sense are able to comprehend mathematics more easily (Kaminski, 2002), develop their mathematical skills (Waldera, 2018) and improve their overall success (Çekirdekci et al., 2016; Jordan et al., 2007; Sarı & Olkun, 2020; Sarı & Özmen, 2025; Waldera, 2018). Students who possess strong number sense tend to generate flexible, context-appropriate solutions rather than relying solely on memorized rules when solving problems. They can detect numerical errors during problem-solving and independently assess the accuracy of their results. Moreover, these skills can be effectively applied not only in classroom settings but also in everyday life (Gersten et al., 2005). The development of number sense is explained both through biological factors (Dehaene, 2020; Testolin et al., 2020) and environmental influences (McIntosh et al., 2005; Tosto et al., 2014; Zhou et al., 2022). Humans and animals are thought to be born with an approximate number system (ANS), which enables them to estimate the quantity of items in a group (Dehaene, 2020). The idea that number sense can be improved through various instructional approaches (McIntosh et al., 2005; Tosto et al., 2014; Zhou et al., 2022) aligns with the distinction between two related structures: early number sense (ENS) and mature number sense (MNS) (Whitacre et al., 2020).

While ENS refers to children's basic understanding of number concepts at an early age, MNS is a concept that spans from early childhood to adulthood and encompasses more advanced abilities such as flexible thinking, strategic decision-making, and mental calculation (Whitacre et al., 2020). Definitions of MNS are typically explained through the conceptual structures underlying these skills rather than through directly observable skills (McIntosh et al., 1992; Reys & Yang, 1998). Defined as a learned skill, MNS involves the understanding of multi-digit numbers and rational numbers, and research in this area generally focuses on middle school students and pre-service teachers (Whitacre et al., 2020). Given that the structures of number sense exhibit different characteristics, it is important to determine which structure the studies address. The focus of this study is the MNS, which extends into adulthood and is based on advanced numerical skills.

Teachers' Number Sense and Its Impact on the Teaching Process

Number sense is a fundamental mathematical skill that supports students' ability to grasp relationships between numbers, think flexibly, and develop diverse problem-solving strategies, and teachers play a critical role in its development (Tsao & Lin, 2012; Yang et al., 2009; Yang & Wu, 2010). In this context, curricula, textbooks, and teaching materials shape students' learning process; however, the effective use of these elements, the structuring of the learning environment, and the implementation of activities aimed at developing number sense largely depend on the teacher's choices and practices (Anghileri, 2006; Chapin & Johnson, 2006; Tsao & Lin, 2012). Research indicates that teachers' deficiencies in number sense and strategies for developing this skill are a significant cause of students' low number sense levels (Sowder, 1992; Yang et al., 2009). Therefore, it is crucial for teachers to strengthen their own number sense and to know teaching strategies that will encourage students to explore number relationships and develop flexible thinking (Carpenter et al., 1996; Tsao & Lin, 2011). An effective teaching process requires providing students with opportunities to understand number concepts through concrete materials and real-life situations, structuring lesson plans to develop number sense, and organizing the learning environment to support this skill (Reys, 1994; Thornton & Tucker, 1989). In this context, teachers' beliefs about mathematical problem-solving are also significant as one of the factors determining the quality of teaching processes (Abrosse et al., 2004; Thompson, 1992). It is believed that these beliefs can directly influence primary school teachers' teaching practices and problem-solving approaches.

Beliefs Regarding Solving Mathematical Problems

Mathematics plays a active role in numerous aspects of everyday life, and problem-solving skills—one of its core components—represent a cognitive process that begins to develop from birth and continues throughout a person's lifetime (Ma et al., 2021). These skills are crucial not only for academic success but also for an individual's capacity to generate effective solutions to the challenges encountered in daily life (Olivares et al., 2021). Problem-solving skills represent a core area of learning that holistically supports students' cognitive, affective, and social development, promotes active engagement in the learning process, and fosters enriched educational environments. These skills offer students the chance to tackle challenges, explore alternative strategies, and learn through trial and error when needed, extending beyond mere academic achievement (Supriadi et al., 2024). Furthermore, they help individuals build self-confidence, cultivate independent thinking, and approach problems with creativity (Britz & Richard, 1992). Mathematics is regarded as a fundamental area of learning that enhances individuals' skill to find solutions to everyday problems (Türnüklü & Yeşildere, 2015). Accordingly, educational objectives should prioritize the development of effective problem-solving skills, and students should be nurtured to become proficient problem solvers within the educational system. Teachers need to implement planned and systematic interventions from the outset of the learning process to effectively support and cultivate students' problem-solving abilities (Pesen & Bindak, 2021). Achieving effective instruction also requires careful guidance and management of the problem-solving process. However, the literature indicates that teachers mostly simplify this process and use traditional approaches (Birgin & Baki, 2007; Harskamp & Suhre, 2006). It is emphasized that one of the reasons for this situation is teachers' beliefs about mathematical problem solving (Kayan & Çakıroğlu, 2008). Mathematical beliefs are a concept with many components influenced by the nature of mathematics, mathematical competence and skills, the learning environment, and mathematical norms acquired from the social environment (Morkoyunlu & Ayhanöz, 2023). Mathematical beliefs, which are value judgments acquired by individuals based on their past experiences (Raymond, 1997), are quite important in

the learning-teaching process because they affect people's perceptions (Thompson, 1992). Teachers' beliefs about situations they encounter and must decide on during teaching are influential (Abrosse et al., 2004). An individual's mathematical beliefs affect the learning process and problem-solving skills (Kloosterman & Stage, 1992). The literature shows that the beliefs of elementary school students (Hart, 2002) and teacher candidates regarding mathematics and mathematical problem solving have been examined (Kayan & Çakıroğlu, 2008; Schommer-Aikins et al., 2005). Furthermore, the literature indicates that teacher candidates hold traditional beliefs regarding the necessity of following procedural steps in problem solving (Kayan & Çakıroğlu, 2008). Beliefs about mathematical problem solving are a subjective assessment influenced by social structure (Kandemir & Gür, 2011) and previous mathematical experiences (Morkoyunlu & Ayhanöz, 2023). Given that the reflection of these beliefs in teaching processes directly influences students' problem-solving approaches and the strategies they employ (Kayan & Çakıroğlu, 2008; Kloosterman & Stage, 1992), the examination of number sense—which plays a critical role in the development of flexible and effective problem-solving approaches (Dehaene, 2020)—emerges as a necessity. Indeed, it has been noted that individuals with a high level of number sense tend to be more flexible in their problem-solving processes and are more likely to employ different strategies (Huang & Yang, 2018).

Number sense is widely recognized as a foundational mathematical skill, and its development—particularly in the primary school years—is viewed as a key predictor of students' later achievement in mathematics. Therefore, the primary school period plays a vital role in the acquisition and strengthening of number sense (McGuire et al., 2012; Van de Walle & Lowin, 2007; Yang & Li, 2013). In this context, gaining insight into primary school teachers' number sense levels and the strategies they employ is considered essential, as these teachers play a central role in fostering number sense among young learners (Kılıç, 2024).

Furthermore, since pre-service teachers' beliefs about mathematical problem solving influence both the learning environment and student achievement (Frykholm, 2003; Kayan & Çakıroğlu, 2008; Lloyd & Wilson, 1998), examining the beliefs of in-service primary teachers regarding mathematical problem solving also carries significant importance. Teachers' beliefs about mathematics are known to shape both students' attitudes toward the subject (Beswick et al., 2006) and their mathematical beliefs (Scales et al., 2020; Mesler et al., 2021). Prior research also highlights that teachers play a pivotal role in forming students' beliefs about mathematics (Britwum et al., 2024). Therefore, examining teachers' beliefs about mathematical problem solving and proposing recommendations based on the findings may offer an indirect yet meaningful contribution to the development of students' mathematical beliefs.

A strong and meaningful link has been identified between the growth of number sense and students' problem-solving abilities, and the concurrent development of these two skills has been shown to enhance students' overall academic performance (Çekirdekci et al., 2017). In this regard, it is considered important to examine the relationship between primary school teachers' beliefs about mathematical problem solving and their number sense, which involves thinking flexibly and differently to produce different solutions to problems, in order to reveal the current situation of primary school teachers. Based on these reasons, the purpose of this study is to examine the relationship between primary school teachers' number sense and their beliefs about mathematical problem solving. In line with this main purpose, answers were sought to the following sub-questions:

1. Do the gender, educational background, graduation status and professional seniority of primary school teachers create a statistically significant difference in teachers' number sense and mathematical problem-solving beliefs?
2. What strategies do primary school teachers use in questions involving number sense?
3. What is the level of primary school teachers' number sense and their beliefs about mathematical problem solving?
4. Is there a statistically significant relationship between primary school teachers' number sense and their beliefs about mathematical problem solving?

Method

Research Design

Since the aim of the study is to examine the relationship between primary school teachers' sense of number and their beliefs about mathematical problem solving, a correlational survey model will be used in the research. The correlational survey research (Büyüköztürk et al., 2011), which is an important study that reveals the relationship and level between the variables identified in the research and provides clues for conducting higher-level research, was deemed appropriate for the nature of the current research. Approval Information Permission to use the Mathematical Problem Solving Belief Scale (Hacıömeroğlu, 2011) and the Number Sense Test (Yarımkaş, 2019) for scientific research was obtained from the researchers via email. The necessary permissions were obtained from the National Education Directorate for all applications to be made. Participants in the study were informed that no name information would be included in the research report and were assured that the data would only be used for the relevant research. All sources included in the study were cited in the bibliography, and the originality of the study was checked by obtaining a similarity report. This research was conducted with the approval of the Ethics Committee of Trabzon University, dated 09/05/2025 and numbered 2025-5.

Research Sample

The study sample was determined using convenience sampling, a type of purposeful sampling method. This method was chosen because the participating teachers worked in schools accessible to the researcher and participated voluntarily. Participants were reached through face-to-face interviews conducted at the relevant institutions. The study population consists of primary school teachers working in primary schools affiliated with the Ministry of National Education in Gümüşhane province, located in the Eastern Black Sea Region of Türkiye, during the 2024-2025 academic year. The research sample comprises 200 primary school teachers working in Gümüşhane province during the 2024-2025 academic year. The sample distribution according to demographic variables is detailed in Table 1.

Table 1

Distribution of Demographic Variables of Primary School Teacher

Variable	Primary school teachers	N	%
Gender	Female	101	50.5
	Male	99	49.5
Educational status	Bachelor's degree	163	81.5
	Master's degree	37	18.5
Graduation status	Faculty of education	189	94.5
	Certified / Teacher training	11	5.5
Professional seniority	2-10 years	74	37.0
	11-20 years	86	43.0
	21 years and over	40	20.0

According to Table 1, the demographic characteristics of primary school teachers are distributed as follows: In terms of gender, there are 101 female teachers (50.5%) and 99 male teachers (49.5%). In terms of educational background, the majority of primary school teachers are bachelor's degree holders, numbering 163 and accounting for 81.5%. The number of primary school teachers with a master's degree is 37 (18.5%). In terms of graduation status, 189 primary school teachers (94.5%) are graduates of the Faculty of Education. 11 primary school teachers (5.5%) have received certification or training. When examining the seniority status of primary school teachers, 74 primary school teacher (37.0%) have 2-10 years of experience, 86 primary school teacher (43.0%) have 11-20 years of experience, and 40 primary school teacher (20.0%) have 21 years or more of experience.

Data Collection Tools

The "Personal Information Form" developed by researchers to collect data for the study, the Number Sense Test (For Teachers) developed by Yarımkaş (2019), and the Mathematical Problem Solving Belief Scale

adapted into Turkish by Hacıömeroğlu (2011) were used. Permission to use the test and scale was obtained from the researchers via email.

Personal Information Form

The Personal Information Form was developed by researchers to gather information about primary school teachers' gender, educational background, graduation status, professional seniority, and attitudes toward teaching mathematics.

Number Sense Test

The Number Sense Test was developed by Yarımkas (2019) to determine the number sense levels of primary school teacher candidates and to reveal the number sense strategies they use. Permission to use the scale employed in this article was obtained via email from the original owner of the scale. The test, with a reliability coefficient of 0.84, included 3 multiple-choice and 1 open-ended question (4 questions) for primary school teachers regarding the meaning of numbers, 3 multiple-choice and 2 open-ended questions (5 questions) regarding the magnitude of numbers, and 3 multiple-choice and 1 open-ended question (4 questions) for evaluating flexible calculation and the plausibility of the result. The estimation component consisted of a total of 3 questions: 2 multiple-choice and 1 open-ended. In reliability analyses conducted by researchers, Cronbach's alpha values for the subscales of the "Number Sense Test" scale were found to be .725 for "Meaning of Numbers," .728 for "Flexible Processing and Evaluating the Likelihood of Outcomes," .601, and .698 for "Prediction." The total Cronbach's alpha coefficient for these four subscales was determined to be .812, and the scale consists of 16 items in total.

Mathematical Problem Solving Belief Scale

The Mathematical Problem Solving Belief Scale, developed by Kloosterman and Stage (1992) and adapted into Turkish by Hacıömeroğlu (2011), was used to measure primary school teachers' beliefs about mathematical problem solving. Permission to use the scale employed in this article was obtained via email from the original owner of the scale. As a result of exploratory and confirmatory factor analyses, it was determined that the Turkish version of the scale consists of five factors. The Cronbach's alpha internal consistency coefficients of the five factors in the scale were calculated as 0.877, 0.775, 0.704, 0.500, and 0.802, respectively. Furthermore, the Cronbach's alpha internal consistency coefficient for the entire scale is 0.768. The scale consists of 24 items and is administered using a 5-point Likert-type rating format (Hacıömeroğlu, 2011). In reliability analyses conducted by researchers, the Cronbach alpha values for the subscales of the "Belief Scale Regarding Mathematical Problem Solving" were determined as .961 for "Mathematical Skill" .949 for "The Place of Mathematics" .785, "Importance of Mathematics" was .945, and "Problem-Solving Skill" was .758. The total Cronbach's alpha coefficient for these subscales was .924, and the scale generally consisted of 24 items.

Data Collection

Before starting the data collection process, the teacher was informed about the purpose and scope of the research; it was clearly stated that the data obtained would only be used for scientific purposes and that confidentiality would be protected. A suitable time slot outside of class hours was determined with the teacher for the application, and the data collection process was carried out in a quiet environment in the school setting, free from distractions. To prevent data loss, the participant was asked to answer all questions and scale items completely and accurately in the test.

Data Analysis

Data were collected using the Mathematical Problem Solving Belief Scale (Hacıömeroğlu, 2011) and the Number Sense Test (Yarımkas, 2019) and analyzed using the SPSS 24 program. Frequency Analysis was performed to determine the distribution according to demographic variables. The normality test was used to assess whether the data met the conditions of normal distribution; the obtained kurtosis and skewness coefficients were found to be within the ± 2 limits. It was determined that the data did not deviate significantly from normal distribution (George & Mallery, 2010). Since the data was confirmed to be normally distributed, parametric tests were preferred in the analyses, and the independent samples t-test and one-way analysis

of variance (ANOVA) were applied for intergroup comparisons. Additionally, the Mann-Whitney U test, a non-parametric test, was used for variables with a sample size of less than 35. Pearson correlation analysis was used to examine the relationship between the scores obtained from the Number Sense Test and the Mathematical Problem Solving Belief Scale.

Findings

The findings obtained as a result of the research are explained under sub-problems. The findings obtained regarding the subproblem “Do the gender, educational background, graduation status and professional seniority of primary school teachers create a statistically significant difference in teachers' number sense and mathematical problem-solving beliefs?” are presented in Table 2-3-4-5.

Findings Regarding the Effect of Demographic Characteristics (Gender, Educational Background, Graduation Status, and Professional Seniority) of Primary School Teachers on Number Sense and Beliefs in Mathematical Problem Solving An Independent-Sample t-test was applied to determine whether participants' number sense and belief scores regarding mathematical problem solving differed according to gender. The findings are presented in Table 2.

Table 2

Comparison of Primary School Teachers' Number Sense and Beliefs About Mathematical Problem Solving According to Gender

Scales	Gender	N	$\bar{x}$	SD	df	t	p
Number Sense Test and Its Subscales	Female	101	5.41	3.51	198	-.077	.939
	Male	99	5.44	3.56			
Belief Scale Regarding Mathematical Problem Solving	Female	101	2.11	0.60	198	-.818	.415
	Male	99	2.18	0.61			

N: Number of Participants, $\bar{x}$: Mean, SD: Standard Deviation, df: Degrees of Freedom, t: Independent Samples t Test, p: p-value

Table 2 shows that there were no significant differences in Number Sense Test and Mathematical Problem Solving Belief Scale levels based on gender ($p > .05$). An Independent-Sample t-test was applied to compare number sense and mathematical problem solving beliefs based on educational status. The findings are presented in Table 3.

Table 3

Comparison of Primary School Teachers' Number Sense and Beliefs About Mathematical Problem Solving According to Educational Background

Scales	Educational Status	N	$\bar{x}$	SD	df	t	p
Number Sense Test and Its Subscales	Bachelor's degree	163	5.44	3.44	198	.089	.929
	Master's degree	37	5.38	3.93			
Belief Scale Regarding Mathematical Problem Solving	Bachelor's degree	163	2.13	0.61	198	-.899	.370
	Master's degree	37	2.23	0.60			

N: Number of Participants, $\bar{x}$: Mean, SD: Standard Deviation, df: Degrees of Freedom, t: Independent Samples t Test, p: p-value

Table 3 shows that there were no significant differences in the Number Sense Test and Mathematical Problem Solving Belief Scale levels according to educational status ($p > .05$). The Mann-Whitney U test was applied to compare primary school teachers' number sense and mathematical problem-solving beliefs according to their graduation status. The findings are presented in Table 4.

Table 4

Comparison of Primary School Teachers' Number Sense and Beliefs About Mathematical Problem Solving According to Graduation Status

Scales	Graduation Status	N	Mean Square	Sum of Squares	U	p
Number Sense Test and Its Subscales	Faculty of education	189	105.24	19890.50	143.500	.000**
	Certified / Teacher training	11	19.05	209.50		
Belief Scale Regarding Mathematical Problem Solving	Faculty of education	189	104.53	19756.5	277.500	.000**
	Certified / Teacher training	11	31.23	343.5		

*= $p < .05$; **= $p < .01$, N: Number of Participants, $\bar{x}$: Mean, U: Mann-Whitney U, p: p-value

Table 4 shows that there are significant differences in the levels of Number Sense Test and Mathematical Problem Solving Belief Scale scores among primary school teachers based on their graduation status. Accordingly, the mean scores of those who graduated from the faculty of education on the Number Sense Test ($U = 105.24$, $p < .05$) and the Mathematical Problem Solving Belief Scale ($U = 104.53$, $p < .05$) were significantly higher than those of the certified/trained teachers. A OneWay ANOVA test was applied to compare the number sense and mathematical problem-solving beliefs of primary school teachers according to their seniority. The findings are presented in Table 5.

Table 5

Comparison of Primary School Teachers' Number Sense and Beliefs About Mathematical Problem Solving According to Seniority Status

Scales	Professional seniority	N	$\bar{x}$	SD		Sum of Squares	Mean Square	F	p
Number Sense Test and Its Subscales	2-10 Years	74	7.45	3.75	Between groups	588.623	294.312	30.705	.000**
	11-20 Years	86	4.87	2.73	Within groups	1888.252	9.585		
	21 Years and over	40	2.88	2.41	Total	2476.875			
Belief Scale Regarding Mathematical Problem Solving	2-10 Years	74	2.48	0.60	Between groups	14.406	7.203	24.288	.000**
	11-20 Years	86	2.01	0.49	Within groups	58.421	.297		
	21 Years and over	40	1.81	0.54	Total	72.826			

*= $p < .05$; **= $p < .01$, N: Number of Participants, $\bar{x}$: Mean, F: One-Way Anova, p: p-value

Table 5 shows that primary school teachers' scores on the Number Sense Test and the Mathematical Problem Solving Belief Scale differ significantly according to their years of experience. Accordingly, the mean Number Sense Test scores of teachers with 2-10 and 11-20 years of experience were significantly higher than those of teachers with 21 years or more of experience ($F = 30.705$, $p = .000$). Furthermore, the average scores on the Mathematical Problem Solving Belief Scale for teachers with 2-10 years of experience were significantly higher than those for teachers with 11-20 years of experience; similarly, the average scores on the Mathematical Problem Solving Belief Scale for teachers with 11-20 years of experience were significantly higher than those for teachers with 21 years or more of experience ($F = 24.288$, $p = .000$). Findings Regarding the Strategies Used by Primary School Teachers in Questioning Number Sense In determining the strategies, the analysis process of Yarımkas (2019), who developed the Number Sense Test, was taken as the basis. In this context, the researcher first classified the answers given by the primary school teachers to each question as correct, incorrect, and blank according to their mathematical accuracy. Then, correct and incorrect answers were coded into three groups: number sense-based (NST), rule-based (RU), and those that did not fall into any category. Situations where consensus could not be reached were discussed and re-evaluated during the analysis process, and a consensus was reached. Finally, the coded data were expressed as percentages. Findings related to the sub-problem "What strategies do primary school teachers use in questions involving number sense?" are presented in Table 6.

Table 6*Analysis of Strategies Used by Primary School Teachers in Solving Questions in The Number Sense Test Sub-Dimensions*

Sub-dimension	Number Sense Strategy		Rule-Based Strategy		Those Who Cannot Be Included in Any Group		Blank Answers		Total	
	f	%	F	%	f	%	f	%	f	%
Meaning of numbers	181	22.63	370	46.25	217	27.13	32	4	800	25
Magnitude of numbers	237	23.7	417	41.7	333	33.3	13	1.3	1000	31.25
Flexible processing and judging the plausibility of the result	173	21.63	342	42.75	277	34.63	8	1	800	25
Estimating	131	21.83	258	43	201	33.5	10	1.67	600	18.75
Total	722	22.56	1387	43.34	1028	32.13	63	1.97	3238	100

According to Table 6, the distribution of strategies used by primary school teachers in the subdimensions of the number sense test differs. In the “meaning of numbers” sub-dimension, 46.25% of primary school teachers preferred rule-based strategies, 22.63% used number sense strategies, and 27.13% could not be included in any strategy group. The least used strategy in this sub-dimension was blank answers, at 4%. In the “number size” sub-dimension, 41.7% of primary school teachers used rule-based strategies, 33.3% used other strategies, and 23.7% preferred number sense strategies. Again, the least used strategy in this sub-dimension is blank answers, with 1.3%. In the “flexible processing and judging the plausibility of the result” sub-dimension, 42.75% of primary school teachers used rule-based strategies, while 34.63% were included in the other strategies group. The number sense strategy was preferred at a lower rate of 21.63%. The blank response rate in this subdimension is 1%. In the “guessing” sub-dimension, the rule-based strategy was the most frequently used strategy by primary school teacher at 43%; followed by other strategies at 33.5% and the number sense strategy at 21.83%. The blank response rate in this sub-dimension is 1.67%. Overall, the preference rates of primary school teachers are ranked from high to low as follows: rule-based strategy at 43.34%, strategies that cannot be included in any group at 32.13%, number sense strategy at 22.56%, and blank responses at 1.97%. These data show that primary school teacher prefer rule-based strategies the most, while blank answers remain at a very low rate. These data show that primary school teachers prefer rule-based strategies the most, while blank answers remain at a very low rate.

Table 7*Level of Primary School Teachers' Number Sense and Beliefs Regarding Mathematical Problem Solving*

Variables		n	Min	Max	$\bar{x}$	SD
Number Sense Test	Meaning of numbers	200	0	4.00	1.56	1.43
	Magnitude of numbers	200	0	5.00	1.64	1.33
	Flexible processing and judging the plausibility of the result	200	0	4.00	1.31	1.15
	Estimating	200	0	3.00	0.93	1.03
	Total Points	200	0	14.00	5.43	3.53
Belief Scale Regarding Mathematical Problem Solving	Mathematical skill	200	1.00	4.67	2,18	0,66
	The place of mathematics	200	1.00	5.00	2,19	1,25
	Understanding the problem	200	1.00	3.20	2,09	0,62
	The importance of mathematics	200	1.00	5.00	2,20	1,00
	Problem-solving skill	200	1.00	4.00	2,06	0,59
	Total Points	200	1.00	4.38	2,15	0,60

As shown in Table 7, in the Number Sense Test subdimensions; the average score for the meaning of numbers among primary school teachers was 1.56 (SD = 1.43), the mean score for the magnitude of numbers was 1.64 (SD = 1.33), the mean score for flexible operation and judging the plausibility of the result was 1.31 (SD = 1.15), and the mean score for estimation was 0.93 (SD = 1.03). The total score average obtained from

these four sub-dimensions is 5.43, with a standard deviation of 3.53. The subdimensions are ranked from highest to lowest in terms of average score as follows: magnitude of numbers (Mean = 1.64), meaning of numbers (Mean = 1.56), flexible processing and judging the plausibility of the result (Mean = 1.31) and estimation (Mean = 0.93). These findings show that primary school teacher scored higher on questions in the magnitude of numbers subdimension and scored lowest on questions in the estimation sub-dimension. Furthermore, it is seen that the total score obtained by primary school teacher on the number sense test is below average. Regarding the subdimensions of the Mathematical Problem Solving Belief Scale; the average score for mathematical skills among primary school teachers was 2.18 (ss = 0.66), the average score for the place of mathematics was 2.19 (ss = 1.25), the average score for understanding the problem was 2.09 (ss = 0.62), the importance of mathematics average score was 2.20 (ss = 1.00), and the problem-solving skill average score was 2.06 (ss = 0.59). The total score of the scale was 2.15 on average, with a standard deviation of 0.60. The sub-dimensions are ranked from highest to lowest in terms of average score as follows: importance of mathematics (avg. = 2.20), place of mathematics (avg. = 2.19), mathematical skill (avg. = 2.18), understanding the problem (avg. = 2.09), and problem-solving skill (avg. = 2.06). These findings show that primary school teacher scored highest on the sub-dimension of the importance of mathematics and lowest on the sub-dimension of problem-solving skills on the Mathematical Problem Solving Belief Scale. Furthermore, it is seen that the total score obtained by primary school teacher on the mathematical problem-solving belief scale is below average. Findings on the Relationship Between Primary School Teachers' Number Sense and Their Beliefs Regarding Mathematical Problem Solving Findings related to the sub-question "Is there a statistically significant relationship between primary school teachers' number sense and their beliefs about solving mathematical problems?" are presented in Table 8.

Table 8

Examination of the Relationship Between Primary School Teachers' Number Sense and Their Beliefs About Solving Mathematical Problems

		Number Sense Test				
		Meaning of numbers	Magnitude of numbers	Flexible processing and judging the plausibility of the result	Estimating	Total Points
Belief Scale Regarding Mathematical Problem Solving	Mathematical skill	,409**	,250**	,307**	,403**	,478**
	The place of mathematics	,470**	,423**	,226**	,592**	,596**
	Understanding the problem	,480**	,323**	,231**	,381**	,503**
	The importance of mathematics	,459**	,346**	,242**	,546**	,555**
	Problem-solving skill	,142*	,248**	,323**	,359**	,361**
	Total Points	,574**	,467**	,352**	,667**	,718**

* $p < .05$; ** $p < .01$

Table 8 presents the correlation analysis between primary school teachers' scores on the Number Sense Test and the Mathematical Problem Solving Belief Scale. The scores obtained by primary school teachers on the meaning of numbers subscale correlated with mathematical skill ($r = .409$, $p < .01$), the place of mathematics ($r = .470$, $p < .01$), understanding the problem ($r = .480$, $p < .01$), importance of mathematics ($r = .459$, $p < .01$), problem-solving skill ($r = .142$, $p < .05$) and total score on the belief scale regarding mathematical problem solving ($r = .574$, $p < .01$). Primary school teachers' scores on the magnitude of numbers subscale were positively correlated with mathematical skill ($r = .250$, $p < .01$), the place of mathematics ($r = .423$, $p < .01$), understanding the problem ($r = .323$, $p < .01$), importance of mathematics ($r = .346$, $p < .01$), problem-solving skill ($r = .248$, $p < .01$), and total score on the belief scale related to mathematical problem solving ($r = .467$, $p < .01$). The scores obtained by primary school teachers on the subdimensions of flexible operation and judging the plausibility of the result were positively correlated with mathematical skill ($r = .307$, $p < .01$), the place of mathematics ($r = .226$, $p < .01$), understanding the problem ($r = .231$, $p < .01$), importance of mathematics ($r = .242$, $p < .01$), problem-solving skill ($r = .323$, $p < .01$) and total score on the belief scale related to mathematical problem solving ($r = .352$, $p < .01$). The scores obtained by primary school teachers on the prediction subscale were positively correlated with mathematical skill ($r =$

.403, $p < .01$), the role of mathematics ($r = .592$, $p < .01$), understanding the problem ($r = .381$, $p < .01$), importance of mathematics ($r = .546$, $p < .01$), problem-solving skill ($r = .359$, $p < .01$) and total score on the belief scale related to mathematical problem solving ($r = .667$, $p < .01$). The total scores obtained by primary school teachers on the Number Sense Test were positively correlated with mathematical skill ($r = .478$, $p < .01$), the place of mathematics ($r = .596$, $p < .01$), understanding the problem ($r = .503$, $p < .01$), problem-solving skill ($r = .361$, $p < .01$) and total score on the belief scale related to mathematical problem solving ($r = .718$, $p < .01$).

Discussion

The study's findings revealed that primary school teachers had below-average scores for MNS and tended to use more rule-based strategies. In the formal education process, teachers have a critical responsibility to increase the functionality of components such as textbooks, learning environments, materials, and teaching programs that are effective in the development of students' number sense and to guide these processes (Anghileri, 2006; McIntosh et al., 1992). As a requirement of this responsibility, the development of teachers' number sense is very important (Kılıç & Güneş, 2025; Tsao & Lin, 2012; Yang et al., 2009). In order for teachers to understand the different strategies developed by students and provide appropriate guidance, teachers must have a well-developed sense of numbers and, accordingly, offer activities that allow students to discover their sense of numbers (Sowder, 1992). In the process of teaching mathematics, following various formulas and rule-based steps limits students' flexibility and different ways of thinking, hindering their development of number sense. Therefore, teachers should be encouraging in the development of number sense (Star & Seifert, 2006; Şengül & Gülbağcı-Dede, 2014; Yang & Wu, 2010). However, consistent with the findings of the current study, the literature shows that both teacher candidates and teachers have low levels of MNS (Cansız-Aktaş & Tuğrul-Özdemir, 2017; Courtney-Clarke & Wessels, 2014; Çelikkol, 2022; Gülbağcı-Dede, 2015; Lestiana & Izzati, 2025; Novitasari et al., 2024; Şengül, 2013; Yaman, 2015a; Yang & Wu, 2010). Additionally, it is observed that teacher candidates and teachers adopt rule-based strategies that utilize formula structures by following procedural steps (Çelikkol, 2022; Dayı, 2018; Der-Ching & Hung-Jin, 2019; Gülbağcı-Dede, 2015; Lestiana & Izzati, 2025; Tsao, 2005; Tsao & Lin, 2011, 2012; Yarımkas, 2019). This study revealed that teachers generally have a low level of MNS. This finding is consistent with studies in the literature; previous research has shown that both prospective teachers and teachers have limited levels of MNS. Furthermore, the finding that teachers generally prefer procedural and rule-based strategies rather than flexible and meaning-oriented approaches in problem-solving processes also parallels the literature. Indeed, although prospective teachers in Taiwan were more successful than middle school students in mental computation, they struggled with MNS skills and mostly resorted to standard written algorithms (Yang, 2007; Yang et al., 2009). This situation indicates that MNS is generally not sufficiently developed among teachers and that flexible thinking remains limited in problem-solving processes.

The current research found that primary school teachers had the highest average scores in the subdimensions of number sense related to the magnitude of numbers and the lowest average scores in the subdimension of estimation. Lestiana and Izzati (2025) found in their study with teacher candidates that teacher candidates were most successful in the subdimension of the magnitude of numbers and least successful in the subdimension of estimation in number sense. This finding is consistent with the current research findings. This situation shows that teachers possess both strengths and weaknesses across different subdimensions of number sense, and that their estimation skills, in particular, require further support.

In this study, no significant difference was found in the subdimensions of the Number Sense Test or in the total scores of primary school teachers based on gender or educational background. Findings in the literature also support this result, as the MNS perception levels of teacher candidates (Dayı, 2018; Gülbağcı-Dede, 2015) and primary school teachers do not differ significantly according to gender (Bayak, 2016; Er & Dinç-Artut, 2016; Hambale, 2020; Kılıç-Gerz, 2024) and educational background (Er & Dinç-Artut, 2016; Kılıç-Gerz, 2024). These findings suggest that MNS develops similarly in male and female teachers, implying that gender is not a determining factor. The absence of gender-based differences further points to MNS being more closely tied to cognitive processes and mathematical experiences. Likewise, whether teachers hold a bachelor's or a master's degree does not seem to have a significant impact on their MNS scores. This finding

suggests that MNS develops more through different mathematical experiences gained during the education process than through the level of education at which primary school teacher obtain their diploma. In this regard, it can be said that developing practical educational environments that will enrich the professional experience of primary school teacher is important for the development of MNS.

Another finding obtained in the current study is that primary school teachers with up to 10 years of professional experience have a higher average MNS score than more senior teachers. The finding that primary school teachers with up to 10 years of professional experience have higher average MNS scores, as determined in the study by Bayak (2016), is consistent with the findings of the current study. The reasons for this may be that number sense, which is conceptually newer in the mathematics curriculum (Ministry of National Education, 2024), is not known by more senior teachers, teachers with less professional seniority are trained in a changing and evolving educational understanding, and the educational information they received before entering the profession is more up-to-date. Similar to the findings of the present study, the literature has found that the average MNS scores of primary school teachers differ according to professional seniority (Uluçay, 2021; Uluçay et al., 2024). However, in the study by Uluçay (2021), it was found that those with 20 years or more of professional seniority had a higher sense of number, while those with less than 10 years of professional seniority had a lower sense of number. Kılıç-Gerz (2024), on the other hand, found in their study that the sense of number of primary school teachers did not differ according to professional seniority. This discrepancy in the literature may stem from the different experiences of the teachers in the sample group studied by the researchers, based on the regions where they work and the types of schools they work in. Furthermore, it may be due to whether or not the teachers in the sample group received in-service training related to number sense, periodic changes in education policies, and the teachers' internalization of these changes. Indeed, it is known that number sense is influenced by environmental conditions (McIntoch et al., 2005; Tosto et al., 2014; Zhou et al., 2022).

In the current study, primary school teachers who graduated from education faculties have a higher MNS than those who graduated from certified / training programs. Bayak (2016) also found in his study with primary school teachers that those who graduated from education faculties had a higher MNS than teachers who graduated from education colleges, similar to the findings of the current study. In the current study, teachers who graduated from certified/training programs have 21 years or more of professional seniority. This situation may stem from the changes in the educational content received by teachers who graduated from education faculties and their development due to innovations brought about by information that changes over time.

Another finding of the study is that primary school teachers' beliefs about mathematical problem solving are below average. While there are studies in the literature indicating that pre-service primary school teacher's beliefs about mathematical problem solving are below average (Yorulmaz et al., 2021), there are also studies that found pre-service primary school teacher (Yavuz & Erbay, 2015) and primary school teacher (Tarhan, 2015) to have high levels of belief in mathematical problem solving. Deringöl (2018) and Saka & Durmuş (2021), on the other hand, found that pre-service primary school teachers' belief levels regarding mathematical problem solving were at a moderate level. This discrepancy in the literature may stem from differences in the type of school where the primary school teachers in the research sample work, their socio-economic environment, professional experience, pre-service and in-service training, and professional competence. Additionally, the study found that there were no significant differences in the sub-dimensions and total scores of the Mathematical Problem Solving Belief Scale based on the gender and educational status of primary school teachers, but there were significant differences based on professional seniority. In other words, it was determined that gender and educational status were not decisive factors in primary school teachers' beliefs about mathematical problem solving. Consistent with existing research findings in the literature, it was found that primary school mathematics teacher candidates (Kayan, 2007; Usta et al., 2019), primary school teacher candidates (Bal, 2015; Başpınar, 2015; Saka & Durmuş, 2021; Toptaş & Gözel, 2017; Yavuz & Erbay, 2015) and mathematics teacher candidates (Kayan, 2007; Usta et al., 2019) do not differ in their beliefs about mathematical problem solving based on gender. However, there are also findings that beliefs about mathematical problem solving differ in favor of women (Soyturk, 2011) and men (Giovanni & Sangcap, 2010; Van der Beek et al., 2024; Yorulmaz et al., 2021). The discrepancy in these findings in the

literature can be explained by the fact that beliefs are affective characteristics and therefore vary depending on the time the studies were conducted and the demographic characteristics of the sample group.

The current study found that primary school teachers with 10 years or less of professional experience have a higher belief in their skill to solve mathematical problems compared to those with more professional experience. This may be due to primary school teachers with less than 10 years of professional experience having more up-to-date educational knowledge acquired before entering the profession, having more innovative teaching approaches, and being less affected by professional burnout. It may also be due to newly recruited primary school teachers being more idealistic, which affects their beliefs. The fact that primary school teachers with more professional seniority continue to solve problems by adhering to routine rules may affect their beliefs about problem solving. Indeed, the literature emphasizes that teachers with more professional seniority have more negative perceptions and that, in general, professional seniority affects teachers' perceptions (Yıldırım, 2025). Another finding of the study is that there is a positive correlation between the subdimensions of number sense—meaning of numbers, magnitude of numbers, flexible operation, and judging the plausibility of the result—and the total score, and the subdimensions of belief in mathematical problem solving—mathematical skill, place of mathematics, understanding the problem, importance of mathematics, problem-solving skill—and the total score. This result shows that primary school teachers with high average MNS scores have a more positive approach to the problem-solving process and hold stronger beliefs about their capacity to generate solutions. Furthermore, it can be said that number sense is an important cognitive factor that strengthens primary school teachers' perceptions of self-efficacy and confidence. Indeed, studies show that primary school teachers' MNS levels are positively related to their self-efficacy beliefs regarding mathematics teaching (Kılıç-Gerz, 2024). In this regard, it can be said that number sense not only supports mathematical skills but also affects beliefs, which are affective characteristics. Sianturi (2025) reports that pre-service primary school teachers' confidence in the correctness of problemsolving is a key determinant in their use of MNS strategies. Similarly, Arikan (2016) notes that nearly all pre-service teachers believe in the value of solving a problem through multiple solution paths. This finding aligns with the concept of "mature number sense," which involves generating diverse and flexible approaches to problem situations. In other words, the mathematical problem-solving beliefs held by the teacher candidates in these studies reflect the presence of MNS. Strong beliefs about problem solving are known to enhance individuals' motivation, thereby supporting the development of problem-solving skills (Kloosterman & Stage, 1992; Sisvono et al., 2017). The literature consistently highlights a significant relationship between number sense and problem-solving skills (Gürkan, 2023; Louange & Bana, 2010; Mutmainnah et al., 2021; Nyunt et al., 2020). In addition, research has shown a meaningful association between pre-service primary teachers' problem-solving performance and their beliefs about mathematical problem solving (Bal, 2015). When these research results are evaluated together, it can be said that there is an indirect relationship between MNS and beliefs about problem-solving.

Individuals who do not make an effort, avoid challenges, and give up quickly when faced with obstacles (Dweck, 2006) believe that abilities are fixed (Yeager & Dweck, 2020). MNS which involves thinking differently and flexibly, emerges as a skill that can be developed in teacher candidates and teachers (Tsao, 2004a; Utley & Reeder, 2012; Whitacre & Nickerson, 2016; Yaman, 2015b). Based on research findings, it can be said that developing the MNS of primary school teachers will also contribute to their beliefs about mathematical problem solving.

Recommendations

In order to strengthen primary school teachers' beliefs about mathematical problem solving, educational content focused on developing number sense, both before and during service, can be integrated with mathematical problem-solving activities. It may be recommended to provide mathematics experiences that in order to develop primary school teachers' mature sense of numbers and strengthen their beliefs about mathematical problem solving, and to conduct practical training aimed at increasing primary school teachers' professional knowledge and competence in learning environments. Future research could investigate the relationship between primary school teachers' mature sense of numbers and belief in mathematical problem solving and their students' number sense and belief in mathematical problem solving. Research could explore

how the development of teachers' mature sense of numbers affects their students' number sense development and belief in mathematical problem solving.

Conclusion

The research results show that primary school teachers have below-average MNS scores and prefer rule-based strategies rather than flexible approach strategies when evaluating numerical situations. Teachers had the highest average score in the magnitude of numbers dimension and the lowest average score in the prediction dimension within the sub-dimensions of number perception. Furthermore, primary school teachers' scores on the Number Sense Test sub-dimensions and total scores did not differ significantly by gender or educational background.

Research findings showed that primary school teachers with up to 10 years of professional experience had higher MNS scores compared to more senior teachers. Primary school teachers who graduated from education faculties had higher MNS scores than those who entered the profession through certificate or training programs. In addition, primary school teachers' belief levels regarding mathematical problem-solving are below average. The study results revealed that there were no significant differences in the sub-dimensions and total scores of the Mathematical Problem Solving Belief Scale among primary school teachers based on their gender and educational level; however, significant differences were found based on professional seniority. Primary school teachers with 10 years or less of professional experience have higher confidence in their ability to solve math problems compared to teachers with more professional experience. Lastly, the study found significant positive correlations between the sub-dimensions of number sense and the total score, as well as between the sub-dimensions of mathematical problem-solving beliefs and the total score.

Author's Note

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CRedit authorship contribution statement

Z. Kılıç: Conceptualization, Methodology, Data collection, Formal analysis, Visualization, Writing – original draft, Writing – review & editing.

G. Güneş: Conceptualization, Methodology, Data collection, Formal analysis, Visualization, Review & editing.

Declaration of Conflicting Interests

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

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This research was conducted with the approval of the Ethics Committee of Trabzom University, dated 09/05/2025 and numbered 2025-5.

Declaration of AI Usage Statement

Artificial intelligence is not used in this study.

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A Comparative Study on Teaching Self-Efficacy and Attitudes Toward the Teaching Profession of Faculty of Education and Pedagogical Training Students

Eğitim Fakültesi ve Pedagojik Formasyon Öğrencilerinin Öğretmenlik Mesleğine Yönelik Öz Yeterlikleri ve Tutumlarının Karşılaştırılması

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Keywords	Abstract
Attitude Self-efficacy Faculty of education Pedagogical training Comparison	This study aims to assess and compare the perceptions of self-efficacy and attitudes toward the teaching profession among students enrolled in a pedagogical training programme and senior students in a faculty of education, and to determine the potential relationship between these two variables. The research is a correlational study using a survey design. The sampling consists of faculty of education students and students in a teacher training programme at a state university in Türkiye. The relationships between the students' attitudes toward the teaching profession and their perceptions of self-efficacy were examined using correlation analysis. Analyses were also conducted with respect to the variables of department and gender. An evaluation of the overall findings of the study revealed that participants' levels of self-efficacy in teaching were somewhat high among faculty of education students and high among students in the teacher training programme, and that both groups had somewhat high average attitude scores. The scores of students in the teacher training programme were found to be significantly higher than those of faculty of education students for both variables. Furthermore, it was determined that self-efficacy and attitude scores did not differ according to gender or department. Finally, a moderate, positive correlation was found between the two variables. Based on these findings, it can be asserted that students enrolled in the teacher training programme have higher attitudes toward the teaching profession and higher perceptions of self-efficacy compared to students in the faculty of education. Taking into account the findings, measures should be taken to increase the self-efficacy perceptions of faculty of education students, particularly in field-specific courses, and prospective teachers should be inspired regarding the importance and contributions of teaching profession.
Anahtar Sözcükler	Öz
Tutum Öz yeterlik Eğitim fakültesi Pedagojik formasyon Karşılaştırma	Bu çalışma, pedagojik formasyon programına kayıtlı öğrenciler ile eğitim fakültesi son sınıf öğrencilerinin öğretmenlik mesleğine yönelik öz yeterlik algılarını ve tutumlarını değerlendirmeyi ve karşılaştırmayı ve bu iki değişken arasındaki potansiyel ilişkiyi belirlemeyi amaçlamaktadır. Araştırma, tarama modeline dayalı ilişkisel bir araştırmadır. Araştırmanın örneklemini Türkiye'de bir devlet üniversitesinde öğrenim gören eğitim fakültesi öğrencileri ile pedagojik formasyon programındaki öğrenciler oluşturmaktadır. Öğrencilerin öğretmenlik mesleğine yönelik tutumları ile öz yeterlik algıları arasındaki ilişkiler korelasyon analizi kullanılarak incelenmiştir. Ayrıca bölüm ve cinsiyet değişkenleri açısından da analizler yapılmıştır. Çalışmanın genel bulguları değerlendirildiğinde, katılımcıların öğretmeye ilişkin öz yeterlik düzeylerinin eğitim fakültesi öğrencilerinde kısmen yüksek, pedagojik formasyon eğitimi öğrencilerinde ise yüksek olduğu ve tutum puanları açısından her iki grubun da kısmen yüksek ortalamalara sahip olduğu gözlemlenmiştir. Pedagojik formasyon öğrencilerinin puanları her iki değişkende de eğitim fakültesi öğrencilerinden anlamlı düzeyde yüksek bulunmuştur. Ayrıca, öz yeterlik ve tutum puanlarının cinsiyet ve bölüm değişkenine göre farklılık göstermediği; iki değişken arasında orta düzeyde pozitif bir ilişki bulunduğu tespit edilmiştir. Bu bulgulara göre, pedagojik formasyon programına devam eden öğrencilerin, öğretmenlik mesleğine yönelik tutumları ve öz yeterlik algıları eğitim fakültesi öğrencilerine kıyasla daha yüksektir. Bulgulardan hareketle, eğitim fakültesi öğrencilerinin, özellikle de alan eğitimi derslerinde, öz yeterlik algılarının artırılmasına ilişkin önlemlerin alınması ve öğretmen adaylarının öğretmenlik mesleğinin önemi ve katkıları konusunda bilgilendirilmesi önerilmektedir.

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Introduction

The history of systematic teacher training in Türkiye started in 1848. Since then, the search for a better system has continued, characterised by uncertainties, and trial-and-errors. With the establishment of the new Turkish Republic in 1923, the process of teacher training was revised and restructured. Laws enacted in 1924 and 1926 addressed the teaching profession with a modern approach, and teacher training institutions were classified as primary, village, secondary and higher level school teacher training institutions (Kuru and Uzun, 2008). With the National Education Basic Law implemented in 1974, two-year Education Institutes were opened to train all teachers in higher education institutions, and these institutions were converted into Colleges of Education and transferred to universities (Şingir and Koç, 2018). Anatolian Teacher Training High Schools were established in the 1989-1990 academic year to improve the quality of these high schools (Gelişli, 2000). The study period at Colleges of Education was increased from two years to four years in 1989, and they were converted into Faculties of Education in 1992.

The previous paragraph, which handled a brief history of teacher training in Türkiye, generally referred to institutions that focused on direct teacher training, selected candidates as “prospective teachers” in the selection process, and acted with the responsibility of training teachers throughout the education and training process. However, apart from these processes, there have been attempts to train teachers at different times and for different reasons in Türkiye. The term “attempts” is specifically chosen here, as these practices have never become long-term, standardised applications. This search is going on today.

The term “pedagogical training” was first used in Türkiye in the early 1990s to refer to the courses providing professional knowledge offered at higher education institutions that train teachers, and the courses and hours of study for pre-service teachers at these institutions were identified in cooperation with the Ministry of National Education and the Council of Higher Education. Pedagogical training courses were first implemented in 1992 to fill the shortage of classroom teachers resulting from the extension of the teaching period at Higher Teacher Training Schools from two to four years. Starting from the 1998-1999 academic year, undergraduate students and graduates were given the opportunity to receive pedagogical training in the form of a non-thesis master's degree (Semerci and Çerçi, 2005). This practice was abolished in 2010, and replaced by the Pedagogical Training Certificate Programme. With this programme, not only graduates but also candidates who had not completed their undergraduate education gained the right to take teaching profession courses (Polat, 2013). In accordance with the decision taken at the YÖK General Assembly Meeting in 2022, new regulations were introduced, and they have been implemented from 2023 up to the present. According to these regulations, undergraduate students would be able to take pedagogical training courses as elective courses during their studies without paying any fees, while graduates would continue to take these courses for a fee as before (Tutkun and Tutkun, 2024). The brief history of pedagogical training is given above to demonstrate the uncertainties and trial-and-error attempts, especially for the last 35-40 years. It seems that, as a result of this application, which has been in effect for three years, the number of graduating teacher candidates will exceed the demand, the preference rate of faculties of education among students will decrease, the qualifications of prospective teachers will be questioned, and the possibility of finding a job will decrease.

The teacher training process, which has continued in a dual structure from the early 1990s to the present day, has produced two distinct groups of teacher candidates. The first group consists of candidates who were enrolled in faculties of education with relatively higher scores and ranking requirements as a result of the university entrance exam; the second group consists of candidates who studied at faculties other than faculties of education and took pedagogical training courses while they were students or after graduation. Unlike the students in faculties of education, the candidates who obtained teaching rights by taking pedagogical training courses were not subject to any ranking requirement (Uslu, 2020). Therefore, the difference in qualifications between these two groups began to widen, especially from 2017 onwards.

Under normal circumstances, it is expected that the quantity and quality of teachers to be trained are determined in advance and that they are trained in a similar and singular format. In many developed countries, the requirements for becoming a teacher are clear, and only candidates who meet the relevant requirements are eligible to become teachers (Cidir, 2024).

However, due to changing policies in Türkiye, such as assigning soldiers as temporary teachers, teacher training through letters, and training classroom teachers through short-term pedagogical training courses from among students in faculties other than faculties of education consistency has not been achieved in practice (Özoğlu, 2010).

Self-Efficacy

Self-efficacy was first introduced by Albert Bandura (1977) in his work titled *Self-Efficacy: Toward a Unifying Theory of Behavioural Change*, which focused on the individual and individual differences in education. An individual's views about themselves play an important role in their life and decisions and are central to many contemporary theories of human behaviour (Bandura, 1997). Furthermore, since external factors that have the potential to influence the individual will affect them through their internal evaluation (Bandura, 1993), internal processes also play an important role here.

The concept of self-efficacy is defined by Bandura (1997, p. 3) as “an individual's belief in their ability to organize and implement the behaviours necessary to achieve a specific outcome.” Stajkovic and Luthans (2003, p. 66) express self-efficacy as “an individual's beliefs about his/her ability to mobilize the motivation, cognitive resources, and behavioural patterns needed to successfully perform a specific task in a specific context.” Based on this, it can be said that self-efficacy refers to a capacity that involves organizing and directing cognitive, social, emotional, and behavioural skills to achieve predetermined goals (Yılmaz, 2021). There are four main sources of information in the formation of an individual's self-efficacy perception: mastery (direct) experiences, vicarious (indirect) experiences, verbal persuasion, and affective and physiological states (Bandura, 1977). The individual first acquires information from these sources about what they can do and to what extent, and then selects and interprets the information they have obtained to form a perception of self-efficacy with solid foundations. The information individuals obtain through direct experiences is more important and takes precedence over the information from the other three groups because it is a concrete indicator of their competence and capability (Schunk and Mullen, 2012). Indirect experiences refer to individuals making inferences about what they can do by observing others. Verbal persuasion refers to the expression of belief in the individual's abilities by people whose ideas matter for that individual, while the emotional and physiological responses that arise during the individual's performance are evaluated under the heading of physiological and affective states.

When it comes to teacher self-efficacy, it is defined as teachers' belief in their ability to complete the steps necessary to successfully complete a specific teaching task in educational settings (Skaalvik and Skaalvik, 2010). Teacher self-efficacy is one of the factors that play a decisive role in the path to success in the teaching and learning process (Holzberger et al., 2013). In addition, three types of self-efficacy that teachers strive to develop for themselves and their students can be listed as follows; academic self-efficacy, social self-efficacy, and emotional self-efficacy (Lackaye et al., 2006). Teacher self-efficacy is associated with monitoring student achievement and high student achievement (Schunk and DiBenedetto, 2016), and it affects learning environments and academic progress levels (Bandura, 1993). Teachers with high self-efficacy are inclined to contribute to student achievement and support struggling students, while teachers with low self-efficacy believe that they can do little for students who are unmotivated and under-supported by their environment (Schunk, 2008). Therefore, it is extremely important for teachers to have high self-efficacy.

Attitude

Another variable addressed in this study is attitude. Attitude has a broad impact on individuals' thoughts, feelings, and behaviours, making it one of the core concepts in social psychology research. In 1918, American sociologists William I. Thomas and Florian W. Znaniecki first defined the concept of attitude in the context of social psychology and viewed social psychology as the science of attitudes (Huajian, 2024). According to their definition, an attitude is an individual's psychological perception of the value, function, and meaning of objects or an individual's awareness of the social value of certain things. Eagly and Chaiken (2007, p. 582) define attitude as “a psychological tendency expressed as evaluating an entity with a certain level of satisfaction or dissatisfaction.” As can be understood from these definitions, attitude can be described as an individual's perception, awareness, or tendency toward a specific object, situation, event, phenomenon, or person through their experiences.

According to the generally accepted view, attitudes have three dimensions or components. These dimensions can be listed as cognitive, affective, and behavioural dimensions (Syukur, 2016; Wood, 2000) and they correspond to the dimensions of the self-efficacy concept discussed above. While the cognitive dimension refers to an individual's perceptions, beliefs, or assumptions about facts or events, the affective dimension encompasses emotional experiences and reactions. The behavioural dimension can be expressed as intentions or predictions regarding how an individual might behave in relation to an event, situation, or person based on their assumptions and beliefs (Andronache et al., 2014). At this point, the cognitive component can be characterized as the theoretical dimension, the behavioural component as the practical dimension, and the affective component as the mediating dimension.

When considering the place of the attitude variable in education and training processes, it is known that variables generally included in the affective domain (attitude, motivation, interest, self-efficacy, self-esteem, self-confidence, etc.) play an effective role in ensuring that the emotional states of stakeholders in educational environments are positive and remain so. When the role of the attitude variable in educational environments is considered, it is stated that the attitude towards the teaching profession plays a key role in improving the quality of education in order to successfully perform the teaching profession (Akpınar, et al., 2006; Özbek et al., 2007). Furthermore, it has been found that teachers with positive attitudes towards their profession, school, and students establish good relationships in the classroom, generate positive energy, facilitate the learning process, and provide counselling services to students (Şener, 2015). Furthermore, it has been revealed that positive attitudes affect academic achievement (Avcı et al., 2023), the ability to learn and retain knowledge (Suppiah Dall, 2014), teacher behaviour (Alfaki, 2014), and self-efficacy and social skills (Vaxberg, 2017).

Similar studies exploring the attitudes towards the profession and self-efficacy perceptions of prospective teachers and the relation between these two variables exist in the relevant literature. A review of the literature reveals studies reporting that pedagogical training programme students have more positive attitudes toward the profession than faculty of education students (Bağçeci et al., 2015; Polat, 2013; Ürün Karahan and Erdağ Toksun, 2018; Üstün et al., 2013). In addition, a study by Elkatmış et al. (2013) reported that there was no significant difference between the perceptions of self-efficacy related to the profession among faculty of education and pedagogical training programme students. Furthermore, there are studies that examine students' self-efficacy and attitudes together. A study by Dadandı et al. (2016) found that when prospective teachers' professional self-efficacy beliefs and attitudes toward teaching were considered, there was no significant difference between faculty of education and pedagogical training programme students. Studies by Sharma (2015) and Özokçu (2018) found a positive correlation between self-efficacy and attitudes toward the profession. Another study by Baş (2022) examined the effect of pre-service teachers' teaching beliefs and attitudes toward teaching on teaching motivation, while also investigating the mediating role of self-efficacy. According to the findings, it was observed that the attitude towards teaching had a significant positive effect on self-efficacy and that the attitude towards teaching explained 42% of the variance in self-efficacy.

Starting in 2023, with the reintroduction of changes to the pedagogical training programme, students have begun taking teacher training courses under the new framework. Although there have been no significant changes on the part of the faculty of education with the new programme, significant changes have been made to the pedagogical training programmes. Even though there have been studies on prospective teachers' attitudes toward the profession and their perceptions of self-efficacy in previous years, new studies are considered essential since there has been a relatively different application in pedagogical training programmes since 2023. This study was conducted to measure and compare the self-efficacy perceptions and attitudes toward the teaching profession of students enrolled in the teacher training programme and students studying at the faculty of education, and to examine the relationship between these two variables.

Within the framework of this main objective, the questions addressed in the study are as follows:

1. What is the level of faculty of education students' self-efficacy perceptions and attitudes towards the teaching profession?
2. Do faculty of education students' self-efficacy perceptions and attitudes towards the teaching profession vary according to gender and department of study?

3. Is there a relationship between faculty of education students' self-efficacy perceptions and attitudes towards the teaching profession?
4. What is the level of self-efficacy perceptions and attitudes toward the teaching profession among students receiving pedagogical training?
5. Do the self-efficacy perceptions and attitudes toward the teaching profession among students receiving pedagogical training vary according to gender and field of study?
6. Is there a relationship between the self-efficacy perceptions and attitudes of students receiving pedagogical training toward the teaching profession?
7. Are there differences between the self-efficacy perceptions and attitudes toward the teaching profession of faculty of education students and students receiving pedagogical training?

Method

Research Model

Survey design was used in the study. Since the data belonging to the variables were compared to determine the direction and level of the relationship between these variables, a correlational survey model was adopted. Although correlational studies investigate the relationships between more than two variables, they generally investigate the likelihood of the relationship between two variables (Fraenkel et al., 2012). The study identified the self-efficacy levels of faculty of education students and pedagogical training programme students regarding the teaching profession, as well as their attitudes toward the teaching profession. It investigated whether these variables varied by gender and department and finally, the relationship between the two variables within and between the groups. Subsequently, it was determined whether there was a difference between the two groups in terms of the relevant variables. Given the cross-sectional design, these comparisons were interpreted as associations rather than causal effects (Lodico et al., 2006).

Population and Sampling

The population of the study consists of prospective teachers enrolled in faculties of education and teacher training programmes in Türkiye. The sampling consists of senior students in a faculty of education and pedagogical training students enrolled at a state university in the Western Black Sea Region during the spring semester of the 2022–2023 academic year. The main source of teacher training in Türkiye is faculties of education; however, students enrolled in other faculties also have the right to become teachers on condition that they meet the eligibility criteria required by the Ministry of National Education and they are trained for a particular period on pedagogy. The students included in the pedagogical training courses get 22 credits in total consisting of eight courses (like Introduction to Education, Psychology of Education, Measurement and Evaluation, etc.) and teaching practice. The number of courses and their credits and the form of taking pedagogical training have changed several times in the past decade. The students involved in this study are the ones who got pedagogical training after graduation for a period of two semesters. Demographic information about the participants is presented in Table 1.

Table 1*Information about the Demographic Characteristics of the Participants*

		f	%
Gender	Female	254	%69
	Male	114	%31
Group	Faculty of Education	163	%44.3
	Pedagogical Training	205	%55.7
	Primary School Teaching	35	%9.5
	English Language Teaching	32	%8.7
Faculty of Education	Mathematics Teaching	41	%11.1
	Turkish Language Teaching	37	%10.1
	Social Sciences Teaching	18	%4.9
	Physical Education	70	%19
Pedagogical Training	Justice	32	%8.7
	Pre-school	54	%14.7
	Islamic Sciences	27	%7.3
	Accounting	22	%6.0

Note. n=368

Looking at the information of the participants in the study, it is observed that female teacher candidates are more than twice as many as male ones, candidates receiving pedagogical training form the majority, and physical education teacher training students are the most crowded group. The statistical data obtained from the scales are presented below.

Table 2*Descriptive Statistics Related to the Scales*

Variables	Min.	Max.	$\bar{X}$	Sd	Skewness	Kurtosis
ASTP	2.06	4.59	3.47	.340	-0.513	0.599
TSES	2.46	5.00	4.19	.486	-0.528	0.595
ECM	2.63	5.00	4.21	.508	-0.352	-0.163
ESE	2.13	5.00	4.16	.522	-0.495	0.528
EIS	1.75	5.00	4.21	.522	-0.806	1.633

Note. n=368 ASTP (Attitude Scale Towards the Teaching Profession), TSES (Teacher Self-Efficacy Scale), ECM (Efficacy for Classroom Management subscale), ESE (Efficacy for student engagement subscale), EIS (Efficacy for instructional strategies subscale)

Table 2 shows the minimum, maximum, mean, and standard deviation values of the variables, as well as their skewness and kurtosis values. Skewness and kurtosis values provide information about the univariate normality of the data. Normality was assessed using skewness and kurtosis values for each scale and subgroup. Based on these results, it can be concluded that the data are normally distributed (Johnson and Wichern, 2007; Tabachnick and Fidell, 2013). The values listed in the table fall within the specified interval. Homogeneity of variance was examined using Levene's test. When the homogeneity assumption was violated, Welch-adjusted t-test results were reported ($p > .05$).

Data Collection Tools

Teacher Self-Efficacy Scale (TSES)

The Teacher Self-Efficacy Scale (TSES) was developed by Tschannen-Moran and Hoy (2001) and adapted into Turkish by Çapa et al. (2005). The scale is a five-point Likert-type scale consisting of 24 items with three subscales for efficacy for classroom management (ECM), efficacy for student engagement (ESE), and efficacy for instructional strategies (EIS). Each subscale consists of 8 items. The reliability coefficients of the scale were found "0.84," "0.82," and "0.86" for the sub-dimensions, respectively, and "0.93" for the scale as a whole. In this study, the Cronbach's Alpha internal consistency coefficient for the overall scale was found to be 0.94, indicating a high level of reliability. The Cronbach's alpha coefficients for the subscales were

calculated as 0.85, 0.86, and 0.86, respectively. Additionally, corrected item–total correlations were analysed to examine the item-level functioning of the scale, and all items were found to fall within acceptable ranges. Prior to data collection, permission was obtained from the relevant copyright holders/authors to use this measurement tool.

Attitude Scale towards the Teaching Profession (ASTP)

The ASTP scale is a 5-point Likert-type scale developed by Üstüner (2006). The scale has a total of 34 items, 10 of which contain negative statements. The scale is unidimensional. The Cronbach Alpha value of the scale ($\alpha = .93$) was calculated as 0.78 for this study. The Cronbach's Alpha value of the scale was relatively lower than the original but remained at an acceptable level. Upon examining the adjusted item-total correlations, it was observed that some items had relatively low values; however, it was determined that removing these items would not result in a significant increase in the reliability coefficient and could compromise the scale's theoretical integrity. For this reason, the scale was included in the analyses in its original form. Prior to data collection, permission was obtained from the relevant copyright holders/authors to use this measurement tool.

Personal Information Form

A personal information form was used to collect data about individuals' demographic variables such as gender and department.

Data Collection and Analysis

This study is reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines, which are recommended for cross-sectional studies. The study population consists of teacher candidates enrolled in faculties of education and teacher training programmes in Türkiye. The sampling frame consists of senior students and teacher training programme students enrolled at a state university in the Western Black Sea Region during the spring semester of the 2022–2023 academic year. All students meeting the eligibility criteria were invited to participate in the study through institutional communication channels, and participation was conducted on a voluntary basis via an online survey (Google Forms).

Online or web surveys have been frequently employed in scientific research, replacing old-fashioned paper-and-pencil surveys and they have become one of the most widely used methods of data collection from a target audience (Evans and Mathur, 2005), especially over the last twenty years. Despite their advantages, such as 7/24 availability, easy access to the target group, and automatic analysis of data (Xiao et al., 2020), online surveys pose some problems in the process of data collection. Some of the problems listed in the related literature are refusal, respondent burden, inaccessibility, carelessness, low interest, insufficient reward, and mainly survey fatigue (Fass-Holmes, 2022). During the study, most of these problems were managed successfully as the survey was conducted throughout the term, without forcing the participants to respond as soon as possible. Lavidas and his colleagues (2022) listed some factors that influence the response rates of web survey participants that comply with the sampling of this study. They are authority, incentives, survey structure/form, ethical issues, reminders and pre-notifications, and survey time. Almost all of the requirements above were met by the researchers throughout the term as they had a great deal of time allocated to collect data, which increased the response rates significantly. Research evidence suggests that social desirability can affect students' self-report responses (Lavidas et al., 2022) and lead to self-report bias which may pose a significant threat to the validity of a study (de Reuver and Bouwman, 2015). To mitigate this effect, the researchers presented the questions in an inoffensive, non-embarrassing, neutral way, and the privacy and anonymity of the participants during the survey process were ensured, as indicated in the relevant literature (Lavidas et al., 2022). The researchers easily performed these tasks as they both kept in close touch with the respondents throughout the teacher training process.

The inclusion criteria for the study were defined as being 18 years of age or older, currently enrolled in the relevant programmes, and providing informed consent. A total of 394 eligible students were invited. Of these, five declined participation. Among the remaining respondents, three forms were excluded due to incomplete responses and 18 cases were excluded because their departmental groups did not meet the minimum group-size criterion. The final analytic sample consisted of 368 participants. Prior to data collection,

all participants were given information about the study and gave their consent. They could leave the study at any time without giving a reason. Only people aged 18 and over took part in the study. No information on the identity of students info was requested and all data were collected anonymously. The data were stored digitally and only the researcher could access it.

The study employed purposive sampling in a single state university. To ensure sufficient statistical power and stability in group comparisons, only groups with an adequate number of participants were included in the analyses. Very small groups were excluded from group-based comparisons, as they may lead to unstable estimates and reduce reliability. This approach was adopted to enhance the robustness of the statistical analyses.

The data were found to be normally distributed. For normally distributed data, an independent groups t-test was used while comparing two groups, and a one-way analysis of variance was used when comparing more than two groups. In the final stage, Correlation analysis was used to find the relationship between students' attitudes towards the teaching profession and their teacher self-efficacy variables.

This study was conducted with the approval of the Ethics Committee of Bartın University Social and Human Sciences (Protocol No. 2023-SBB-0196) at its meeting on 17.07.2023.

Findings

This section examines the self-efficacy perceptions and attitudes of faculty of education and pedagogical training students towards the teaching profession, as well as how these variables vary according to factors such as gender and field of study. Subsequently, findings concerning the relationship between students' self-efficacy levels and their attitudes towards the teaching profession are presented.

Teacher Self-Efficacy and Attitude Scores of Faculty of Education Students

A total of 163 students attending the faculty of education were tested in the study to identify their levels of self-efficacy and attitudes towards the teaching profession. The results are given in table 3 below.

Table 3

Teacher Self-Efficacy and Attitude Scores of Faculty of Education Students

Faculty of Education students	n	$\bar{X}$	Sd
TSES	163	4.08	.41
ASTP	163	3.40	.32

When examining the average self-efficacy scores of the students at the faculty of education regarding their profession, it can be said that a partially high score has been achieved. When their attitudes towards the teaching profession are examined, it is observed that students' attitude scores are partially high. The standard deviation scores indicate that the students' attitude scores are closer to each other than their self-efficacy scores.

Faculty of Education Students' Teacher Self-Efficacy and Attitudes towards the Teaching Profession with Respect to Gender

It was intended in the research to find out if one of the genders had advantage over the other with respect to teacher self-efficacy and attitudes toward the teaching profession,. The results are demonstrated below in Table 4.

Table 4

T-Test Results of Faculty of Education Students' Teacher Self-Efficacy and Attitudes towards the Teaching Profession with Respect to Gender

Variable	Response category	N	$\bar{X}$	Sd	t	Df	p	Cohen's d	CI
TSES	Female	120	4.09	.39	0.545	161	.58	0.09	[-.10/.18]
	Male	43	4.05	.48					
ASTP	Female	120	3.39	.30	-0.386	161	.70	0.02	[-.13/.09]
	Male	43	3.41	.37					
ECM	Female	120	4.10	.44	0.080	161	.93	0.004	[-.15/.16]
	Male	43	4.10	.52					
ESE	Female	120	4.05	.41	1.009	161	.31	0.18	[-.07/.23]
	Male	43	3.97	.51					
EIS	Female	120	4.13	.41	0.425	161	.67	0.08	[-.12/.19]
	Male	43	4.09	.59					

When Table 4 is examined, it is observed that students' teacher self-efficacy scores do not differ significantly by gender ($t[161] = 0.545$; $p > 0.05$). Additionally, when the subdimensions of teacher self-efficacy were examined according to gender, no statistically significant differences were found in efficacy for classroom management ($t[161] = 0.080$, $p > .05$), efficacy for student engagement ($t[161] = 1.009$, $p > .05$), or efficacy for instructional strategies ($t[161] = 0.425$, $p > .05$). Similarly, students' attitudes toward the teaching profession do not show a significant difference by gender ($t[161] = -0.386$; $p > 0.05$). Considering the standard deviation values, it can be stated that female candidates hold relatively more similar views compared to male candidates. In addition to statistical significance tests, effect sizes were calculated using Cohen's d, and confidence intervals were provided. The results indicated negligible effect sizes for TSES ($d = 0.09$ - CI= [-.10/.18]), ASTP ($d = 0.02$ - CI=[-.13/.09]), ECM ($d = 0.004$ -CI=[-.15/.16]), ESE ($d = 0.18$ -CI=[-.07/.23]), and EIS ($d = 0.08$ -CI=[-.12/.19]).

Faculty of Education Students' Teacher Self-Efficacy and Attitudes towards the Teaching Profession with Respect to their Departments

To examine whether faculty of education students' teacher self-efficacy and attitudes toward the teaching profession differ according to their departments, an ANOVA analysis was conducted. The findings are presented in Table 5.

Table 5

ANOVA Results Regarding Faculty of Education Students' Teacher Self-Efficacy and Attitudes towards the Teaching Profession in Terms of their Academic Departments

Variable	Source of variance	Sum of squares	Df	Mean square	F	p	Eta-squared (η^2)
TSES	Between groups	1.713	6	.286	1.677	0.130	.061
	Within groups	26.563	156	.170			
	Total	28.276	162				
ASTP	Between groups	.955	6	.159	1.552	0.165	.056
	Within groups	16.000	156	.103			
	Total	16.955	162				
ECM	Between groups	2.698	6	.450	2.184	0.074	.077
	Within groups	32.122	156	.206			
	Total	34.820	162				
ESE	Between groups	1.237	6	.206	1.044	0.399	.039
	Within groups	30.805	156	.197			
	Total	32.042	162				
EIS	Between groups	2.355	6	.393	1.865	0.090	.067
	Within groups	32.831	156	.210			
	Total	35.186	162				

When Table 5 is examined, it is seen that the self-efficacy levels of faculty of education students do not differ significantly according to the departments in which they are enrolled ($p > 0.05$, $F = 1.677$, $p = 0.130$). No significant differences were found across the subscales (efficacy for classroom management ($p > .05$, $F = 2.184$, $p = .074$), efficacy for student engagement ($p > .05$, $F = 1.044$, $p = .399$), or efficacy for instructional strategies ($p > .05$, $F = 1.865$, $p = .090$). Similarly, prospective teachers' attitudes towards the teaching profession do not differ significantly by department ($p > 0.05$, $F = 1.552$, $p = 0.165$). Effect size analyses were conducted using eta squared (η^2). The results indicated small to moderate effect sizes for TSES ($\eta^2 = .061$), ASTP ($\eta^2 = .056$), ECM ($\eta^2 = .077$), and EIS ($\eta^2 = .067$), while ESE ($\eta^2 = .039$) demonstrated a small effect size. Overall, the magnitude of the effects ranged from small to moderate. These results imply that the variables have a modest impact on the outcomes, and interpretations should consider the limited practical significance despite statistical findings.

The Relationship Between Self-Efficacy Perceptions and Attitudes towards the Teaching Profession of the Students in the Faculty of Education

To examine the relationship between faculty of education students' teacher self-efficacy perceptions and their attitudes toward the teaching profession, Pearson Correlation analysis was carried out. The findings are presented in Table 6.

Table 6

Correlation Analysis Results Regarding Faculty of Education Students' Teacher Self-Efficacy and Their Attitudes towards the Teaching Profession

Variable	Statistics	ASTP
TSES	r	.349*
	p	.001
	n	163
ECM	r	.290*
	p	.001
	n	163
ESE	r	.341*
	p	.001
	n	163
EIS	r	.326*
	p	.001
	n	163

Note. The correlation is significant at the $p < 0.01$ level.

A moderate, positive ($r = 0.349$) and significant ($p < 0.05$) relationship was found between faculty of education students' teacher self-efficacy and their attitudes toward the teaching profession. When examining the relationships between the subdimensions of teacher self-efficacy and attitudes toward the teaching profession, positive and statistically significant correlations were found between (ECM) ($r = 0.290$), (ESE) ($r = 0.341$), and (EIS) ($r = 0.326$), positive and statistically significant relationships were found ($p < 0.05$). In other words, teacher self-efficacy and attitudes toward the teaching profession among faculty of education students are moderately correlated and change significantly together.

Teacher Self-Efficacy and Attitude Scores of Pedagogical Training Students

A total of 205 students attending pedagogical training courses were tested in the study to identify their levels of self-efficacy and attitudes towards the teaching profession. The results are given in table 7 below.

Table 7*Teacher Self-Efficacy and Attitude Scores of Pedagogical Training Students*

Pedagogical training students	n	$\bar{X}$	Sd
TSES	205	4.28	.51
ASTP	205	3.53	.34

When Table 7 is examined, it is observed that the teacher self-efficacy scores of students enrolled in the pedagogical training programme are high, whereas their attitude scores towards the teaching profession are partially high. The standard deviation values also indicate that the attitude scores of participants in this group are closer to each other compared to their self-efficacy scores as is the case with the students in the faculty of education.

Teacher Self-Efficacy and Attitudes towards the Teaching Profession Scores of Pedagogical Training Students in Terms of Gender

It was intended in the research to find out if one of the genders had advantage over the other for pedagogical training students with respect to teacher self-efficacy and attitudes toward the teaching profession. The results are demonstrated below in Table 8.

Table 8*T-Test Results for Pedagogical Training Students' Teacher Self-Efficacy and Attitudes towards the Teaching Profession According to Gender*

Variable	Response category	n	$\bar{X}$	Sd	t	Df	p	Cohen's d	CI
TSES	Female	134	4.30	.49	0.941	203	.34	0.13	[-.07/.22]
	Male	71	4.23	.56					
ASTP	Female	134	3.54	.31	0.688	117.206	.49	0.08	[-.07/.14]
	Male	71	3.51	.39					
ECM	Female	134	4.30	.49	0.289	203	.77	0.03	[-.13/.17]
	Male	71	4.28	.58					
ESE	Female	134	4.29	.53	1.185	203	.23	0.16	[-.06/.25]
	Male	71	4.20	.59					
EIS	Female	134	4.31	.54	1.183	203	.23	0.18	[-.06/.25]
	Male	71	4.21	.57					

It is observed that students' teacher self-efficacy scores do not differ significantly by gender ($t[203] = 0.941, p > .05$) although female students have relatively higher scores. Additionally, when the subdimensions of teacher self-efficacy were examined according to gender, no statistically significant differences were found in efficacy for classroom management ($t[203] = 0.289, p > .05$), efficacy for student engagement ($t[203] = 1.185, p > .05$), or efficacy for instructional strategies ($t[203] = 0.1183, p > .05$). Likewise, the table shows that students' attitudes toward the teaching profession do not exhibit a significant change according to gender ($t[117.206] = 0.688, p > .05$). In addition to statistical significance tests, effect sizes were calculated using Cohen's d, and confidence intervals were provided. The results indicated negligible effect sizes for TSES ($d = 0.13$ -CI=[-.07/.22]), ASTP ($d = 0.08$ -CI=[-.07/.14]), ECM ($d = 0.03$ -CI=[-.13/.17]), ESE ($d = 0.16$ -CI=[-.06/.25]), and EIS ($d = 0.18$ -CI=[-.06/.25]).

Pedagogical Training Students' Teacher Self-Efficacy and Attitudes towards the Teaching Profession with respect to their Departments

To examine whether pedagogical training students' teacher self-efficacy and attitudes toward the teaching profession differ according to their departments, an ANOVA analysis was conducted. The findings are presented in Table 9.

Table 9

ANOVA Results Regarding Teacher Self-Efficacy and Attitudes towards the Teaching Profession among Pedagogical Training Students with respect to their Academic Departments

Variable	Source of variance	Sum of squares	Df	Mean square	F	p	Eta-squared (η^2)
TSES	Between groups	1.047	6	.175	.640	0.69	0.019
	Within groups	54.030	198	.273			
	Total	55.077	204				
ASTP	Between groups	1.438	6	.240	2.098	0.055	0.06
	Within groups	22.614	198	.114			
	Total	24.042	204				
ECM	Between groups	1.860	6	.310	1.119	0.35	0.033
	Within groups	54.887	198	.277			
	Total	56.747	204				
ESE	Between groups	1.213	6	.202	.644	0.69	0.019
	Within groups	62.200	198	.314			
	Total	63.413	204				
EIS	Between groups	1.488	6	.248	.804	0.56	0.024
	Within groups	61.080	198	.308			
	Total	62.567	204				

The values presented in Table 9 demonstrate that the self-efficacy levels of prospective teachers do not show a significant difference according to the departments in which they are enrolled ($p > .05$, $F = .640$, $p = .698$). No significant differences were found across the subscales either (efficacy for classroom management ($p > .05$, $F = 1.119$, $p = .353$), efficacy for student engagement ($p > .05$, $F = .644$, $p = .695$), or efficacy for instructional strategies ($p > .05$, $F = .804$, $p = .568$). Similarly, it was observed that prospective teachers' attitudes toward the teaching profession also did not differ significantly by department ($p > .05$, $F = 2.098$, $p = .055$). Effect size analyses were conducted using eta squared (η^2). The results indicated small effect sizes for TSES ($\eta^2 = .019$), ECM ($\eta^2 = .033$), ESE ($\eta^2 = .019$), and EIS ($\eta^2 = .024$), while ASTP showed a moderate effect size ($\eta^2 = .06$). These effect sizes indicate that the magnitude of the differences is generally small, with only one variable reaching a moderate level.

The Relationship Between Pedagogical Training Students' Self-Efficacy Perceptions and Attitudes towards the Teaching Profession

To examine the relationship between pedagogical training students' teacher self-efficacy perceptions and their attitudes toward the teaching profession, Pearson Correlation analysis was carried out. The findings are presented in Table 10.

Table 10

Correlation Analysis Results Regarding the Teacher Self-Efficacy and Attitudes towards the Teaching Profession of Students Enrolled in the Pedagogical Training Programme

Variable	Statistics	ASTP
TSES	r	.435*
	p	.001
	n	205
ECM	r	.421*
	p	.001
	n	205
ESE	r	.419*
	p	.001
	n	205
EIS	r	.402*
	p	.001
	n	205

Note. The correlation is significant at the $p < .01$ level.

According to Table 10, a moderate, positive ($r = 0.435$), and significant ($p < .05$) relationship was found between the teacher self-efficacy levels of pedagogical training students and their attitudes toward the teaching profession. When examining the relationships between the subdimensions of teacher self-efficacy and attitudes toward the teaching profession, positive and statistically significant correlations were found between (ECM) ($r = 0.421$), (ESE) ($r = 0.419$), and (EIS) ($r = 0.402$), ($p < 0.05$). In other words, the teacher self-efficacy levels and attitudes toward the teaching profession of the students are moderately correlated, and they change together in a statistically significant manner.

Difference Between Prospective Teachers' Attitudes towards the Teaching Profession and Self-Efficacy Levels Based on the Method of Taking Pedagogical Training Programme

To examine whether prospective teachers' attitudes toward the teaching profession and self-efficacy levels differ based on the method of taking the pedagogical training programme, independent samples t-test was conducted. The findings are shown in Table 11.

Table 11

T-Test Results Regarding Attitudes towards the Teaching Profession and Self-Efficacy Levels of Prospective Teachers Based on the Method of Taking Pedagogical Training Programme

Variable	Response category	N	$\bar{X}$	Sd	t	Df	P	Cohen's d	CI
ASTP	Pedagogical training	205	3.53	.34	3.752	366	.001	0.39	[.06/.20]
	Faculty of education	163	3.40	.32					
TSES	Pedagogical training	205	4.28	.51	3.920	365.95	.001	0.42	[.09/.28]
	Faculty of education	163	4.08	.41					
ECM	Pedagogical training	205	4.29	.52	3.615	366	.001	0.38	[.08/.29]
	Faculty of education	163	4.10	.46					
ESE	Pedagogical training	205	4.26	.55	4.319	365.995	.001	0.45	[.12/.32]
	Faculty of education	163	4.03	.44					
EIS	Pedagogical training	205	4.28	.55	2.935	366	.004	0.31	[.05/.26]
	Faculty of education	163	4.12	.46					

It is observed that attitudes toward the teaching profession differ significantly between the groups ($t[366] = 3.752$, $p < .05$). When attitudes toward the teaching profession are analysed by group, it is seen that the attitudes of students enrolled in the pedagogical training programme ($\bar{x} = 3.53$) are significantly higher than those of students attending the faculty of education ($\bar{x} = 3.40$). Furthermore, teacher self-efficacy was also found to differ significantly between the groups ($t[365.950] = 3.920$, $p < .05$). The mean self-efficacy scores of students enrolled in the pedagogical training programme ($\bar{x} = 4.28$) were significantly higher than those of students attending the faculty of education ($\bar{x} = 4.08$).

It has also been examined at the sub-scale level. Accordingly, it is observed that the ECM subscale shows a significant difference between the groups ($t[366] = 3.615$, $p < 0.05$). The mean ECM scores of students enrolled in the pedagogical education programme ($\bar{x} = 4.29$) were significantly higher than those of students attending the faculty of education ($\bar{x} = 4.10$). A significant difference was observed in the ESE subscale scores between the groups ($t[365.995] = 4.319$, $p < 0.05$). The mean ESE scores of students enrolled in the pedagogical education programme ($\bar{x} = 4.26$) were significantly higher than those of students enrolled in the faculty of education ($\bar{x} = 4.03$). Finally, a significant difference was observed in the EIS subscale scores between the groups ($t[366] = 2.935$, $p < 0.05$). Similarly, the mean EIS scores of students enrolled in the pedagogical training programme ($\bar{x} = 4.28$) were significantly higher than those of students attending the faculty of education ($\bar{x} = 4.12$). Effect size analyses were conducted using Cohen's d, and confidence intervals were determined. The results indicated small to moderate effect sizes for the variables (ASTP $d = 0.39$ -CI=[.06/.20], TSES $d = 0.42$ -CI=[.09/.28], ECM $d = 0.38$ -CI=[.08/.29], ESE $d = 0.45$ -CI=[.12/.32], and EIS $d = 0.31$ -CI=[.05/.26]), suggesting that the magnitude of the group differences was modest.

Discussion

It is a fact that Türkiye has long been searching for ways to train qualified teachers, and many different methods have been tried so far to achieve the desired quality. However, due to factors such as sudden teacher shortages, frequently changing government education policies, political priorities, and the surplus of teacher candidates, it has not been possible to implement a teacher training process that has been sufficiently discussed, uses collective wisdom, is sustainable, and satisfies the stakeholders in the field of education. One of the by-products of this process is the dilemma of pedagogical training programme and faculties of education. There has been a debate for a long time about which of the two systems is more efficient: faculties of education that select candidates based on a specific ranking and train them directly as prospective teachers, or other faculties that have departments suitable for the teaching fields determined by the Council of Education and Training and that train their students and graduates to become prospective teachers through a certificate programme without any ranking criteria. This study aims to contribute to this debate by comparing the two systems in terms of specific variables.

Looking at the general findings of the study, it was observed that students who received pedagogical training had higher averages than faculty of education students for both self-efficacy and attitude scores related to teaching. Those familiar with the training process of both groups might initially expect students who undergo longer training and select faculties of education to become teachers directly to have higher average scores on these two variables than pedagogical training students. However, the fundamental purpose of scientific research is to test initial expectations or hypotheses with objective data. In faculties of education, students are taught courses in three categories: field courses (50%), professional knowledge courses (30%), and general culture courses (20%). The reason for the higher self-efficacy scores of training students may be that they devote more time to subject-specific courses than faculty of education students. Alternatively, the reason for the lower self-efficacy perception of faculty of education students may be that they do not have sufficient confidence in their own knowledge and skills in a profession that requires comprehensive methodological knowledge, especially including teaching profession knowledge in courses. When evaluating attitude scores, the reason why pedagogical training students have higher attitude scores, considering that they also have higher self-efficacy levels, may be that they feel prepared for the profession and want to receive the reward of the teaching profession knowledge courses they have taken in addition to the normal education process.

There are studies in the relevant literature that are similar to this study and some studies have differing results. First, when looking at studies comparing the two groups in terms of the two variables addressed in this study, a study by Elkatmış et al. (2013) found no significant difference between faculty of education and pedagogical training programme students in terms of their perception of self-efficacy regarding the profession. Similarly, a study conducted by Dadandı et al. (2016) concluded that there was no significant difference between faculty of education and pedagogical training programme students in terms of their professional self-efficacy beliefs and attitudes toward teaching. One possible reason for this may be that teacher training students show significant differences from university to university in terms of both departments and rankings. Since students receive teacher training education in numerous departments that correspond to the teaching fields determined by the Council of Education, it is very difficult to find two or more groups of training students with completely similar samples. This may account for the differing results between or among groups.

Examining the results of studies that examine self-efficacy and attitude variables separately will also be useful in understanding how these two variables differ across groups. One study based on the self-efficacy variable was conducted by Yaşar-Ekici (2017) on 151 prospective teachers, and the difference in self-efficacy scores was found to be significant in favour of pedagogical training students. Similarly, other studies (Gençtürk and Memiş, 2010; Gökdağ-Baltaoğlu et al., 2015; Güvenç, 2011; Ilgaz et al., 2013) have also found that pedagogical training students have higher self-efficacy scores than faculty of education students, supporting the findings of this study. There have also been different studies comparing the two groups based on the attitude variable. The findings from these studies generally reveal that the attitude scores of pedagogical training students are higher. In a study conducted by Üstün et al. (2013) on prospective teachers' attitudes towards the teaching profession, it was concluded that the attitudes towards the profession of

students receiving pedagogical training were more positive than those of faculty of education students. Another study conducted by Polat (2013) found that pedagogical training programme students had more positive attitudes toward the profession than faculty of education students. Bağçeci et al. (2015) also found that pedagogical training students had more positive attitudes towards the profession. Another study conducted by Ürün Karahan and Erdağı Toksun (2018) observed that pedagogical training students' attitudes toward the teaching profession were more positive than those of faculty of education students. There are also studies (Dadandı et al., 2016; Gürbüz and Kışoğlu, 2007) that reveal no difference between these two groups in terms of attitude variables.

Although the average scores of female students were generally relatively higher in the study, it was found that self-efficacy and attitude scores did not show a significant difference according to gender. Considering that women constitute the majority in the teaching profession, it might be expected that women would be ahead in this respect; however, the self-efficacy and attitude scores of male candidates among the participants in this study did not show a significant difference from the averages of women. In a similar study conducted by Elkatmış et al. (2013), the self-efficacy scores of students studying at the faculty of education were found to be significantly different in favour of men. However, in the same study, no difference in scores was found between genders among pedagogical training students. Another study conducted by Kavrayıcı and Bayrak (2016) on 192 students also revealed that the mean self-efficacy scores of pedagogical training students did not vary according to gender. In addition, other studies (Azar, 2010; Üstüner et al., 2009) have also found that teacher candidates' self-efficacy levels do not show significant differences in terms of the gender variable. Polat (2013), who conducted one of the studies examining attitudes toward the profession according to gender, supported the findings of this study by revealing that the attitude scores of both faculty of education and pedagogical training programme students did not show significant differences according to gender. Another study conducted by Üstün et al. (2013) also concluded that the attitude scores of faculty of education students did not differ according to gender. In conclusion, this study found that gender has no significant effect on self-efficacy and attitudes toward the teaching profession; however, there are studies that find different results when the samples change.

Another research question addressed in this study is whether students' self-efficacy and attitude towards teaching profession scores differ according to the department in which they study. It was found that self-efficacy and attitude scores did not demonstrate a significant difference according to the department in either group. Among students receiving pedagogical training, especially in terms of attitude scores towards the teaching profession, the average scores between departments showed greater variation compared to faculty of education students; however, it was concluded that this difference was not significant. The departments of students receiving training and the qualities of students in these departments are varied, because there is no score limit applicable to every candidate for admission to higher education, as there is no threshold application for these students. Therefore, students with quite distant scores come together in pedagogical training. In other words, students studying in different departments show similar perceptions of self-efficacy and attitudes towards the teaching profession. It should also be emphasised that the pedagogical training provided in both faculties of education and pedagogical training certificate programmes may have equalized students' self-efficacy and attitudes towards the profession. Looking at studies that support the findings obtained in this study, Ateş (2016), Saracaloğlu et al. (2013), and Elkatmış et al. (2013) concluded in their studies on prospective teachers that the department variable had no significant effect on self-efficacy scores. In contrast, studies by Yeşilyurt (2013) and Kavrayıcı and Bayrak (2016) identified partial differences between departments based on the sub-dimensions of the scales used. When the attitude variable was examined according to departments, Polat's (2013) study found that the attitudes of faculty of education students towards the profession differed according to department, while the attitude scores of training programme students did not differ, as was the case in this study. In a study conducted by Üstün et al. (2013) on 311 students, it was found that the attitude scores of faculty of education and teacher training programme students towards the profession did not vary with respect to departments the students were enrolled in.

Regarding the relationship between self-efficacy and attitude variables toward the teaching profession, the correlation coefficient was .34 for faculty of education students and .43 for pedagogical training students. In this respect, both groups can be said to be similar. In the study conducted by Dadandı et al. (2016), the correlation coefficients between these two variables were found to be .42 and .41,

respectively, which is similar to this study. In the study conducted by Sert and Özcan (2017) on 505 pre-service teachers, a moderate relationship was found between the candidates' self-efficacy and attitude scores. In another study conducted by Baş in 2022 on 447 prospective teachers, it was found that self-efficacy was significantly affected by attitudes towards teaching and that attitudes explained 42% of the variance in self-efficacy. A study by Sharma (2015) in India on teacher candidates' perceptions of self-efficacy and attitudes found a positive correlation between the two variables. Furthermore, Vaxberg (2017) emphasized that attitude is one of the variables that influence self-efficacy. A study conducted by Özokçu (2018) found a significant and positive relationship between self-efficacy and attitude and concluded that self-efficacy is a predictor of attitude. In this study, considering that the concept of self-efficacy is an individual's belief in their own knowledge and skills in performing their profession, and attitude is their stance towards the profession, it can be expected that these two variables have similar mean scores.

Recommendations

Steps should be taken to increase the self-efficacy perceptions of faculty of education students, particularly in field-specific courses. There is a need for more structured contact and collaboration processes with prospective teachers, especially in practical courses. Teaching staff who conduct teaching practice should be particularly sensitive to this issue, but it should not be forgotten that all stakeholders must contribute when success is targeted in any area.

Since the attitude scores were moderate in both groups, it is necessary to promote the teaching profession, inspire students by utilising exemplary teachers, and elaborate on the contributions of the profession to the individual and society. Considering the findings of the above study, which reveal that self-efficacy and attitude have a moderate correlation, it should not be forgotten that progress in one variable may affect the other positively. Especially in recent years, the increasing number of teacher candidates may have changed their perspective on the profession, and it is considered that instilling a little self-confidence and a positive attitude in them would be a step in the right direction.

In the long term, it is considered that designing and implementing a teacher training process that synthesizes the valuable experiences gained from both approaches, rather than the current dual approach, will yield more positive results for both prospective teachers and the students they will teach.

Limitations

This study has some limitations. The cross-sectional and correlational design of this study limits the ability to interpret the findings in causal terms. Although the relationships between variables have been identified, it is not possible to draw definitive conclusions regarding the direction or causality of these relationships. The use of longitudinal or experimental designs in future research will contribute to a more comprehensive and in-depth understanding of these relationships.

However, the study's sample consists of students from a state university in Türkiye. This limits the generalizability of the research findings. Future studies conducted among different cultural, socioeconomic, and age groups will enhance the generalizability of the results.

Confirmatory factor analysis (CFA) and measurement invariance analyses were not conducted in this study. Although these analyses could provide stronger evidence for the construct validity of the scales, they were beyond the scope of the present research. This should be considered as a limitation of the study.

One important limitation of the study is the lack of homogeneity in the field/departmental composition of the compared groups. Since the faculty of education and pedagogical training groups consist of different academic backgrounds, it is difficult to determine whether the observed differences are due to the programme type or underlying field differences.

Conclusion

As a result, the self-efficacy and attitude scores of students in the pedagogical training programme towards the teaching profession were found to be higher than those of senior students in the faculty of education. This result has been supported by numerous studies. Another finding of the research is that self-

efficacy and attitude scores did not vary according to gender or department. Finally, although a moderate positive relationship was found between self-efficacy and attitude variables for both groups, a higher relationship was found between these two variables in the data of pedagogical training students. In Türkiye, where two different paths are used in teacher training, this study was conducted on the grounds that research is needed to determine which of these two paths is more valid and beneficial. This study contributes to the relevant literature with scientific data, free from prejudice. This and similar studies will guide decision-makers in determining future policies.

CRedit authorship contribution statement

E. Zorlu: Methodology, Data collection, Formal analysis, Visualization.

E. Yılmaz: Conceptualization, Writing-review & editing, Original draft.

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Ethics Approval and Consent to Participate

This study was conducted with the approval of the Ethics Committee of Bartın University Social and Human Sciences (Protocol No. 2023-SBB-0196) at its meeting on 17.07.2023.

Declaration of AI Usage Statement

The authors state that in this study, they used the generative AI tool (ChatGPT- OpenAI, GPT-5.5) solely for language editing and writing support. The conceptualization, data analysis, interpretation, and conclusion of the study were conducted entirely by the authors.

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| Research Article / Araştırma Makalesi |

An Examination of Preschool Teacher Candidates' Environmental Perceptions, Attitudes, and Behaviors in Terms of Various Variables

Okul Öncesi Öğretmen Adaylarının Çevreye Yönelik Algı, Tutum ve Davranışlarının Çeşitli Değişkenler Açısından İncelenmesi

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Keywords	Abstract
Preschool teacher candidates	The purpose of this study is to examine preschool teacher candidates' levels of perception, attitudes, and behaviors toward the environment in terms of demographic and educational variables. The study was conducted using a descriptive survey model within the framework of a quantitative research approach. The study group consisted of 144 preschool teacher candidates studying at a public university located in the Mediterranean Region of Türkiye. The research data were collected through a personal information form and a measurement instrument assessing the dimensions of environmental perception, attitude, and behavior. Descriptive statistics, an independent samples t-test, and one-way ANOVA were used in the analyses. The findings revealed that preschool teacher candidates had high levels of environmental perception, positive environmental attitudes, and moderate-to-high levels of environmental behaviors. There were no significant differences found in pre-service teachers' levels of environmental perception, attitudes, and behaviors based on the variables of gender and membership in any civil society organization. However, environmental attitudes differed significantly based on place of residence; perception levels by grade level; attitude and behavior levels by age. In addition, perception, attitude, and behavior levels varied significantly according to whether the participants had taken an environmental studies course. The findings emphasize the importance of integrating environmental education more systematically and comprehensively into teacher education programs to strengthen environmental awareness, attitudes, and responsible behaviors among future teachers.
Environmental education	
Perception	
Attituded	
Behavior	
nahtar Sözcükler	Öz
Okul öncesi öğretmen adayları	Bu araştırmanın amacı, okul öncesi öğretmen adaylarının çevreye yönelik algı, tutum ve davranış düzeylerini demografik ve eğitimsel değişkenler açısından incelemektir. Çalışma, nicel araştırma yöntemine göre tasarlanmış ve betimsel tarama modeli kullanılarak yürütülmüştür. Araştırma grubunu, Türkiye'nin Akdeniz Bölgesi'nde bulunan bir devlet üniversitesinde öğrenim gören 144 okul öncesi öğretmen adayı oluşturmuştur. Veriler, kişisel bilgi formu ve çevreye yönelik algı, tutum ve davranış alt boyutlarını içeren ölçek aracılığıyla toplanmıştır. Verilerin analizinde, betimsel istatistikler, bağımsız örneklem t-testi ve tek yönlü varyans analizi (ANOVA) kullanılmıştır. Araştırma bulguları, okul öncesi öğretmen adaylarının çevreye yönelik algı düzeylerinin yüksek, tutum düzeylerinin olumlu ve davranış düzeylerinin orta-üst seviyede olduğunu göstermiştir. Öğretmen adaylarının çevreye yönelik algı, tutum ve davranış düzeylerinde cinsiyet ve herhangi bir sivil toplum kuruluşuna üyelik durumu değişkenlerine göre anlamlı bir farklılık bulunmamıştır. Bununla birlikte, çevreye yönelik tutum düzeylerinin yerleşim yeri değişkenine, algı düzeylerinin sınıf düzeyine, tutum ve davranış düzeylerinin yaş değişkenine, algı, tutum ve davranış düzeylerinin ise çevre eğitimi alma durumuna göre anlamlı biçimde farklılaştığı belirlenmiştir. Araştırma sonuçları, öğretmen yetiştirme programlarında çevre eğitime daha kapsamlı ve sistematik biçimde yer verilmesinin, öğretmen adaylarının çevresel farkındalıklarının geliştirilmesi, olumlu çevresel tutumlar kazanmaları ve sorumlu çevre davranışları geliştirmeleri açısından önemli olduğunu ortaya koymaktadır.
Çevre eğitimi	
Algı	
Tutum	
Davranış	

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Introduction

The 21st century faces an escalating environmental crisis affecting both nature and humanity. Increasing environmental problems on a global scale can be described as consisting of multidimensional threats, including climate change, plastic and electronic waste, and loss of biodiversity (Bandh et al., 2021; Dalal, 2025). The permanent damage to ecosystems, an increase in severe natural disasters, and the disruption of ecological balance pose serious risks to both the planet and living organisms (Steffen et al., 2015). These risks are largely caused by human activities and directly affect not only ecosystems but also human health and economic sustainability (Candan-Helvaci & Erten, 2022; Samur, 2022). Recent international reports continue to emphasize that climate change, biodiversity loss, and unsustainable resource consumption remain among the most urgent global challenges, increasing the need for environmentally responsible societies (Arora & Mishra, 2023).

Individuals' perceptions, attitudes, and behaviors towards the environment play an important role in the root causes of environmental risks (Teksöz et al., 2010). Accordingly, fostering environmentally responsible individuals through effective environmental education has become increasingly important. These dimensions are distinct yet interrelated; environmental perception reflects awareness and cognitive interpretations, attitudes represent affective evaluations and value orientations, and behavior refers to concrete sustainability related actions (Bandh et al., 2021; Huang, 2018). Examining them together provides a more comprehensive understanding, as awareness does not always lead to favorable attitudes, and favorable attitudes may not always translate into responsible behavior, a discrepancy explained by the value–action gap (Kollmuss & Agyeman, 2002). Environmental education not only provides individuals with ecological knowledge but also supports the development of positive attitudes and behaviors towards the environment (Erten, 2005). Contemporary environmental education research similarly emphasizes that environmental literacy should include knowledge, critical thinking, sustainable decision-making, and active environmental engagement (Ardoin et al., 2020; Güler, 2009). Therefore, environmental education should be provided at all levels of education, starting from the preschool period (Türkoğlu, 2019). The preschool period is a critical stage in which the foundations of learning are established. The environmental awareness gained during this period plays a decisive role in the development of positive attitudes and behaviors towards the environment in later years (Davis, 2009; Smith, 2001). Recent studies also confirm that children's early interactions with nature significantly contribute to long-term environmental sensitivity and pro-environmental behavior (Ernst & Burcak, 2019; Savolainen, 2021). Because of this developmental significance, teachers in early childhood education play a particularly important role in environmental education. According to Piaget's cognitive development theory, children aged 2–7 learn primarily through concrete experiences (Piaget, 1964), while Vygotsky's sociocultural perspective emphasizes the importance of guided learning through interaction with knowledgeable adults (Vygotsky & Cole, 1978). In this context, preschool teachers serve not only as knowledge transmitters but also as behavioral role models in shaping children's environmental awareness and habits (Güzelyurt & Özkan, 2018; Özkan, 2017). Therefore, examining preschool teacher candidates' environmental orientations is particularly important, as their future professional practices may directly influence children's environmental consciousness.

Numerous studies have examined teacher candidates' environmental awareness, attitudes, and behaviors. International studies report significant relationships between environmental knowledge and pro-environmental orientations (Boeve-de Pauw & Van Petegem, 2010; Liefländer & Bogner, 2018; Pe'er et al., 2007). In Türkiye, similar studies have been conducted across teacher education fields (Artun et al., 2013; Kayalı, 2018; Koç & Karatekin, 2013; Koç et al., 2018). Studies focusing on preschool teacher candidates also indicate positive environmental awareness, though gaps may remain between attitudes and actual behavior (Ernst & Burcak, 2019; Kandır et al., 2012; Tanık Önal, 2018). However, studies simultaneously examining environmental perception, attitude, and behavior among preschool teacher candidates remain limited. Given the importance of early environmental education, investigating these dimensions together is particularly relevant, especially in light of the value–action gap described in the literature (Bandh et al., 2021; Kandır et al., 2012; Tanık Önal, 2018).

The literature indicates that environmental awareness, attitudes, and behavior may vary according to factors such as gender, educational experiences, age, residential background and civic engagement (Holmes et al., 2019; Tuncer et al., 2005; Vicente-Molina et al., 2018; Zsóka et al., 2013). In this context, it is important to address prospective teachers' perceptions, attitudes, and behaviors in a multidimensional manner. These constructs collectively shape environmental literacy (Boeve-de Pauw & Van Petegem, 2010; Huang, 2018; Liefländer & Bogner, 2018; Pe'er et al., 2007). Preschool teacher candidates constitute a key group in environmental education due to their critical role in fostering children's early awareness and long-term sustainable behaviors (Davis, 2009; Tanık Önal, 2018).

Environmental studies courses are expected to strengthen ecological literacy and pedagogical readiness among future preschool teachers; however, the extent to which such educational experiences are associated with environmental perception, attitudes, and behaviors remains an important empirical question. This study contributes to the environmental education literature and provides insights for strengthening teacher education practices (Almasri, 2024). Based on this background, the aim of this study is to examine preschool teacher candidates' environmental perceptions, attitudes, and behaviors in relation to various variables. Accordingly, the study seeks to answer the following sub-questions:

The perceptions, attitudes, and behaviors of preschool teacher candidates toward the environment;

1. What is their level?
2. Do they show a significant difference according to gender?
3. Is there a significant difference according to grade level?
4. Is there a significant difference according to age range?
5. Is there a significant difference based on the residential area experienced before starting university?
6. Is there a significant difference based on whether they took an environmental education course?
7. Is there a significant difference based on membership in an environmental non-governmental organization?

Method

Research Model

This study adopted the descriptive survey model from among the quantitative research types. The descriptive survey model is a type of research that aims to present a situation as it is. This model is used to determine the opinions of individuals or groups on a specific topic (Karasar, 2012). This model is widely used in the social sciences and is preferred in studies conducted with large samples (Büyüköztürk et al., 2016).

Study Group

A convenience sampling method was used to determine the study group. This method was preferred to ensure the feasibility of the research in terms of time, cost, and accessibility, and it was also based on easy access to participants and voluntary participation. Convenience sampling involves selecting participants who are easily accessible to the researcher due to practical constraints. The study group consisted of 144 preschool teacher candidates enrolled in a state university located in a major city in the Mediterranean region of Türkiye during the spring semester of the 2024–2025 academic year. The demographic characteristics of the teacher candidates, including grade level and gender distribution, are presented in Table 1. Ethical approval for this study was obtained from the Social and Humanities Scientific Research Ethics Committee of Alanya Alaaddin Keykubat University (Decision No: 2025/07; Approval Date: April 9, 2025).

Table 1*Demographic Information of Teacher Candidates*

Variable		N	Percentage (%)
Grade Level	1 st grade	40	29.7
	2 nd grade	45	30.4
	3 rd grade	32	21.6
	4 th grade	27	18.2
Gender	Female	94	66.2
	Male	50	33.8
Total		144	100.0

Data Collection Tool

In this study, a personal information form was used to collect participants' demographic information, along with the subscales of the Environmental Literacy Scale developed by Kışoğlu (2009), namely the environmental perception, attitude, and behavior scales. Permission to use the scale was obtained from the original author.

The environmental perception scale consists of three items rated on a 5-point scale, with scores ranging from 3 to 15 ($\alpha = 0.78$). The environmental attitude scale consists of 18 items on a 5-point Likert scale. Scores range from 18 to 90, and the reliability coefficient was found to be $\alpha = 0.77$. The environmental behavior scale consists of 20 items rated on a 3-point Likert scale, with scores ranging from 20 to 60. The reliability coefficient was $\alpha = 0.79$.

Data Analysis

Statistical analyses in the study were performed using the SPSS 21 (Statistical Package for Social Sciences for Personal Computers) program. The internal consistency of the scale used in the study was tested using Cronbach's Alpha (α) coefficient. When the reliability values for the sub-dimensions were examined, $\alpha = 0.772$ was calculated for the environmental perception dimension, $\alpha = 0.785$ for the attitude dimension, and $\alpha = 0.883$ for the behavior dimension. These results indicate that each sub-dimension is reliable at an acceptable level (Taber, 2018). The normality analysis of the scales used in the study was performed, and the analysis results are presented in Table 2.

Table 2*Normality Analysis of Environmental Perception, Attitude, and Behavior Scale*

Scale	Skewness	Kurtosis	Minimum	Maximum
Perception	-.359	1.63	3	15
Attitude	-.541	.221	38	83
Behavior	.104	-.012	22	60

Table 2 shows that the skewness and kurtosis coefficients are within the ± 1.5 range; this indicates that the data are normally distributed and that parametric tests can be used (Tabachnick & Fidell, 2013).

Independent samples t-tests were conducted for gender, age, environmental education, and non-governmental organization membership variables. One-way ANOVA was used for grade level, and residential location. Welch's ANOVA was applied where homogeneity of variance assumptions were violated. To determine the magnitude of the statistically significant differences observed in the latest analyses, the effect size statistics eta-squared (η^2) and Cohen's d were calculated. Eta-squared, which is used as an indicator of effect size in variance analyses, ranges from 0.00 to 1.00. Values between .01 and .06 are interpreted as indicating a small effect, values between .06 and .14 represent a medium effect, and values of .14 or higher are considered to reflect a large effect size. In addition, Cohen's d was used to assess the magnitude of differences between group means. According to commonly accepted criteria, a Cohen's d value of .20 indicates a small effect size, .50 indicates a medium effect size, and .80 or higher indicates a large effect size (Büyüköztürk, 2012). Descriptive statistics were interpreted based on the theoretical score ranges of the scales. No fixed cut-off points were used; instead, mean scores were evaluated according to their positions

between minimum and maximum values. Therefore, the findings are reported in terms of “relatively high” and “positive tendencies”.

Findings

This section presents the data obtained in line with the purpose of the study. The findings reveal whether the levels of preschool teacher candidates' perceptions, attitudes, and behaviors toward the environment differ according to the variables of gender, grade level, age, place of residence, and membership in a civil society organization related to the environment. The data were analyzed using descriptive statistics and parametric tests, and the results reflect both the environmental awareness of teacher candidates and the factors that should be considered in environmental education practices. The results of the descriptive analysis regarding the level of preschool teacher candidates' perceptions, attitudes, and behaviors towards the environment are presented in Table 3.

Table 3

Descriptive Analysis Results of Environmental Perception, Attitude, and Behavior Scale

Scale	$\bar{X}$	SD	Minimum	Maximum
Perception	10.5	2.3	3	15
Attitude	63	9.1	38	83
Behavior	43	8	22	60

The average environmental perception score of preschool teacher candidates was 10.50 (SD = 2.30), which is quite close to the maximum score of 15 that can be obtained on the scale. The mean environmental attitude score was found to be 63.00 (SD = 9.10), with 90 being the maximum obtainable score. The average environmental behavior score was calculated as 43.00 (SD = 8.00), out of a possible maximum of 60. Analyses were conducted to examine whether the pre-service preschool teachers' perceptions, attitudes, and behaviors towards the environment differed according to the gender variable, and the analysis results are presented in Table 4.

Table 4

T-Test Results for the Gender Variable

Scale	Gender	N	$\bar{X}$	SD	df	t	p
Perception	Female	94	10.6	2.4	142	.229	.819
	Male	50	10.5	2.3			
Attitude	Female	94	62.4	9.3	142	1.059	.292
	Male	50	64.1	8.6			
Behavior	Female	94	42.9	8.7	142	.004	.997
	Male	50	42.9	6.4			

Table 4 shows that the environmental perception, attitude, and behavior scores of preschool teacher candidates do not differ significantly according to gender ($p > .05$). Analyses were conducted to examine whether the perceptions, attitudes, and behaviors of preschool teacher candidates toward the environment differed according to the class level variable. The ANOVA analysis results are presented in Table 5, and the descriptive statistics are presented in Figure 1.

Table 5*ANOVA Results for the Grade Level Variable*

Dimension	Source of Variation	df	Mean Square	F	p	Eta Squared (η^2)	Effect Size	Significant difference
Perception	Intergroup	3	5,32	2,657	,05*	.054	small	1-4
	Intragroup	140	14,2					
	Total	143						
Attitude	Intergroup	3	81,71	1,526	.211			-
	Intragroup	140	124,73					
	Total	143						
Behavior	Intergroup	3	60,7	2.038	.117			-
	Intragroup	140	167,3					
	Total	143						

Note. * $p < 0.05$

Table 5 shows that there was a statistically significant difference was found in environmental perception scores according to grade level ($p < .05$), with fourth-year students scoring higher than first-year students. A significant difference in preschool teacher candidates' perception scores according to grade level ($p < .05$). The significant difference was between first-year and fourth-year students, with fourth-year students having higher scores. No significant difference was found in attitude. However, descriptive results showed that behavior scores increased steadily across grade levels, indicating a positive developmental trend. behavior scores ($p > .05$). Since the homogeneity of variance assumption was not met for the behavior dimension, Welch ANOVA was used.

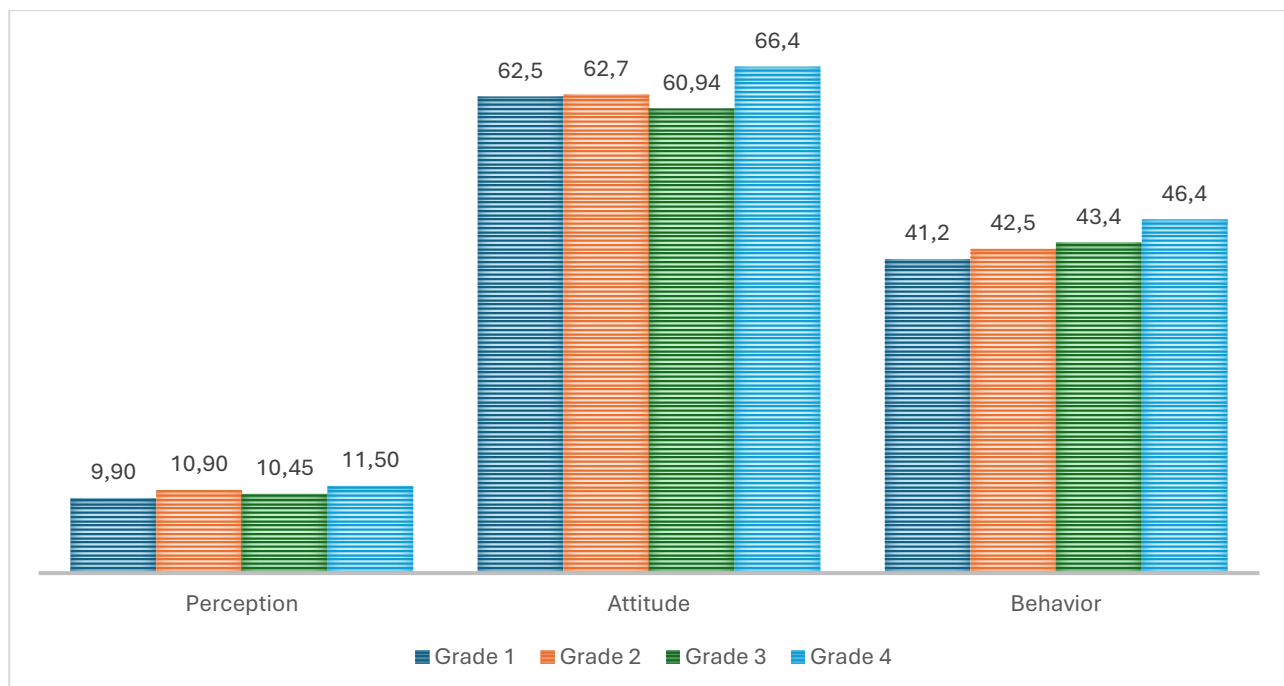
Figure 1*Analysis of Perceptions, Attitudes, and Behaviors Toward the Environment According to Grade Level*

Figure 1 presents the environmental perception, attitude, and behavior scores of preschool teacher candidates according to grade level. The results indicate that environmental behavior scores show a clear and steady increase from first to fourth year. In contrast, perception and attitude scores display a generally increasing but fluctuating pattern, with a slight decrease observed in the third year. Overall, upper-grade students tend to demonstrate higher environmental awareness, particularly in the behavior dimension.

The analysis results regarding whether the perceptions, attitudes, and behaviors of preschool teacher candidates towards the environment differ according to the age variable are presented in Table 6.

Table 6*T-Test Results for the Variable Age*

Scale	Age	N	$\bar{X}$	SD	df	t	p
Perception	Under 20 years old	32	9.94	2.34	142	-1.70	.091
	20 years and older	112	10.71	2.33			
Attitude	Under 20 years old	32	55.56	7.53	142	-5.89	<.001*
	20 years and older	112	65.15	8.34			
Behavior	Under 20 years old	32	40.44	7.18	142	-2.07	.040*
	20 years and older	112	43.64	8.03			

Note. *p<0.05

Table 6 shows that the attitude and behavior scores differed significantly according to age ($p < .05$), while perception scores did not show a significant difference ($p > .05$). Participants aged 20 and above had higher attitude and behavior scores compared to younger participants. The results of the analysis of whether the perceptions, attitudes, and behaviors of preschool teacher candidates towards the environment differ according to the location variable are presented in Table 7 and descriptive statistics in Figure 2.

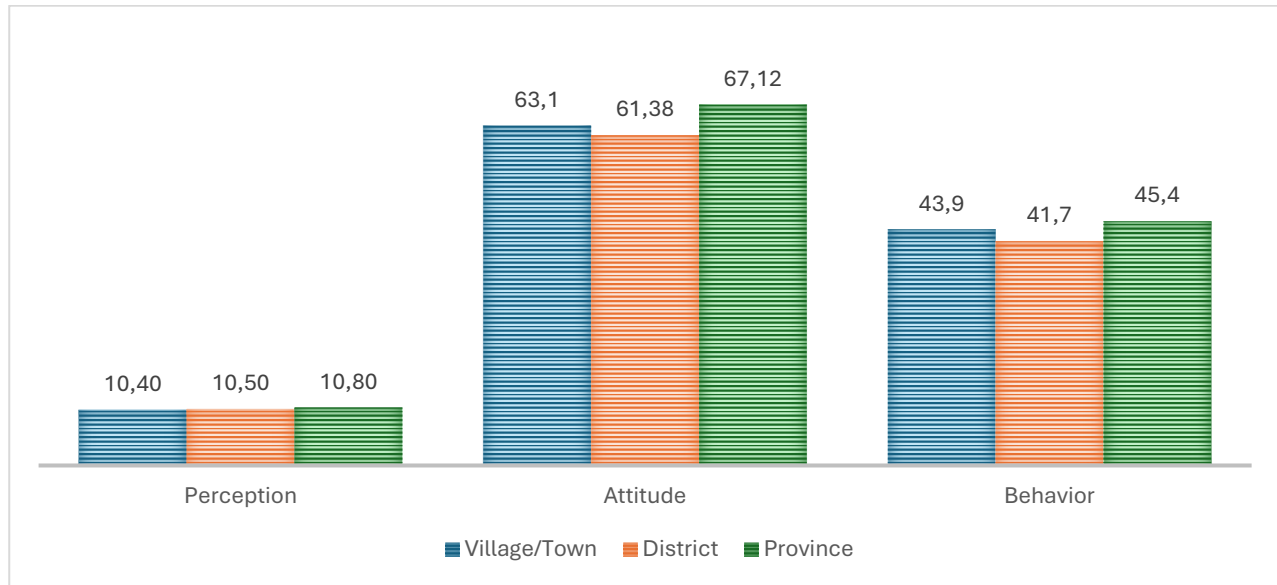
Table 7*ANOVA Results for the Variable Residential Location*

Dimension	Source of Variation	df	Mean Square	F	p	Eta Squared (η^2)	Effect Size	Significant difference
Perception	Intergroup	2	1.47	0.26	.768	.004	Very small	
	Intragroup	141	5.57					
	Total	143						
Attitude	Intergroup	2	390.47	4.99	.008*	.066	Medium	Province-District
	Intra-group	141	78.28					
	Total	143						
Behavior	Intergroup	2	176.23	2.87	.060	.039	Small	
	Intragroup	141	61.37					
	Total	143						

Table 7 shows there were statistically significant differences between participants who had taken environmental education courses and those who had not ($p < .05$). In particular, the attitude scores of students living in the city center are significantly higher than those of students living in the district. There is no statistically significant difference in the mean scores of preschool teacher candidates' behavior and perception dimensions according to their place of residence ($p > .05$).

Figure 2

Analysis of Perceptions, Attitudes, And Behaviors Toward the Environment According to the Variable Settlement Location



Participants who had taken such courses demonstrated higher perception, attitude, and behavior scores. This finding indicates that environmental education positively influences environmental awareness and behavior.

The analysis results regarding whether the perceptions, attitudes, and behaviors of preschool teacher candidates towards the environment differ according to the variable of taking environmental studies are presented in Table 8.

Table 8

T-Test Results for Environmental Education Variable

Scale	Taking environmental studies	N	$\bar{X}$	SD	df	t	p	Cohen's d	Effect Size
Perception	Yes	71	11.0	2.4	142	2.27	.025*	.38	Medium
	No	73	10.1	2.3					
Attitude	Yes	71	68.1	6.8	142	7.81	<.001*	1.31	Large
	No	73	58.1	8.4					
Behavior	Yes	71	45.6	8.0	142	4.28	<.001*	.71	Medium
	No	73	40.3	7.0					

Table 8 shows that there is a statistically significant difference between the mean scores of pre-service kindergarten teachers who took environmental studies and those who did not ($p < .05$). This finding reveals that environmental education positively affects individuals' perceptions, attitudes, and behaviors toward the environment.

The results of the analysis of whether the perceptions, attitudes, and behaviors of preschool teacher candidates towards the environment differ according to the variable of membership in an environmental non-governmental organization are presented in Table 9.

Table 9*T-Test Results for the Variable of Membership in an Environmental Civil Society Organization*

Scale	Membership	N	$\bar{X}$	SD	df	t	p
Perception	Yes	12	63.2	8.4	142	0.058	.954
	No	132	63.0	9.2			
Attitude	Yes	12	43.8	5.2	142	0.376	.708
	No	132	42.9	8.2			
Behavior	Yes	12	11.3	3.0	142	1.223	.224
	No	132	10.5	2.3			

When Table 9 is examined, there is no statistically significant difference between the levels of attitudes, behaviors, and perceptions of preschool teacher candidates who are members of an environmental civil society organization and those who are not ($p > .05$). However, it is seen that those who are members of a civil society organization have a very slight advantage in terms of perception and behavior score averages.

Discussion

This study examined preschool teacher candidates' levels of environmental perception, attitudes, and behaviors, and investigated whether these dimensions differed according to gender, grade level, age, place of residence, taking an environmental education course, and membership in an environmental non-governmental organization. Descriptive analyses revealed that teacher candidates had high levels of perception toward the environment, positive attitudes, and medium-high levels of behavior. This finding shows that teacher candidates are being trained as individuals who are sensitive to environmental issues. Consistent with previous research, environmental education experiences are considered important in developing environmental awareness and environmentally responsible behaviors (Bamberg & Möser, 2007; Kollmuss & Agyeman, 2002; Tuncer et al., 2005). This overall pattern supports the conceptual framework emphasized in the introduction, which highlights the role of environmental education in fostering environmental literacy through interconnected cognitive, affective, and behavioral components.

The findings obtained because of the research reveal that preschool teacher candidates do not show a significant difference in their perceptions, attitudes, and behaviors towards the environment based on gender. This situation shows that teacher candidates' environmental attitudes, perceptions, and behaviors develop independently of gender. The absence of gender-based differences in this study may be related to the similar educational and socio-cultural backgrounds of the participants. Since all participants were preschool teacher candidates exposed to comparable educational experiences, environmental awareness may have developed similarly regardless of gender. In addition, increasing public awareness of sustainability and environmental issues may have reduced traditional gender differences reported in earlier studies (Vicente-Molina et al., 2018; Zelezny et al., 2000). Similar findings are also found in the literature. For example, Artun et al. (2013) found no significant difference based on the gender variable in their study examining the environmental literacy levels of social studies teacher candidates. However, some studies have produced results that contradict these findings. Alınmaz (2023), in their study investigating preschool teachers' competencies regarding environmental literacy, stated that female teachers demonstrated significantly higher competencies than male teachers. These differences may stem from the sample group, the measurement tools used, and the variability in the study context. Overall, the findings of this study show that attitudes, perceptions, and behaviors towards the environment are shaped independently of gender and that environmental education can be equally effective for all individuals.

The findings regarding grade level demonstrated that environmental perception scores differed significantly according to grade level, whereas environmental attitude and behavior scores did not show statistically significant differences. Specifically, fourth-year students demonstrated higher environmental perception scores than first-year students. This finding suggests that the teacher education process contributes positively to the development of environmental perception over time. This indicated that grade

progression has a influence on students' environmental awareness and understanding. Although statistically significant differences were not found in attitude and behavior dimensions, descriptive findings revealed that environmental behavior scores increased steadily across grade levels. This pattern may indicate a developmental tendency in which environmental responsibility and awareness gradually strengthen throughout undergraduate education. Similar findings have been reported in studies emphasizing the cumulative effect of environmental education experiences during teacher training (Erten, 2005; Tuncer et al., 2005). However, some studies have reported different results. For example, Koç and Karatekin (2013) found that grade level did not significantly affect environmental literacy among geography teacher candidates. These differences may result from disciplinary differences, institutional contexts, and variations in environmental education practices.

The findings related to age showed that environmental attitude and behavior scores differed significantly according to age, whereas environmental perception scores did not differ significantly. Participants aged 20 and older demonstrated significantly higher environmental attitude and behavior scores compared to younger participants. Furthermore, the effect size for environmental attitude was large, suggesting that age has a substantial and practically meaningful influence on the development of positive environmental attitudes. These findings may be explained by increased life experience, stronger social responsibility, and greater exposure to environmental issues over time. In contrast, the effect sizes for perception and behavior were relatively small, indicating that age explains only a limited proportion of variance in these dimensions. Therefore, while environmental attitudes appear to become more positive with age, perception and behavior may be shaped more strongly by educational experiences and contextual factors than by age alone. Similar findings were reported by Altınöz (2010), who found significant differences in environmental awareness in favor of individuals over the age of 20.

The research findings reveal a significant difference in environmental attitude scores among preschool teacher candidates based on the settlement area they lived in before starting university. Specifically, candidates who had lived in the city center demonstrated higher attitude scores than those who had lived in districts. Moreover, the effect size for the attitude dimension was at a medium level, indicating that the place of residence has a practically meaningful influence on environmental attitudes. This suggests that the socio-cultural and environmental characteristics of urban settings may contribute to the development of more positive environmental attitudes. Urban life may increase individuals' sensitivity to environmental issues by providing greater exposure to environmental problems and sustainability-related initiatives (Chen et al., 2011; Kuhlemeier et al., 1999). In contrast, no significant differences were found in the perception and behavior dimensions based on place of residence. Additionally, the effect sizes for these dimensions were very small in perception and small in behavior, indicating that settlement area explains only a very limited portion of the variance in these variables. This suggests that while the living environment may have a moderate and meaningful impact on environmental attitudes, its influence on perception and behavior is weak in practical terms. The studies of Kışoğlu (2009) and Altınöz (2010) similarly revealed that there were no statistically significant differences in teacher candidates' environmental knowledge, attitudes, behaviors, and perceptions with respect to their place of residence.

The findings indicate that preschool teacher candidates who received environmental education demonstrated significantly higher scores in environmental perception, attitudes, and behaviors compared to those who did not receive such education. When the magnitude of these differences is considered, environmental education appears to have a moderate effect on perception and behavior, and a large effect on attitudes. The particularly strong effect observed in the attitude dimension suggests that structured environmental education plays a highly influential and practically meaningful role in fostering positive environmental attitudes. Although environmental education was associated with higher scores in both attitudes and behaviors, the substantially larger effect observed for attitudes may reflect the value-action gap frequently reported in environmental education research. Individuals may develop positive environmental attitudes and awareness, these do not always translate into consistent environmental behaviors (Kollmuss & Agyeman, 2002). Behavioral change is also shaped by external factors such as social norms, daily habits, and opportunities for sustainable practices. Therefore, environmental education should include more practice-oriented and behavior-focused experiences. Although the effects on perception and behavior are moderate, they are still substantial enough to demonstrate that environmental education

contributes meaningfully to the development of environmental awareness and responsible actions. The comparatively stronger impact on attitudes highlights that formal environmental coursework is especially effective in shaping individuals' value orientations and environmental sensitivities. These findings are consistent with previous research indicating that individuals who receive environmental education exhibit higher levels of environmental sensitivity and more positive environmental orientations (Erten, 2005; Tuncer et al., 2005). Similarly, studies conducted by Altınöz (2010) with science teacher candidates and Aydemir and Alım (2022) with geography teacher candidates reported significant differences in favor of those who had taken environmental courses. In line with UNESCO (2021), environmental education not only enhances knowledge but also promotes positive attitudinal and behavioral change. Overall, environmental education emerges as a decisive and powerful factor in strengthening pre-service teachers' environmental attitudes, while also making a meaningful contribution to their perceptions and behaviors.

Analyses based on membership in an environmental non-governmental organization revealed no statistically significant differences in perception, attitude, or behavior scores. Although members displayed slightly higher mean scores across all three dimensions, these differences were not practically meaningful. This suggests that voluntary organizational participation alone may exert only a limited influence on environmental awareness and related behaviors. Similarly, Kışoğlu (2009) reported that teacher candidates' environmental attitudes and behaviors developed independently of their membership in civil society organizations. Nevertheless, some recent studies indicate that active participation in environmental organizations and sustainability initiatives may enhance students' environmental awareness and pro-environmental behaviors (Collado et al., 2022; Fielding & Hornsey, 2016). Such discrepancies may stem from differences in sample characteristics, institutional contexts, or the intensity of engagement. Taken together, the findings imply that while environmental education functions as a primary determinant of environmental attitudes and behaviors, organizational participation serves more as a complementary than a decisive factor.

Recommendations

The scope of environmental education courses in teacher training programs should be expanded and enriched with practice-oriented activities. Environmental-themed projects and field-based learning experiences should be encouraged to enhance preschool teacher candidates' environmental awareness and engagement. Collaboration with civil society organizations may be strengthened to increase candidates' active participation in environmental initiatives. Environmental education content should also be adapted to address the specific needs of candidates from both urban and rural contexts. Furthermore, environmental education should be designed not only to transmit knowledge but also to foster the development of environmental attitudes and responsible behaviors.

Limitations

This study was limited to preschool teacher candidates enrolled at a single university, which may restrict the generalizability of the findings. Data was collected through self report instruments, which may have been influenced by social desirability bias. The relatively small number of participants who were members of civil society organizations may have reduced the statistical power of related analyses. Additionally, the quantitative design and measurement tools did not allow for an in-depth exploration of the underlying reasons behind participants' environmental attitudes and behaviors.

Recommendations For Future Research

Future research may include comparative studies involving teacher candidates from different universities to enhance the generalizability of the findings. Qualitative research designs could be employed to explore the cognitive and experiential processes underlying environmental attitudes in greater depth. More detailed analyses may also examine civil society organization membership by considering variables such as duration of membership and level of active participation. Longitudinal studies could be conducted to assess the long-term impact of environmental education. Furthermore, interdisciplinary research may provide deeper insights into the cultural, economic, and technological factors influencing teacher candidates' environmental attitudes and behaviors.

Conclusion

The overall findings indicate that preschool teacher candidates possess high levels of environmental perception, positive environmental attitudes, and moderately high environmental behaviors. Gender and non-governmental organization membership did not significantly influence these dimensions, whereas grade level, age, place of residence, and especially environmental education were associated with meaningful differences. Environmental education emerged as the strongest factor, particularly in fostering positive environmental attitudes, while also contributing to environmental perceptions and behaviors. The results suggest that environmental education plays a critical role in developing environmentally responsible future teachers, whereas organizational participation appears to function as a supportive rather than a determining factor. These findings highlight the importance of strengthening environmental education practices within teacher education programs to promote environmental literacy and sustainable behaviors.

CRedit authorship contribution statement

F. Şeker: Conceptualization, Methodology, Formal analysis, Interpretation of findings, Visualization, Writing – original draft, Writing – review & editing, Supervision, Final approval of the manuscript.

B. Arı Ersan: Data collection, Data entry, Investigation, Contribution to the preparation of the initial manuscript draft.

Declaration of Conflicting Interests

The authors declare that there are no conflicts of interest regarding the research, authorship, and/or publication of this article.

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Ethics Approval and Consent to Participate

Ethical approval for this study was obtained from the Social and Humanities Scientific Research Ethics Committee of Alanya Alaaddin Keykubat University (Decision No: 2025/07; Approval Date: April 9, 2025).

Declaration of AI Usage Statement

Artificial intelligence (AI) tools, specifically ChatGPT, were used during the preparation of this manuscript for language editing, improving clarity, and enhancing the overall readability of the text. No other AI tools were utilized. The authors take full responsibility for the content and conclusions of the manuscript.

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|Research Article / Araştırma Makalesi|

Number Teaching in the 2024 Primary School Mathematics Curriculum Based on the Türkiye Century Maarif Model: An International Comparison**Türkiye Yüzyılı Maarif Modeli Temelli 2024 İlkokul Matematik Öğretim Programı'nda Sayı Öğretimi: Uluslararası Bir Karşılaştırma**Murat Baş¹

Keywords	Abstract
Primary school mathematics curriculum	The 2024 Türkiye Primary School Mathematics Curriculum, prepared under the Türkiye Century–Maarif Model, introduces design innovations in number teaching that warrant international comparison. This study compares the curriculum's number-teaching architecture with five internationally consulted programs: Singapore, Finland, the United States, China, and Japan. Through comparative document analysis, six official primary mathematics curriculum documents were examined using a six-dimensional Comparative Number Instruction Framework (CNIF), which extends the focus–coherence–rigor triad with three additional dimensions: representation intensity, social-emotional learning (SEL) integration level, and assessment diversity. Two independent coders rated each curriculum on each dimension using a rubric with explicit decision rules and indicator examples. Initial inter-coder agreement, measured with Cohen's kappa, was .81; remaining disagreements were resolved through discussion, and the consensus ratings were used for the final analysis. The most notable feature of the 2024 curriculum is the coding of SEL components at the learning-outcome level, which was not observed in any of the other five curricula, where SEL appears in framework prose, in a separate competency domain, or not at all. The number range expands to six-digit numbers by Grade 4, paralleling the United States and Japan and exceeding Singapore and Finland at the same grade level. The assessment toolkit specifies at least seven distinct instruments, and the representational logic aligns with multi-modal approaches but with fewer outcome-level cross-modal requirements than Singapore. Within the comparator set, the 2024 curriculum combines East Asian design choices (coherence, paced range expansion) with Northern European ones (broader assessment, attention to social-emotional development). Three implementation risks emerge: the absence of operational criteria for SEL outcomes, the possibility that wide number ranges are handled procedurally, and the gap between what the program asks of teachers and current teacher-preparation capacity. The findings carry direct implications for teacher education, textbook design, and longitudinal implementation research.
Number teaching	
Türkiye Century–Maarif Model	
International comparison	
Curriculum analysis	
Anahtar Sözcükler	Öz
İlkokul matematik programı	2024 Türkiye İlkokul Matematik Dersi Öğretim Programı, Türkiye Yüzyılı–Maarif Modeli kapsamında hazırlanmış olup sayı öğretimine ilişkin uluslararası karşılaştırmayı gerektiren tasarım yenilikleri içermektedir. Bu çalışma, söz konusu programın sayı öğretimi yapısını uluslararası düzeyde sıklıkla referans alınan beş programla; Singapur, Finlandiya, Amerika Birleşik Devletleri, Çin ve Japonya ile karşılaştırmaktadır. Karşılaştırmalı doküman analizi yoluyla altı resmi ilkökul matematik öğretim programı incelenmiş ve analizler, odak–tutarlılık–derinlik (focus–coherence–rigor) üçlüsünü üç ek boyutla genişleten altı boyutlu Karşılaştırmalı Sayı Öğretimi Çerçevesi (Comparative Number Instruction Framework–CNIF) kullanılarak gerçekleştirilmiştir. Bu ek boyutlar; temsil yoğunluğu, sosyal-duygusal öğrenme (SDÖ) entegrasyon düzeyi ve ölçme-değerlendirme çeşitliliğidir. Her bir program, iki bağımsız kodlayıcı tarafından açık karar kuralları ve gösterge örnekleri içeren bir rubrik kullanılarak her boyutta puanlanmıştır. Cohen'in kappa katsayısı ile ölçülen başlangıç kodlayıcılar arası uyum .81 olarak bulunmuş; kalan görüş ayrılıkları tartışma yoluyla giderilmiş ve nihai analizlerde uzlaşi puanları kullanılmıştır. 2024 programının en dikkat çekici özelliği, SDÖ bileşenlerinin öğrenme çıktısı düzeyinde kodlanmasıdır. Bu durum, karşılaştırılan diğer beş programın hiçbirinde gözlenmemiş; bu programlarda SDÖ ya çerçeve açıklamaları içinde, ya ayrı bir yeterli alanına ya da hiç yer almamıştır. Sayı kapsamı 4. sınıf düzeyinde altı basamaklı sayılara kadar genişlemekte; bu yönüyle Amerika Birleşik Devletleri ve Japonya ile paralellik göstermekte, aynı sınıf düzeyinde Singapur ve Finlandiya'nın ötesine geçmektedir. Ölçme-değerlendirme araç seti en az yedi farklı aracı içermekte; temsil mantığı ise çoklu temsile dayalı yaklaşımlarla uyumlu olmakla birlikte, Singapur'a kıyasla öğrenme çıktısı düzeyinde daha sınırlı çapraz temsil gereklilikleri göstermektedir. Karşılaştırılan programlar içinde 2024 programı; Doğu Asya'ya özgü tasarım tercihlerini (tutarlılık, kontrollü kapsam genişlemesi) Kuzey Avrupa'ya özgü özelliklerle (daha geniş ölçme-değerlendirme yaklaşımı ve sosyal-duygusal gelişime verilen önem) birleştirmektedir. Bununla birlikte üç temel uygulama riski ortaya çıkmaktadır: SDÖ çıktıları için operasyonel ölçütlerin bulunmaması, geniş sayı kapsamının işlemsel biçimde ele alınma olasılığı ve programın öğretmenlerden bekledikleri ile mevcut öğretmen yetiştirme kapasitesi arasındaki uyumsuzluk. Bulgular; öğretmen eğitimi, ders kitabı tasarımı ve boylamsal uygulama araştırmaları açısından doğrudan çıkarımlar sunmaktadır.
Sayı öğretimi	
Türkiye Yüzyılı Maarif Modeli	
Uluslararası karşılaştırma	
Program analizi	

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Introduction

Mathematics curricula are not neutral inventories of content. Each one encodes a particular conception of knowledge, a set of priorities about what children should learn and when, and a view of what education is for (Schmidt et al., 2001; Valverde et al., 2002). These choices have consequences. Cross-national curriculum comparison has grown out of the recognition that examining them against an international backdrop reveals things internal review cannot (Cai & Cirillo, 2014; Leung et al., 2006).

Number teaching holds a particular place in primary mathematics. Children first encounter the discipline through number, and that early encounter shapes later work in operations, fractions, ratios, and algebra (Clements & Sarama, 2014; National Research Council [NRC], 2001). For this reason, the scope of number content, its representational logic, and the instructional assumptions embedded in it have drawn persistent attention from researchers working across national contexts (Cai & Knuth, 2011; Leung et al., 2006).

Need for the Study

The 2024 Primary School Mathematics Curriculum, prepared under the Türkiye Century–Maarif Model (Ministry of National Education [MoNE], 2024, 2025), differs from its 2018 predecessor in several ways, and a Turkish research literature on it is starting to take shape. The most direct comparison, Kuzu et al. (2025), reports that the 229 specific objectives of the 2018 program were consolidated into 111 broader learning outcomes; that the four arithmetic operations in Grades 3 and 4 are now framed through estimation and mental computation before procedural presentation; that angle is now treated as a dynamic rotational quantity; and that thematic organization has replaced topic-based organization. Working across Grades 1–12, Göçer and Kuzu (2025) found that the technology-and-tools skill develops most consistently at the primary level, while reasoning, problem solving, and data-related skills receive lighter treatment. Three further studies look at narrower slices of the program: Kaplan-Can and Kandil-Şivka (2025) on estimation across K–12; Şen (2025) on the cognitive demand of geometry themes in Grades 1–12; and Aydın Bölükbaş (2026) on the SOLO profile of the preschool mathematics outcomes. Korkmaz and Özçakır Sümen (2026) report on classroom-teacher candidates' STEM activities anchored in the new Grade 4 measurement outcomes.

Field evidence is also beginning to arrive. Uludağ Kırçıl and Uluçınar Sağır (2025) interviewed fifteen first-grade teachers and found broadly positive reception alongside difficulty locating several program elements student-profile descriptors, cross-program components, teacher reflections, enrichment-and-support practices, and assessment procedures in the document's architecture; the in-service training was not viewed as sufficient. Yılmaz et al. (2025) examined middle-school mathematics teachers' metaphors for the 2024 program and reported a similar split: the program's vision is endorsed, but crowded classrooms, time pressure, and limited guidance constrain implementation. Yurdakal's (2024) document analysis of the Turkish-language curriculum prepared under the same model raised concerns about the conceptual density of the program documents themselves.

Read together, these studies establish that scholarship on the 2024 mathematics curriculum exists, that it is methodologically varied, and that early classroom evidence is consistent with concerns one would derive from the document alone. What is not yet available is a dimension-based comparison of the curriculum's number-teaching architecture against the international programs that have shaped Turkish curriculum debate. Turkish comparative-curriculum work in mathematics has matured in recent years Baran Bulut and Özcan Baş (2025) compared geometry and measurement content in the USA, Finland, Singapore, and Türkiye; Teke and Durmuş (2023) compared mathematics curricula for Grades 1–8 across Türkiye, Singapore, the USA, Ireland, China, and Germany; Dikmen and Yıldırım (2026) traced Türkiye–Singapore differences in PISA and TIMSS performance; Koyuncu and Ilgaz (2019), using TIMSS 2015 data, examined how efficiently 41 countries convert educational inputs into mathematics achievement but no study to date has examined number teaching in the 2024 program against five international comparators along a shared set of dimensions.

Number teaching is the appropriate focus for this comparison. It is where conceptual quality at the foundation of primary mathematics is set; it is where curricular orientations become legible at the level of specific design decisions; and it is where the 2024 program's most-debated feature, the coding of SEL components at the outcome level, is most consequential.

The study contributes in three areas. It extends Schmidt et al.'s (2001) focus–coherence–rigor framework by adding representation intensity, SEL integration level, and assessment diversity, producing the Comparative Number Instruction Framework (CNIF). It operationalizes the dimensions with explicit decision rules and reports inter-coder agreement, addressing a methodological gap noted in earlier Turkish comparative work (Baran Bulut & Özcan Baş, 2025; Teke & Durmuş, 2023). And it identifies three implementation risks of the 2024 program the absence of operational criteria for SEL outcomes, the breadth–depth tension in number-range expansion, and teacher capacity that are visible in the document and consistent with the Turkish field evidence cited above.

Purpose of the Study

The study has a twofold aim: to map the number-teaching components of Türkiye's 2024 Primary School Mathematics Curriculum, and to compare those components with the curricula of Singapore, Finland, the USA, China, and Japan across the six dimensions of the Comparative Number Instruction Framework (CNIF). Three questions drive the analysis:

1. What forms of conceptual understanding and representational practice does the 2024 curriculum build number teaching on?
2. How does Türkiye's number range expansion compare in pace and rationale with the international programs examined?
3. Where does the 2024 curriculum stand in relation to global trends in skill integration and assessment design?

Conceptual Framework

Number Teaching at the Primary Level: Theoretical Foundations

Research into how children develop number concepts makes clear that early number understanding goes well beyond rote memorization or procedural drill. Conceptual knowledge, procedural skill, and the reciprocal relationship between them need to develop together not in sequence, not in isolation (Rittle-Johnson et al., 2001). Hiebert and Lefevre (1986) describe conceptual knowledge as inherently relational, held in networks of connected ideas rather than as isolated facts. On this reading, a number is not simply a symbol: it is a node in a web of quantitative meaning.

Clements and Sarama (2014) map this development through their learning trajectories framework, identifying a sequence that runs from object counting and verbal counting through object–number correspondence and on to cardinality. Each stage builds on the one before; skipping steps or rushing the sequence tends to produce fragile understanding. For curriculum designers, this trajectory offers a principled account of what progression in number sense should actually look like across the primary years.

Bruner's (1966) distinction among enactive, iconic, and symbolic modes of representation has proven durable in mathematics education research precisely because it captures something real about how abstraction works. Children need to handle objects before they can draw pictures of relationships, and draw pictures before symbols alone carry meaning. Singapore built its Concrete–Pictorial–Abstract (CPA) sequence on this foundation (Leong et al., 2015), and the influence of Bruner's formulation can be traced across curricula well beyond East Asia. Lesh et al. (1987) extended Bruner's three-mode framework into a five-representation model (manipulatives, pictures, spoken language, written symbols, real-world situations), which has become a touchstone for analyzing representational density in curricular documents.

Epistemological Position of the Türkiye Century–Maarif Model

The Türkiye Century–Maarif Model (MoNE, 2025) is harder to categorize than its international counterparts. Rather than a curriculum framework in the conventional sense, it is an educational paradigm with its own epistemological architecture organized around four dimensions of wholeness: ontological (spirit and body as unity), epistemological (knowledge inseparable from wisdom), temporal (education bridging past and future), and axiological (moral consciousness alongside aesthetic sensibility). Knowledge, in this model, does not stand apart from responsibility. To know something is to incur an obligation in relation to it a position that differs markedly from the positivist tradition in which knowledge is value-neutral by design (Noddings, 2016). Yurdakal (2024) has noted that the model's foundational document combines extensive philosophical scaffolding with limited bibliographic anchoring, a feature with implications for how teachers internalize the framework a concern reinforced by Uludağ Kırçıl and Uluçınar Sağır's (2025) finding that teachers struggle to locate concepts such as student-profile descriptors and cross-program components within the model's architecture.

Competency in the Maarif Model is defined through a quartet of knowledge, skill, disposition, and values. This competency-oriented structure is consistent with the broader historical shift in Turkish primary mathematics curricula from content transmission toward competency-based curriculum design (Baş, 2026). Superficially, this recalls the OECD's DeSeCo framework (2003), but the resemblance does not run deep. DeSeCo is largely functional competencies are capacities for achieving outcomes in defined situations. The Maarif Model subordinates functionality to something broader: the formation of a virtuous and capable person, a goal with explicit axiological and ontological content. The European Qualifications Framework takes a similar functional line to DeSeCo, treating virtue and responsibility as external considerations rather than constitutive features of competency. Labeling the Maarif Model as constructivism under a different name would miss this distinction: where constructivism centers cognitive processes, the Maarif Model places the student's social, spiritual, and axiological dimensions squarely in the foreground.

In mathematics, these epistemological commitments show up concretely in how the curriculum structures number learning. Learning outcomes are not presented as isolated cognitive targets; they are organized in layers knowledge clusters, conceptual skills, subject-area skills, and cross-program components including SEL, Virtue–Value–Action, and Systems Thinking (MoNE, 2024, 2025). Göçer and Kuzu (2025) confirmed that this skill-based, thematic architecture distinguishes the 2024 program from its predecessor along all primary grade levels. Number teaching, within this framework, carries weight beyond arithmetic: students are positioned as agents who think, relate, and take responsibility, not merely as learners who compute.

International Curriculum Comparison Studies

Systematic cross-national curriculum comparison gained momentum in the 1990s, partly driven by the availability of large-scale assessment data from TIMSS and PISA. Schmidt et al. (2001) produced what remains one of the most cited frameworks in this tradition: a three-criterion analysis of focus, coherence, and rigor that asked, essentially, whether a curriculum concentrates on a manageable set of topics, develops them in a logically connected sequence, and expects genuine depth of understanding. The framework has been widely adopted as a diagnostic tool for explaining performance differences between national systems, and subsequent empirical work has refined how each criterion can be measured at the document level (Schmidt & Houang, 2012).

Leung et al. (2006) complicated the picture by showing that cultural context shapes mathematics education in ways that aggregate scores cannot capture. Their comparative work challenged the habit of treating East Asian performance as a single phenomenon with a single explanation in fact, Japan, China, Singapore, and Korea each draw on distinct traditions and make different instructional choices. What they share, the research suggests, is not curriculum intensity per se, but a tightly integrated relationship between curriculum content, teacher expertise, lesson structure, and the social meaning attached to educational achievement. Cai and Cirillo (2014) more recently synthesized the methodological repertoire of cross-national curriculum studies and argued that document-level analysis is most informative when it combines content scope, organizational coherence, and pedagogical orientation as parallel rather than sequential lenses.

Within the Turkish literature, the comparative tradition is increasingly mature. Teke and Durmuş (2023) compared mathematics curricula for Grades 1–8 across Türkiye, Singapore, the USA (North Carolina), Ireland, China (Shanghai), and Germany using a four-element framework (goals, content, teaching–learning process, assessment) and concluded that all six curricula treat problem-solving as a central process, but with markedly different degrees of structural follow-through. Baran Bulut and Özcan Baş (2025) compared geometry and measurement learning content across the USA, Finland, Singapore, and Türkiye, demonstrating that comparable rigor in objective formulation can mask substantial differences in how those objectives are anchored in real-life contexts. Singil and Aykaç (2025) compared teacher education systems in Estonia, Singapore, Japan, and Türkiye and found systematic differences in admission, induction, and in-service training arrangements that mediate how any written curriculum is enacted. Read against this Turkish body of work, the present study makes two specific moves: it focuses on number teaching rather than geometry or general program structure, and it operationalizes the comparison through dimension-level decision rules rather than topic-level matching.

Rationale for Country Selection

The five comparators were chosen because each anchors a recognizable tradition in primary mathematics education that has informed Turkish curriculum debate over the past two decades, and because all five rank above Türkiye on recent international assessments though, as Schmidt et al. (2001) argued, performance alone is not a sufficient reason to compare.

Singapore is the most extensively studied case of representation-intensive curriculum design; its Concrete–Pictorial–Abstract sequence (Leong et al., 2015) makes CPA explicit at the outcome level, which is one of the dimensions CNIF tracks. Dikmen and Yıldırım (2026) identify Türkiye–Singapore as the most direct comparative pairing in the Turkish literature on PISA and TIMSS performance. Finland provides the contrast: phenomenon-based learning, broad competency framing, and assessment through teacher observation rather than standardized testing (FNAE, 2016; Sahlberg, 2011). It is the system most often invoked when SEL integration and assessment diversity are discussed. The USA, through CCSSM (2010), is the most influential English-language attempt to operationalize focus, coherence, and rigor at the standards level; the post-CCSSM literature also provides documented evidence about the gap between written and enacted curriculum (Kane et al., 2016; Polikoff, 2015), which bears on the third research question of this study. China was included for the tight curriculum–textbook–classroom alignment documented by Fan et al. (2015) and for the consistent placement of Chinese systems near the top of TIMSS rankings (Koyuncu & Ilgaz, 2019); the 2022 standards (MOE China, 2022) are the most recent national text. Japan combines a process-oriented account of mathematical activity (MEXT, 2018) with a number-range pace structurally similar to Türkiye's, which makes it the most informative reference for the breadth–depth question.

Two notes on comparability. The curriculum documents used are the most recent official primary-mathematics texts publicly available in each country (years summarized in Table 1). Grade-level comparison is not equivalent to age-level comparison: school starting ages and primary spans vary across the six systems, with Finland the principal exception (compulsory schooling begins at age 7 rather than 6). Table 1 below sets out the parameters needed to read the grade-by-grade comparison in context.

Table 1

Contextual Comparability of the Six Educational Systems

Country / Program	School starting age	Primary span	Age range, Grades 1–4	Curriculum year	Governance type
Türkiye (MoNE, 2024)	6	Grades 1–4	6–10	2024	National
Singapore (CPDD, 2021)	6 (P1)	Grades P1–P6	6–10	2021	National
Finland (FNAE, 2016)	7	Grades 1–6	7–11	2016 (renewed 2020)	National core
USA (CCSSM, 2010)	5–6 (K)	Grades K–5	6–10 (Grades 1–4)	2010	Standards-based
China (MOE China, 2022)	6	Grades 1–6	6–10	2022	National
Japan (MEXT, 2018)	6	Grades 1–6	6–10	2018 (revised 2017)	National

Note. School starting ages reflect typical entry years for the first compulsory primary grade in each system. Age-range alignment indicates that Grades 1–4 in five of the six systems cover the same approximate developmental window (ages 6–10); only Finland starts compulsory schooling one year later. This contextual alignment supports grade-level comparison in Tables 3 and 4, with

Finland's one-year delay considered in the interpretation. Data compiled from official curriculum documents and from comparative reports (OECD, 2023; Mullis et al., 2020).

Table 1 indicates several country-level features that bear on the grade-by-grade comparison reported in Tables 3 and 4. Türkiye operates a national curriculum across Grades 1–4 with the 2024 document as the most recent revision, and children typically enter Grade 1 at age 6. Singapore's Primary Mathematics Syllabus (CPDD, 2021) covers Grades P1–P6 with the same age-6 entry; the program is national and centrally managed by the Ministry of Education. Finland's National Core Curriculum (FNAE, 2016, with the 2020 renewal cycle) defines a national core for Grades 1–6 within which municipalities and schools adapt local implementations; compulsory schooling begins at age 7, which makes Finnish Grade 4 correspond to age 10–11 rather than 9–10 the only structural offset in the comparator set. The United States CCSSM (2010) covers Grades K–5 as standards rather than a national curriculum; states adopt and adapt the standards, which produces variation in the implemented curriculum even when the written standards are identical. China's 2022 Mathematics Curriculum Standards for Compulsory Education (MOE China, 2022) operate as a single national document covering Grades 1–6, with age-6 entry. Japan's Elementary School Teaching Guidelines for Mathematics (MEXT, 2018) similarly cover Grades 1–6 as a national text, also with age-6 entry. With Finland's one-year delay flagged, the five-country alignment on the Grade 1–4 developmental window justifies the grade-by-grade comparison adopted in the analysis.

The Comparative Number Instruction Framework (CNIF): Theoretical Foundations

CNIF builds on Schmidt et al.'s (2001) focus–coherence–rigor triad. To these we add representation intensity, SEL integration level, and assessment diversity. The choice of the three additional dimensions reflects three concerns that the focus–coherence–rigor triad does not address directly: how a curriculum positions representations within outcomes, how it relates content to affective and relational development, and what range of evidence it accepts as showing learning.

Focus, Coherence, and Rigor (Schmidt et al., 2001)

These three dimensions form the analytical core of the TIMSS curriculum framework and have been refined empirically since (Schmidt & Houang, 2012; Valverde et al., 2002). For number teaching they ask three concrete questions: how many number concepts are introduced at each grade, whether successive grades deepen rather than repeat earlier ones, and whether outcomes call for conceptual understanding alongside procedural fluency.

Representation Intensity

This dimension asks how much of the concrete-to-abstract progression is embedded in the outcomes themselves, rather than left for teachers to infer. Bruner's (1966) enactive–iconic–symbolic distinction is the developmental rationale; Lesh et al. (1987) five-representation model adds analytic granularity; and Singapore's CPA tradition (Leong et al., 2015) is the most documented case of a curriculum that codes representations explicitly. Hiebert and Carpenter (1992) make the relevant practical point: conceptual understanding requires connections among representations to be built actively. A curriculum scores high on this dimension when outcomes require students to move between modes, not when representations appear only in framework prose.

SEL Integration Level

This dimension tracks whether SEL components appear at the level of specific outcomes or only in the program's framing prose. CASEL (2020) supplies the operational components (self-awareness, self-management, social awareness, relationship skills, responsible decision-making); Jagers et al. (2019) provide the rationale for distinguishing outcome-level coding from rhetorical placement. Why this matters in number teaching is empirical: mathematics anxiety has known cognitive, emotional, and motivational consequences (Ashcraft, 2002; Hembree, 1990). Addressing affective dimensions at the outcome level rather than leaving them to teacher discretion is a design choice rather than a presentational one.

Assessment Diversity

This dimension captures the range of learning evidence a curriculum envisions for number outcomes. The rationale rests on Black and Wiliam's (1998) work on formative assessment and on Bennett's (2011) clarification that formative assessment is best understood as a process rather than a list of instruments. The fuller assessment-ecology literature (Hargreaves & Shirley, 2009) adds that the repertoire of evidence a curriculum names is itself a systemic feature shaping what "knowing" means in that program. For number teaching, the way understanding is evidenced through worksheets, observation, portfolios, or performance tasks shapes the kind of understanding that gets developed.

These six dimensions can be read in three groupings. Focus, coherence, and rigor describe what is taught and how it is sequenced. Representation intensity and SEL integration describe how content is expected to be taught and what affective scaffolding is built in. Assessment diversity describes how learning is recognized. Table 2 sets out the operational definitions, rating levels, decision rules, and sample indicators.

Table 2

CNIF Dimensions: Definitions, Rating Levels, Decision Rules, and Sample Indicators

Dimension	Definition	Rating levels	Decision rule	Sample indicators (text-level evidence)
Focus	Degree to which the curriculum concentrates on a manageable, prioritized set of number concepts at each grade rather than dispersing across many.	High / Moderate / Limited	High: ≤ 5 thematic number clusters per grade with explicit prioritization; Moderate: 6–8 clusters or implicit prioritization; Limited: > 8 clusters or no prioritization signal.	Number of number-related thematic clusters per grade; presence of explicit "core" markers; ratio of optional to required content.
Coherence	Degree to which number topics develop logically across grades, with later topics presupposing rather than repeating earlier ones.	High / Moderate / Limited	High: each grade-level outcome cites or assumes a prior grade outcome; Moderate: cross-grade links present in framework prose but not at outcome level; Limited: outcomes repeat prior-grade content without progression.	Cross-grade outcome references; spiral structure descriptions; progressive expansion of representational complexity.
Rigor	Degree to which the curriculum expects genuine conceptual depth alongside procedural fluency.	High / Moderate / Limited	High: outcomes explicitly require conceptual understanding and reasoning; Moderate: conceptual requirements present in prose, procedural in outcomes; Limited: outcomes focus on procedural fluency only.	Verbs at the outcome level ("explain," "justify," "connect" vs. "calculate," "solve"); presence of conceptual-procedural pairing within single outcomes. Outcome-level mention of
Representation Intensity	Degree to which the concrete–pictorial–abstract progression is embedded in learning outcomes rather than left to teacher inference.	High / Moderate / Limited	High: outcomes explicitly require students to move between two or more representational modes; Moderate: representation mentioned in framework prose with no outcome-level requirement; Limited: representations absent or implicit.	objects/manipulatives, pictures, models, number lines, symbols; cross-referencing among modes; CPA-type sequencing. Outcome-level SEL tags (e.g., self-awareness, collaboration, responsible decision-making) alongside content outcomes; separation/integration of SEL and content sections.
SEL Integration Level	Degree to which SEL components (CASEL, 2020) are coded structurally at the learning-outcome level rather than rhetorically in program philosophy.	Structural / High-Separate / Rhetorical / Absent	Structural: SEL components cross-coded on specific number outcomes; High-Separate: SEL present as its own competency domain but separate from number outcomes; Rhetorical: SEL appears only in introductory prose; Absent: no SEL reference.	Enumerated assessment instruments; presence/absence of formative-assessment language; ratio of standardized to alternative assessment references.
Assessment Diversity	Range and variety of learning evidence the curriculum envisions for number outcomes.	Wide / Authentic / Moderate / Limited	Wide: ≥ 4 assessment formats specified (e.g., worksheets, performance tasks, portfolios, rubrics, observation); Authentic: teacher observation and student-generated evidence dominant; Moderate: 2–3 formats; Limited: single dominant format (typically standardized test).	

Note. Decision rules were piloted on a single curriculum (Türkiye 2024) before the full coding sweep. Sample indicators were drawn from the piloted text. The four-level rating scheme for SEL Integration and Assessment Diversity (vs. three-level for the Content Architecture cluster) reflects the literature-based requirement to distinguish structural from separate-but-systematic integration (Jagers et al., 2019) and authentic from merely diverse assessment (Bennett, 2011; Hargreaves & Shirley, 2009).

Method

Research Design

The study uses comparative document analysis, a qualitative approach concerned with uncovering patterns and meanings through the systematic examination of existing written materials (Bowen, 2009). Within comparative education, analyzing official curriculum documents against a common set of criteria is an established method for making cross-national comparisons tractable and transparent (Bereday, 1964; Cai & Cirillo, 2014). The documents analyzed here are the official, publicly available curriculum texts of each country not textbooks, teacher guides, or assessment instruments. The methodological choice follows recent Turkish comparative-curriculum work in mathematics education (Baran Bulut & Özcan Baş, 2025; Kuzu et al., 2025; Teke & Durmuş, 2023).

Programs Included in the Analysis

Six curricula were included: the Türkiye Primary School Mathematics Curriculum (MoNE, 2024), the Singapore Mathematics Syllabus Primary (CPDD, 2021), the Finland National Core Curriculum for Basic Education (FNAE, 2016), the USA Common Core State Standards for Mathematics (CCSSM, 2010), the China Mathematics Curriculum Standards for Compulsory Education (MOE China, 2022), and the Japan Elementary School Teaching Guidelines: Mathematics (MEXT, 2018). The contextual parameters for these six systems are summarized in Table 1 above; the rationale for each country's inclusion is developed in the Conceptual Framework section.

The five international comparators were chosen on the basis of the following selection criteria, applied jointly:

- a. Sustained high performance on TIMSS and PISA mathematics scales over the past two decades (Mullis et al., 2020; OECD, 2023);
- b. Theoretical diversity in the underlying mathematics-education tradition (East Asian high-performance pattern; Northern European phenomenon- and competency-based pattern; the standards-based US model);
- c. Documented influence on Turkish curriculum-design debate, evidenced by their recurrence in recent Turkish comparative-curriculum scholarship (Baran Bulut & Özcan Baş, 2025; Dikmen & Yıldırım, 2026; Singil & Aykaç, 2025; Teke & Durmuş, 2023);
- d. Availability of an official, current, English-language (or officially translated) curriculum document covering the primary years (Grade 1 through at least Grade 4); and
- e. Methodological tractability programs whose document architecture allows outcome-level coding, rather than programs presented only as broad framework statements without specifiable learning outcomes.

All five international comparators satisfy the five criteria jointly; the Türkiye 2024 curriculum, as the focal program, was included by definition.

Analytical Dimensions

Each curriculum was analyzed along the six dimensions of the Comparative Number Instruction Framework (CNIF): Focus, Coherence, Rigor, Representation Intensity, SEL Integration Level, and Assessment Diversity. The operational definitions, rating levels, decision rules, and sample indicators for each dimension are detailed in Table 2 above.

Unit of Analysis

The unit of analysis was the curriculum document as a whole, with two nested sub-units: (a) the grade-level outcome list, used for Focus, Coherence, Rigor, and Representation Intensity; and (b) the cross-cutting framework prose (including any cross-program component sections), used for SEL Integration Level and Assessment Diversity. For Focus and Coherence, the analysis additionally examined the cross-grade sequence of number-related outcomes (Grades 1–4 in all six systems). The number-teaching content within each document was identified through three markers: the explicit "Numbers and Operations" (or equivalent) learning domain heading, all learning outcomes whose primary content noun referenced a number concept (counting, place value, operations, fractions, comparison, ordering, estimation), and any cross-program SEL or assessment statements bound to those outcomes.

Coding Procedures and Inter-coder Reliability

Coding proceeded in two stages, with reliability checked after the first. The first stage was framework piloting: the first author drafted the CNIF dimension definitions and decision rules and piloted them on the Türkiye 2024 curriculum. Three rules were refined before the full sweep: the Focus thresholds (clarifying that the 5/8 cut-offs apply to thematic number clusters per grade, not to individual outcomes), the boundary between High-Separate and Rhetorical for SEL Integration (added a requirement that a separate competency domain include at least one number-content cross-reference to count as High-Separate), and the boundary between Wide and Authentic for Assessment Diversity (clarified that Wide refers to the number of formats specified, while Authentic refers to the dominant evidence type when teacher observation and student-generated evidence outweigh test-based evidence).

In the second stage, two coders rated each of the six curricula on each of the six dimensions independently. The first author has prior background in mathematics curriculum analysis; the second coder is a mathematics-education specialist who was not involved in framework development. Each coder applied the decision rules in Table 2 and recorded the text passages cited as evidence for each rating. Coding used the original English-language documents where available (CCSSM, CPDD, MEXT translated edition, FNAE English edition) and the official English translation for the Chinese standards.

Inter-coder agreement was calculated using Cohen's kappa across the 36 rating points (6 curricula $\times$ 6 dimensions). Initial Cohen's κ was .81, with 32 of 36 ratings matching substantial agreement on the Landis and Koch (1977) benchmarks. After discussion, consensus ratings were used for the final analysis (Miles et al., 2014). The four initial disagreements and their resolutions are documented below to make the procedure transparent.

Disagreement 1 Representation Intensity, Türkiye. Coder 1 initially rated High (citing MAT.1.1.1's explicit coding of quantity representations and the cross-referencing of countable objects to symbolic notation in Grade 1 outcomes); Coder 2 initially rated Moderate (citing the lower frequency of explicit cross-modal transitions in Grade 2–4 outcomes relative to Singapore). Resolution: both coders returned to the document, established that MAT.1.1.1 alone meets the High threshold (an outcome that explicitly requires students to move between two or more representational modes), and agreed on High while noting the lower outcome-level density relative to Singapore in the Findings discussion.

Disagreement 2 Representation Intensity, China. Coder 1 initially rated Moderate (citing that representations appear extensively in textbook materials referenced by the 2022 standards but not always at the outcome level of the standards document itself); Coder 2 initially rated High (citing Fan et al., 2015, as evidence that representational cross-referencing is built into Chinese textbook architecture). Resolution: coders agreed to apply the decision rule strictly to the primary curriculum document (excluding textbook-referenced evidence), yielding Moderate. The textbook-architecture point was retained in the Discussion section.

Disagreement 3 Assessment Diversity, USA. Coder 1 initially rated Wide (citing that CCSSM names several assessment formats in the implementation appendices); Coder 2 initially rated Moderate (citing post-CCSSM implementation evidence that standardized testing dominates assessment practice; Kane et al., 2016; Polikoff, 2015). Resolution: coders agreed that the decision rule applies to what the document specifies, not to enacted practice, but that the document itself names only two to three formats consistently, supporting Moderate.

Disagreement 4 Rigor, Finland. Coder 1 initially rated Moderate (citing that Finnish outcomes use broad competency language that does not always specify conceptual depth at the outcome level); Coder 2 initially rated High (citing the program's underlying epistemological commitment to understanding-focused mathematics; FNAE, 2016). Resolution: coders re-examined the outcome-level language and agreed that the conceptual-depth signal is present in Finnish outcomes (verbs such as "understand," "apply," "reason") but at a lower density than in Singapore or Japan, supporting High with that qualifier recorded in the audit trail.

Indicator examples for the three CNIF dimensions developed for this study are provided below to make the operationalization auditable.

Representation Intensity outcome-level indicators include verbs such as "represent," "model," "draw," "show," paired with explicit references to two or more representational modes (e.g., "using countable objects and numerals," "using a number line and a symbolic expression"); the Türkiye MAT.1.1.1 outcome ("recognizes different quantity representations") was coded as meeting the High threshold; the Finnish framework's reference to representations as a general competency without outcome-level binding was coded as Moderate.

SEL Integration Level outcome-level indicators include explicit cross-codes (e.g., a number outcome carrying a parallel CASEL-aligned tag in the same outcome row); Türkiye's Grade 1 number outcomes carry such cross-codes (self-awareness, collaboration, responsible decision-making) and were coded Structural; Singapore's "attitudes" reference in the Framework diagram (CPDD, 2021) was coded Rhetorical; Finland's competency-domain SEL coverage was coded High-Separate; CCSSM was coded Absent on this dimension.

Assessment Diversity outcome-level indicators include named instruments (worksheets, observation forms, performance tasks, portfolios, rubrics, monitoring tests, self-assessment); the Türkiye 2024 curriculum names seven distinct formats in its assessment section and was coded Wide; Singapore's standardized-test centrality was coded Limited; Finland's teacher-observation-centered repertoire was coded Authentic. See Appendix for the final version of the Comparative Number Instruction Framework (CNIF).

Validity and Reliability

Three additional strategies supported the reliability evidence above. Each rating was supported by at least one cited passage from the primary document, and contested ratings were checked against secondary literature on the program in question (e.g., Leong et al., 2015 for Singapore CPA; Fan et al., 2015 for Chinese textbook–curriculum alignment; Kane et al., 2016 and Polikoff, 2015 for CCSSM implementation evidence). An audit trail documenting data sources, decision-rule applications, and rating decisions was maintained throughout to allow the procedure to be inspected and replicated (Lincoln & Guba, 1985; Merriam & Tisdell, 2016). The framework is presented as exploratory: CNIF is a reproducible instrument, but its dimensions will need further validation across a wider range of curriculum contexts before generalizable claims about cross-national patterns are warranted.

Findings

Number Range Distribution by Grade Level

Türkiye's 2024 curriculum opens at the 0–20 range in Grade 1 and reaches six-digit numbers (0–999,999) by the end of Grade 4 (MoNE, 2024). In pace, this most closely resembles Japan, which extends to eight-digit numbers by the same point (MEXT, 2018). Singapore's expansion is markedly more restrained (CPDD, 2021). Finland and the United States cover comparable final ranges but at a pace roughly two years slower (FNAE, 2016; CCSSM, 2010). Table 3 shows the grade-by-grade breakdown across all six programs.

Table 3*Number Range by Grade Level Across Countries*

Country / Program	Grade 1	Grade 2	Grade 3	Grade 4
Türkiye (2024)	0–20	0–100	0–1,000	0–999,999
Singapore (CPDD, 2021)	0–100	0–1,000	0–10,000	0–100,000
Finland (FNAE, 2016)	0–20	0–100	0–1,000	0–10,000
USA CCSSM (2010)	0–20	0–100	0–1,000	0–1,000,000
China (MOE China, 2022)	0–20	0–100	0–10,000	0–1,000,000
Japan (MEXT, 2018)	0–120	0–1,000	0–10,000	0–100,000,000

Note. Data compiled from official curriculum documents of the respective countries. As Table 1 shows, Grades 1–4 in five of the six systems cover the same approximate developmental window (ages 6–10); Finland's Grade 1 begins one year later (age 7). The range comparison should therefore be read with the contextual qualifier that Finland's Grade 4 corresponds to age 10–11 rather than 9–10.

Türkiye's Grade 4 range (0–999,999) places it alongside the USA and Japan, well ahead of Finland and Singapore. The range comparison alone does not, however, indicate quality: Schmidt et al. (2001) made this point explicitly. What counts is whether the curriculum builds the conceptual depth needed for students to work meaningfully within the range a question addressed in the discussion section.

Conceptual Foundation and Multiple Representation Philosophy

In the 2024 curriculum, number is framed primarily through the capacity to represent quantity magnitudes (MoNE, 2024, p. 14). The first Grade 1 learning outcome (MAT.1.1.1) codes the recognition of different quantity representations as a core process skill not as a preliminary activity. This outcome-level coding produced a High rating on Representation Intensity; the full evidence chain is documented in the audit trail.

Singapore's CPA sequence rests on a closely related logic. Leong et al. (2015) documented how the model works empirically bridging students' thinking from physical manipulation to symbolic abstraction in measurable ways. The CPA progression appears in 14 of 18 Grade 1–3 number outcomes in the Singapore syllabus, producing a coded High rating on Representation Intensity. Türkiye's curriculum reinforces a similar approach by encouraging the use of countable objects in classroom settings (MoNE, 2024), though the cross-modal explicitness is documented in fewer specific outcomes than in Singapore. Japan's program takes a parallel course but also incorporates traditional tools such as the soroban into its representational repertoire (MEXT, 2018), producing a coded High rating.

Finland's approach places the emphasis differently: students are expected to construct their own mathematical models, a practice grounded in Yackel and Cobb's (1996) account of sociomathematical norms. The Finnish framework signals representation as a general competency rather than as an outcome-level requirement, producing a coded Moderate rating. Türkiye's inclusion of open-ended tasks, observation forms, and performance-based assessment creates a point of genuine connection with this tradition even if the broader epistemological contexts differ.

Skill Integration: Social-Emotional Learning and Interdisciplinarity

SEL appears at the outcome level only in the Türkiye 2024 curriculum within this comparator set. Every Grade 1 number outcome carries an SEL cross-code self-awareness, collaboration, responsible decision-making (MoNE, 2024). Read against the CASEL (2020) components, this looks like a deliberate design choice rather than an editorial addition. On the SEL Integration Level dimension, the curriculum was coded Structural; none of the other five was.

Singapore and Japan mention attitudes and values in framework prose but make no outcome-level connection (CPDD, 2021; MEXT, 2018); both were coded Rhetorical. China places value education in a separate section, disconnected from number content at the outcome level (MOE China, 2022) Rhetorical-Separate. Finland was coded High-Separate: SEL-related concerns appear as their own competency domain (FNAE, 2016) but do not cross-code individual number outcomes. The USA CCSSM has no SEL standard Absent. The 2024 curriculum also builds cross-subject links into number teaching, connecting it to physical

education, music, and visual arts (MoNE, 2024) consistent with the integrated-curriculum tradition (Beane, 1997). Finland's phenomenon-based learning supports interdisciplinary work (FNAE, 2016), though those connections are framed at the level of broad competency domains rather than at specific outcomes.

Assessment Approaches

On assessment, the 2024 curriculum offers an extensive toolkit: worksheets, matching exercises, monitoring tests, observation forms, portfolios, performance tasks, and scoring rubrics (MoNE, 2024). The range is consistent with the formative assessment tradition (Black & Wiliam, 1998; Bennett, 2011), and the curriculum was coded Wide on the Assessment Diversity dimension.

Singapore's assessment culture is dominated by high-stakes standardized tests a feature that produced a coded Limited rating on this dimension (CPDD, 2021; Deng & Gopinathan, 2016). Finland's program centers teacher observation and student self-assessment with peripheral standardized testing coded Authentic (FNAE, 2016; Sahlberg, 2011). In the United States, CCSSM was coded Moderate: a range of assessment approaches is named, but the dominant practical assessment is standardized testing, with documented downward pressure on the program's conceptual aims (Kane et al., 2016; Polikoff, 2015). China was coded Moderate (textbook-centered assessment with limited formative repertoire) and Japan Moderate (process-observation emphasis but limited assessment-format variety).

Table 4 below summarizes the dimension-level ratings for all six curricula based on the coded text evidence and the decision rules set out in Table 2.

Table 4

Comparative Analysis of Six Country Programs by CNIF Dimensions

Dimension	Türkiye (2024)	Singapore (CPDD, 2021)	Finland (FNAE, 2016)	USA (CCSSM, 2010)	China (MOE, 2022)	Japan (MEXT, 2018)
Focus	Number, SEL & interdisciplinary connections	Number + problem-solving framework	Competency + phenomenon-based integration	Standards-focused, single discipline	Number system + mathematical thinking	Mathematical activity process
Coherence	High: spiral + SEL outcome-aligned	High: CPA–problem solving spiral	High: coherent competency domains	Moderate: gaps across standards	High: progressive conceptual spiral	High: mathematical activity spiral
Rigor	Conceptual + procedural + SEL triad	High: conceptualization first	High: understanding-focused	Moderate: standard attainment emphasis	High: conceptual–procedural balance	High: mathematical thinking
Representation Intensity	High: multiple representations at outcome level	High: CPA systematic	Moderate: student generates own models	Moderate: implied in standards	Moderate: textbook-referenced	High: concrete materials + number line
SEL Integration Level	Structural: coded at outcome level	Rhetorical: implicit in program notes	High-Separate: competency domain	Absent (no SEL standard)	Rhetorical-Separate: value education separate	Rhetorical: attitude/interest implicit
Assessment Diversity	Wide: portfolio, performance task, rubric	Limited: standardized test emphasis	Authentic: teacher observation + self-assessment	Moderate: high test pressure	Moderate: textbook-centered	Moderate: process observation emphasis

Note. Ratings derived through the two-coder procedure described in the Method section. Initial Cohen's κ was .81; remaining disagreements were resolved through discussion, and the consensus ratings reported here were used for the final analysis. Rating levels per dimension are defined in Table 2. Ratings reflect outcome-level evidence in the primary curriculum documents; secondary literature was consulted only to verify contested ratings.

Three patterns are worth noting in Table 4. On focus, coherence, and rigor, the six curricula cluster fairly closely most score High so this triad is more a baseline expectation than a discriminator within the comparator set. On representation intensity and SEL integration the curricula diverge: Singapore's CPA progression is the most consistently outcome-coded case, and the 2024 Türkiye program is the one case here where SEL is coded at the outcome level. On assessment diversity the pattern flips Türkiye and Finland are above the East Asian programs, with the USA in the middle. The combination of these three patterns places the 2024 curriculum in an unusual position within this comparator set, which is what the Discussion section takes up.

Discussion

Reading the findings requires a separation between what the documents themselves show, what the cross-program comparison suggests, and what wider inferences can be drawn from either. The three are easily run together, and the evidence base behind them is not the same.

What the Documents Show

Four observations rest on the coded text alone. SEL components are cross-coded on individual number outcomes in the 2024 Türkiye curriculum (e.g., Grade 1 outcome MAT.1.1.1 with self-awareness); the other five curricula either keep SEL in framework prose (Singapore, Japan), in a separate value-education section (China), as a parallel competency domain (Finland), or do not include it (USA, CCSSM). The Türkiye number range reaches 0–999,999 by the end of Grade 4 comparable to the USA and Japan, ahead of Singapore and Finland. The assessment toolkit names at least seven instruments, placing the curriculum on the wide end of the Assessment Diversity dimension. Representation is coded at the outcome level (MAT.1.1.1), but with fewer cross-modal requirements than Singapore's CPA progression.

What the Cross-Program Comparison Suggests

The number-range pace is the most obvious point to think about. Reaching six-digit numbers by Grade 4 is not inherently problematic Japan does it but it puts pressure on the curriculum's conceptual scaffolding. The classic failure mode Schmidt et al. (2001) described, a mile wide and an inch deep, becomes a real possibility when range expansion outruns conceptual support. Bruner's (1960) spiral logic and Sweller's (1988) cognitive-load argument converge on the same point from different directions: a wide range is defensible only if topics are revisited with deepening conceptual treatment and if extraneous cognitive load is reduced through concrete materials and number-line scaffolds. The Singapore comparison is informative. Singapore keeps Grade 2 within 0–1,000, far narrower than Türkiye at the same level, but pursues that range with very high conceptual density. The performance gap between the two systems is not a range gap; it is the density of conceptual support within the range (CPDD, 2021; Schmidt et al., 2001).

On SEL, the distinction worth holding is the one between coding SEL on specific outcomes and placing SEL in program prose. The 2024 Türkiye curriculum does the first; the four other programs that mention SEL at all do the second, in different ways. Whether outcome-level coding actually changes what happens in classrooms is a separate, empirical question and one this study cannot answer.

The representational logic of the 2024 curriculum is consistent with Bruner (1966) and with Hiebert and Carpenter's (1992) account of conceptual understanding. The practical question is whether textbooks and teaching guides provide the concrete materials and pictorial representations the philosophy assumes. Singapore's CPA experience suggests the answer matters: Leong et al. (2015) and Fan et al. (2015) both find that the approach works only when the instructional materials embed it, not when curriculum documents simply assert it. Baran Bulut and Özcan Baş (2025) reached a similar conclusion comparing geometry and measurement content across the USA, Finland, Singapore, and Türkiye the integration of mathematical content with real-life contexts was markedly stronger in the first three than in Türkiye.

China is worth a separate note. Fan et al. (2015) analyzed Chinese mathematics textbooks and found that the conceptual bridges between grades are made explicit in the texts themselves, not left for teachers to construct. Koyuncu and Ilgaz (2019), in their TIMSS 2015 efficiency analysis, ranked Chinese Taipei, Japan, and South Korea highest in converting educational inputs into mathematics achievement. The pattern is consistent with what Chinese curriculum studies report: high performance traces in significant part to the tightness of the alignment among curriculum, textbook, and classroom not to the demanding content alone. The practical implication for Türkiye is concrete: the conceptual spiral needs to be visible in teaching materials, not just in the curriculum document.

The wide assessment toolkit is consistent with the formative-assessment literature (Black & Wiliam, 1998; Bennett, 2011). A broad toolkit is not, however, the same thing as a functioning assessment culture. Teachers need the capacity to use the instruments and the bureaucratic space to actually do so. International

experience is sobering: where assessment diversity exists on paper but standardized tests dominate in practice, the richer repertoire tends to atrophy (Hargreaves & Shirley, 2009; Kane et al., 2016; Polikoff, 2015).

Where We Are More Cautious

At a wider level of inference, the 2024 curriculum may combine design choices common in different curricular traditions: a coherence-oriented structure and a paced number-range trajectory more often seen in East Asian programs, with broader assessment and explicit attention to social-emotional development more visible in Northern European ones. This is a description of design features, not a claim about implementation. Whether it amounts to a synthesis, a convergence on globalizing curriculum patterns, or a surface expression of the Maarif Model's distinct epistemological position is not something document analysis alone can settle. Yurdakal (2024) notes that the model's foundational architecture is theoretically dense but bibliographically light; Uludağ Kırçıl and Uluçınar Sağır (2025) find that practicing first-grade teachers do not always experience the architecture as legible. A program that gathers elements from multiple traditions at the design level is not, on that ground alone, a synthesis at the implementation level.

Implementation Risks

Three risks recur in the document analysis and in the recent Turkish field studies. They are connected rather than independent, and naming them does not require strong claims.

The first is measurability. Coding SEL at the outcome level is a substantive design decision, but the curriculum does not yet supply the tools to act on it no performance indicators, no rubric-based behavioral descriptors, no standardized observation protocols. Without these, teachers cannot reliably evidence whether an SEL component has been demonstrated alongside a number learning outcome (Jagers et al., 2019; Jennings & Greenberg, 2009). Uludağ Kırçıl and Uluçınar Sağır's (2025) finding that first-grade teachers experience difficulty in distinguishing cross-program components from related elements is consistent with this gap.

The second concerns the number-range expansion. Under real time and textbook constraints, six-digit numbers in Grade 4 may end up being handled procedurally rather than conceptually. The design itself does not force this Kuzu et al. (2025) note that the four arithmetic operations are introduced through estimation and mental computation before procedural presentation in Grades 3–4, exactly the kind of move that supports conceptual anchoring. The question is whether textbooks and teaching materials carry the design intent through. Göçer and Kuzu (2025) found that mathematical reasoning and data-related skills receive lighter treatment than the technology-and-tools skill at the primary level, which leaves the conceptual side of the range expansion underdeveloped relative to its computational side.

The third concerns teacher capacity. The curriculum asks teachers to deliver SEL integration, multiple representation, and formative assessment simultaneously. The Turkish field literature now provides direct evidence on what this asks. Yılmaz et al. (2025), interviewing thirty middle-school mathematics teachers, find that the program's vision is endorsed but implementation is constrained by crowded classrooms, time pressure, adaptation difficulties, and insufficient guidance the same cluster that the international literature identifies as obstacles to ambitious curriculum reform (Hargreaves & Shirley, 2009). Uludağ Kırçıl and Uluçınar Sağır (2025) report that the in-service training, although delivered, was not viewed as adequate. Singil and Aykaç (2025) document the structural differences in teacher preparation between Türkiye and Estonia, Singapore, and Japan that mediate how any written curriculum is enacted.

Türkiye's structural context adds a further pressure. The centralized examination system the LGS in particular pulls classroom assessment toward test preparation regardless of what the written curriculum prescribes. This dynamic is not specifically Turkish: the United States encountered a closely related problem after CCSSM (Kane et al., 2016; Polikoff, 2015). The curriculum's formative-assessment claims are likely to stay aspirational unless this tension is addressed.

Recommendations

Three practical recommendations follow, drawn together rather than separated. Teacher preparation needs to address the program's conceptual architecture in practice multiple representation and SEL

integration in particular and the in-service training programs need to be aligned with what the field studies (Uludağ Kırçıl & Uluçınar Sağır, 2025; Yılmaz et al., 2025) and the comparative literature on teacher preparation (Singil & Aykaç, 2025) suggest is missing. In Grades 3 and 4, where the number range expands most steeply, the support materials need to make the spiral curriculum principle visible and usable; the Chinese model of explicit cross-grade bridges in textbooks themselves (Fan et al., 2015) is one concrete direction. And for the formative-assessment toolkit to work in actual classrooms, the wider context school management, inspection, the LGS examination likely needs adjustment, on the evidence of comparable post-CCSSM experience (Kane et al., 2016; Polikoff, 2015). Longitudinal implementation studies, designed in from the start, would make it possible to evaluate the reform rather than to speculate about it.

Limitations

The study relies on curriculum documents alone the written curriculum. It does not extend to the implemented curriculum (what is taught) or the experienced curriculum (what students learn). The gap between these three layers is documented in the implementation literature and cannot be inferred from document analysis. Classroom observation studies and student-artefact research are the logical next step. Four further limits should be noted. The comparator set is restricted to five international programs; broader inclusion (e.g., South Korea, Estonia, Australia) would test whether the patterns reported here generalize. CNIF's decision rules, although piloted and reliability-checked, are first-generation; the rating scheme retains a subjective element at the rating boundaries, which is why initial inter-coder agreement ($\kappa = .81$) and the documented discussion-based consensus procedure rather than reliability at any single point are the relevant indicators of the procedure's trustworthiness, and why decision-rule revision should be expected in subsequent applications. The 36 rating points generated by six curricula $\times$ six dimensions is sufficient to test the framework's reliability within this comparator set but small relative to what broader cross-national use would require. And the analysis treats curriculum documents as static; the dynamic relationship among curriculum, textbook, and classroom practice which Fan et al. (2015) showed is decisive in the Chinese case is not examined directly here.

Conclusion

The 2024 Primary School Mathematics Curriculum, read against five international comparators, is an ambitious and theoretically grounded document with several specific points of vulnerability at the implementation layer. The study contributes three concepts to comparative-curriculum analysis. Outcome-Level SEL Coding offers a way to distinguish SEL coded on specific outcomes from SEL placed in framework prose; the 2024 curriculum is the only case in the comparator set examined here that uses the first form. The Breadth–Depth Tension frames the relationship between number-range expansion and conceptual depth, and locates the resolution not in adjusting the range itself but in strengthening conceptual support within the range. The Comparative Number Instruction Framework (CNIF) extending Schmidt et al.'s (2001) focus–coherence–rigor triad with representation intensity, SEL integration, and assessment diversity is offered as an exploratory tool whose dimensions need empirical validation across a wider range of curriculum contexts before broader claims about cross-national patterns are warranted.

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Ethics Approval and Consent to Participate

This study is based on a comparative document analysis of publicly available official curriculum documents; therefore, ethics committee approval and participant consent were not required.

Declaration of AI Usage Statement

The AI tool was utilized solely for language editing and proofreading purposes. All AI-assisted outputs were carefully reviewed, verified, and revised by the authors in accordance with accepted ethical and academic standards. The AI tools are not credited as authors; the author is solely responsible for the content of the published article.

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Appendix

The Comparative Number Instruction Framework (CNIF): Final Form

Purpose and Use of the Instrument

This tool serves as a structured assessment method for comparing primary mathematics curriculum documents across six dimensions of number teaching. Individuals who wish to conduct a comparative analysis of curricula can utilize the scoring template provided.

Points will be awarded as follows: a total of 20 points can be calculated out of 20 points. Each dimension is rated independently using the rating levels specified in the dimension table below (see Table A1). The point values associated with each rating level are listed in the Scoring Key (see Table A2). The total CNIF score for a curriculum is the sum of the six dimension-level scores.

Note. To ensure that international researchers can clearly see and use this assessment/implementation tool without errors, the final format showing the structural order followed in the present study is included here as an appendix.

How to Use the CNIF Form

Step 1. Identify the curriculum document. Use the official, publicly available primary mathematics curriculum text of the country or program under analysis (most recent edition).

Step 2. Locate the unit of analysis. Within the document, identify (a) the grade-level outcome list and (b) the cross-cutting framework prose, including any cross-program component sections. Use (a) for Focus, Coherence, Rigor, and Representation Intensity; use (b) for SEL Integration Level and Assessment Diversity.

Step 3. Apply the decision rules. For each of the six dimensions, locate the text passages relevant to the dimension, apply the decision rule specified in the dimension table below, and assign a rating level. Record the cited text passage in the audit-trail column.

Step 4. Convert ratings to points. Use the Scoring Key to convert each rating to a numeric value, and sum the six values to obtain the curriculum's total CNIF score.

Step 5. Inter-coder reliability (recommended). Where the framework is used in research, ratings should be performed by at least two independent coders. Initial Cohen's κ (across the rating points generated by the application) should be reported, and disagreements should be resolved through discussion before the consensus ratings are used for the final analysis.

Table A1

CNIF Dimensions: Definitions, Rating Levels, Decision Rules, and Indicators

Dimension	Definition	Rating levels	Decision rule	Sample indicators (text-level evidence)
Focus	Degree to which the curriculum concentrates on a manageable, prioritized set of number concepts at each grade rather than dispersing across many.	High / Moderate / Limited	High: ≤ 5 thematic number clusters per grade with explicit prioritization. Moderate: 6–8 clusters or implicit prioritization. Limited: > 8 clusters or no prioritization signal.	Number of number-related thematic clusters per grade; presence of explicit "core" markers; ratio of optional to required content.

Coherence	Degree to which number topics develop logically across grades, with later topics presupposing rather than repeating earlier ones.	High / Moderate / Limited	High: each grade-level outcome cites or assumes a prior grade outcome. Moderate: cross-grade links present in framework prose but not at outcome level. Limited: outcomes repeat prior-grade content without progression. High: outcomes explicitly require conceptual understanding and reasoning. Moderate: conceptual requirements present in prose, procedural in outcomes. Limited: outcomes focus on procedural fluency only. High: outcomes explicitly require students to move between two or more representational modes. Moderate: representation mentioned in framework prose with no outcome-level requirement. Limited: representations absent or implicit.	Cross-grade outcome references; spiral structure descriptions; progressive expansion of representational complexity.
Rigor	Degree to which the curriculum expects genuine conceptual depth alongside procedural fluency.	High / Moderate / Limited	High: outcomes explicitly require conceptual understanding and reasoning. Moderate: conceptual requirements present in prose, procedural in outcomes. Limited: outcomes focus on procedural fluency only. High: outcomes explicitly require students to move between two or more representational modes. Moderate: representation mentioned in framework prose with no outcome-level requirement. Limited: representations absent or implicit.	Verbs at the outcome level ("explain," "justify," "connect" vs. "calculate," "solve"); presence of conceptual-procedural pairing within single outcomes.
Representation Intensity	Degree to which the concrete–pictorial–abstract progression is embedded in learning outcomes rather than left to teacher inference.	High / Moderate / Limited	Structural: SEL components cross-coded on specific number outcomes. High-Separate: SEL present as its own competency domain but separate from number outcomes. Rhetorical: SEL appears only in introductory prose. Absent: no SEL reference.	Outcome-level mention of objects/manipulatives, pictures, models, number lines, symbols; cross-referencing among modes; CPA-type sequencing.
SEL Integration Level	Degree to which SEL components (CASEL, 2020) are coded structurally at the learning-outcome level rather than rhetorically in program philosophy.	Structural / High-Separate / Rhetorical / Absent	Wide: ≥ 4 assessment formats specified. Authentic: teacher observation and student-generated evidence dominant. Moderate: 2–3 formats. Limited: single dominant format (typically standardized test).	Outcome-level SEL tags (e.g., self-awareness, collaboration, responsible decision-making) alongside content outcomes; separation/integration of SEL and content sections.
Assessment Diversity	Range and variety of learning evidence the curriculum envisions for number outcomes.	Wide / Authentic / Moderate / Limited		Enumerated assessment instruments; presence/absence of formative-assessment language; ratio of standardized to alternative assessment references.

Scoring Key

Each rating is assigned a point value as follows. The total CNIF score for a curriculum is the sum of the six dimension-level scores. Maximum total = 20 points; minimum = 6 points.

Table A2

Scoring Key

Dimension	Rating level	Points
Focus	High	3
Focus	Moderate	2
Focus	Limited	1
Coherence	High	3
Coherence	Moderate	2
Coherence	Limited	1
Rigor	High	3
Rigor	Moderate	2
Rigor	Limited	1
Representation Intensity	High	3
Representation Intensity	Moderate	2
Representation Intensity	Limited	1
SEL Integration Level	Structural	4
SEL Integration Level	High-Separate	3
SEL Integration Level	Rhetorical (or Rhetorical-Separate)	2
SEL Integration Level	Absent	1
Assessment Diversity	Wide	4
Assessment Diversity	Authentic	3
Assessment Diversity	Moderate	2
Assessment Diversity	Limited	1

CNIF Application Form

Researchers and educators applying CNIF to a curriculum may use the blank template below (see Table A3). One template per curriculum is recommended.

Table A3

CNIF Application Form

Dimension	Assigned rating	Points	Cited text evidence (audit trail)
Focus			
Coherence			
Rigor			
Representation Intensity			
SEL Integration Level			
Assessment Diversity			

Curriculum Identification Card

The following identification information should be recorded for each curriculum analyzed using CNIF (see Table A4).

Table A4

Curriculum Identification Card

Country / Program name
Curriculum document title
Issuing body / publisher
Curriculum document year
Grade range covered
Language / translation source
Coder name(s)
Date of analysis
Inter-coder reliability (initial κ)
Notes on disagreement resolution

A Comparative Analysis of the Social Studies Curricula of Türkiye and Singapore

Türkiye ve Singapur Sosyal Bilgiler Öğretim Programlarının Karşılaştırmalı Analizi

Büşra Elçiçeği¹

Keywords	Abstract
Türkiye	The purpose of Social Studies curricula is to develop effective and responsible citizens. The program's initial implementation in the United States was driven by the objective of fostering a shared purpose among individuals from diverse religious affiliations, racial and ethnic backgrounds, and socio-cultural histories, thereby facilitating harmonious coexistence. While this educational program is taught as a distinct discipline in countries like the USA, Türkiye and Singapore, it is incorporated within history, geography, or citizenship education in countries such as France, Germany, and the UK. This study provides a comparative analysis of the Social Studies programs in Türkiye and Singapore, focusing on the 2023 program in Türkiye and the 2020 program in Singapore. This research was conducted using qualitative methodology. The data was collected through a meticulous analysis of pertinent documents, and the findings were subsequently analyzed using descriptive analysis. The findings suggest that the educational program of Singapore encompasses a philosophy of education, complemented by seven skills and values that are integral to the curriculum. In contrast, the Turkish social studies curriculum lacks a clearly defined educational philosophy and instead provides general statements that outline the curriculum's perspective. The objectives of the Singaporean program are categorized under three main headings with 13 goals, whereas Türkiye's program has 18 objectives. The Singaporean program delineates the philosophy of the course, its objectives, the recommended pedagogy, and assessment mechanisms. In contrast, the Turkish Social Studies program encompasses competencies, general values and skills, descriptions, and details such as general program objectives and perspectives. The Social Studies curricula of Singapore and Türkiye reflect their national priorities and cultural contexts. Türkiye focuses on national identity and historical awareness, while Singapore emphasizes multiculturalism and global citizenship. Both aim to foster critical thinking, problem-solving and responsibility, but their values and focus areas vary.
Singapore	
Social studies	
Curricula	
Comparative education	
Anahtar Sözcükler	Öz
Türkiye	Sosyal Bilgiler öğretim programlarının amacı, etkili ve sorumlu vatandaşlar yetiştirmektir. Programın Amerika Birleşik Devletleri'ndeki ilk uygulaması, farklı dini inançlara, ırksal ve etnik kökenlere ve sosyo-kültürel geçmişlere sahip bireyler arasında ortak bir amaç geliştirme ve böylece uyumlu bir arada yaşamı kolaylaştırma hedefiyle gerçekleştirilmiştir. Bu eğitim programı ABD, Türkiye ve Singapur gibi ülkelerde ayrı bir disiplin olarak öğretilirken, Fransa, Almanya ve İngiltere gibi ülkelerde tarih, coğrafya veya vatandaşlık gibi derslerin öğretim programları içerisinde yer almaktadır. Bu çalışma, Türkiye'deki 2023 Sosyal Bilgiler Dersi Öğretim Programı ile Singapur'daki 2020 Sosyal Bilgiler Öğretim Programının karşılaştırmalı analizini sunmaktadır. Araştırma nitel yöntem kullanılarak yürütülmüş, veriler ilgili belgelerin ayrıntılı biçimde incelenmesiyle toplanmış ve elde edilen bulgular betimsel analiz yöntemiyle değerlendirilmiştir. Bulgular, Singapur eğitim programının, öğretim programının ayrılmaz bir parçasını oluşturan yedi beceri ve değerlerle desteklenen bir eğitim felsefesine sahip olduğunu göstermektedir. Buna karşılık, Türk sosyal bilgiler müfredatında açıkça tanımlanmış bir eğitim felsefesi yer almamakta, bunun yerine müfredatın bakış açısını özetleyen genel ifadeler sunmaktadır. Singapur programı; eğitim felsefesi, amaçları (13 hedef), önerilen öğretim yaklaşımı ve ölçme-değerlendirme mekanizmaları olmak üzere üç ana başlık altında yapılandırılmıştır. Ayrıca program 27 beceri ve 18 değeri içermektedir. Buna karşılık, Türkiye Sosyal Bilgiler programı; yeterlikler, genel amaçlar, değerler ve beceriler, açıklamalar ile genel program amaçları ve bakış açıları gibi ayrıntıları içermektedir. Singapur ve Türkiye Sosyal Bilgiler öğretim programları, kendi ulusal önceliklerini ve kültürel bağlamlarını yansıtmaktadır. Her iki program da eleştirel düşünme, problem çözme ve sorumluluk geliştirmeyi amaçlamaktadır; ancak benimsedikleri değerler ve odaklandıkları alanlar farklılık göstermektedir.
Singapur	
Sosyal bilgiler	
Öğretim programı	
Karşılaştırmalı eğitim	

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Introduction

In ancient times, subjects taught in schools such as history (China, Israel, Rome), geography (Rome), law (Rome), and citizenship (Israel) are related to the disciplines included in the social studies curriculum (Sönmez, 2005). During the Middle Ages, courses related to social sciences acquired religious content due to the influence of religion (Moffatt, 1957; Sönmez, 2005). The French thinker Condorcet was the first to advocate for the inclusion of a course under the name “social studies” at the primary and secondary education levels (Sönmez, 2005; Sözer, 2008; Turan & Ulusoy, 2010). Social studies, as a subject, was first incorporated into school programs in the United States in 1916 under the influence of the progressive movement, with the aim of “educating citizens for a democratic society” (Moffatt, 1957; Sönmez, 2005).

In 1916, the National Education Association (NEA) Commission on the Reorganization of Secondary Education published a report to define the scope of social studies programs in secondary education. This report recommended the integration of individual disciplines such as history, geography, citizenship, and economics under the concept of “Social Studies” in the curriculum (Schug & Beery, 1987). Subsequently, in 1921, the National Council for the Social Studies (NCSS) was officially established and standardized the concept of social studies within the American education system (Naylor & Diem, 1987). According to the NCSS definition (1990), social studies is an interdisciplinary field that draws upon disciplines such as anthropology, archaeology, economics, geography, history, law, philosophy, political science, psychology, religion, and sociology, while also integrating relevant knowledge from the humanities, mathematics, and natural sciences to promote civic competence (Evans & Brueckner, 1990).

Social studies is a multidisciplinary field that integrates concepts from social and human sciences to develop citizenship skills in key social areas (Barth, 1991). It is considered the most comprehensive subject among all school courses (Ross et al, 2013). It has been defined as the study of all human endeavors across time and space (Stanley & Nelson, 1986). The multidisciplinary nature of social studies provides a theoretical framework that enables students not only to acquire knowledge but also to develop critical thinking, problem-solving, and the ability to connect social phenomena (Barth, 1991; Stanley & Nelson, 1986).

Looking at the development of social studies in the United States, history initially dominated the program content (Doolittle & Hicks, 2003). In parallel with societal developments, the content of social studies diversified. In the first report published by the NEA in 1916, social studies focused on “institutions, human societal development, and the individual as a member of social groups,” aiming to educate “good citizens” (Doolittle & Hicks, 2003). Since its inception in the United States, the primary objective of social studies has been to cultivate responsible citizens (Altay, 2021; Barth, 1991; Evans & Brueckner, 1990; Doolittle & Hicks, 2003; Kan, 2010; Sağdıç, 2019; Öngören, 2022).

In Türkiye, the historical roots of social studies education date back to the late Ottoman period, although the course was not yet formally identified under the name “social studies” (Öztürk, 2009). During the final years of the Ottoman Empire, courses related to history, geography, citizenship, and morality were taught in primary schools affiliated with the Ministry of Education, reflecting the early foundations of social studies education (Akdağ & Kaymakçı, 2011). Following the establishment of the Republic of Türkiye, the first national curriculum implemented in 1924 included courses such as History, Geography, Musahabat-ı Ahlakiye, and Malumat-ı Vataniye. Through these subjects, which incorporated the disciplinary foundations of social studies, the curriculum aimed to strengthen national consciousness, citizenship awareness, and patriotic values among students (Akpınar & Kaymakçı, 2012). Social studies was later formally introduced into the Turkish curriculum in 1968 as an interdisciplinary course under the name “Social Studies” (Sönmez, 2005; Öztürk, 2009).

The historical development of social studies and its citizenship-oriented objective necessitate the examination of educational programs across various countries and a comparative evaluation of these programs. Comparative education is a field that studies education systems across societies, countries, regions, and historical periods, identifying similarities and differences either holistically or in specific aspects, to inform educational theory and practice, policy, planning, reforms, international relations, and the promotion of peace (Ergün, 1985). Comparative education intersects social sciences, education, and international studies and is regarded as an interdisciplinary field (Noah & Eckstein, 1969; Trethewey, 1976).

The process of globalization has added a new dimension to comparative education, influencing its development (Marginson & Mollis, 1999). Scientific, cultural, and political reasons have further increased its importance. Organizations such as UNESCO, OECD, and the World Bank have contributed to establishing international educational networks. Countries around the world are ranked and classified based on common evaluation criteria, aiming to provide solutions to shared educational challenges or produce alternatives. These include financial issues, selection and placement procedures, centralization versus localization, public versus private education, and quality improvement. Furthermore, in the context of globalization, educational policies in national curricula have increasingly adopted innovative approaches based on quality, equity, and social participation, meaning that examining the curricula of leading countries provides essential guidance for other nations (Shalimov, 1997).

Program evaluations are conducted to identify areas where the existing program is insufficient or ineffective and to propose necessary improvements. Furthermore, comparing a program with those of other countries is essential to reveal its strengths and weaknesses; therefore, analyzing and comparing the social studies curricula of other countries with that of Türkiye is crucial for enhancing the quality of national curricula (Altay, 2021).

In the literature, Öztürk & Öztürk (2013) compared the social studies curricula of Canada and Türkiye in terms of grade levels, learning areas, distribution of learning areas across grades, program objectives, and the number of learning outcomes, revealing differences. For example, the Turkish curriculum emphasizes national and historical consciousness, while the Canadian curriculum prioritizes developing students' critical thinking and problem-solving skills. Similarly, the distribution of learning outcomes and content intensity varies by grade level. Osmanoğlu (2014) examined Ottoman representations in 6th and 7th-grade textbooks in Egypt and Türkiye and found that Turkish textbooks were more neutral. Metin, Uygun & Oran (2017) compared the curricula of social studies and the Turkish Revolution History and Atatürk's Principles course in Türkiye with equivalent courses in Azerbaijan and Turkmenistan, analyzing objectives, content, teaching-learning processes, and assessment methods, highlighting similarities and differences. Turkish educational programs emphasize national consciousness and Atatürk's principles, while Azerbaijani and Turkmen programs prioritize history and cultural heritage differently. Differences in content coverage, teaching methods, and assessment tools were also observed. Karauğuz & Özkara (2018) compared social studies curricula of Türkiye, the Czech Republic, England, Ireland, Singapore, and the USA concerning ancient history elements, finding that Türkiye, the Czech Republic, and England focus on local perspectives, while Ireland, Singapore, and the USA adopt a more universal approach. Ilgaz & Çaykesen (2019) compared geography topics in Turkish and Azerbaijani 7th-grade social studies textbooks, noting that geography topics are more comprehensively addressed in Türkiye, which facilitates understanding.

In the contemporary social studies education paradigm, there is an emphasis on cultivating competencies deemed essential for success in the 21st century, such as critical thinking, digital literacy, media literacy, and global citizenship (Ross et al., 2013). The latest updates to the Turkish social studies curriculum aim to foster gender equality, cultural diversity, and democratic awareness, although some learning outcomes are not yet fully implemented in practice (Tokmak et al., 2023). Internationally, social studies curricula in Singapore and the USA aim to develop students' problem-solving and reflective thinking skills through project-based learning, discussions, and inquiry-based pedagogies (Nanthawong, 2024; Rapoport, 2021). Singapore's educational success has drawn attention in the international literature to the structure of its social studies curriculum; furthermore, OECD reports emphasize that curricula in different countries should be designed to foster sensitivity to global issues (OECD, 2021).

Assessment tools such as the Program for International Student Assessment (PISA) and the Trends in International Mathematics and Science Study (TIMSS) measure student achievement. According to the 2018 PISA report, the top-performing countries in reading and mathematics were China, Singapore, Macao (China), Hong Kong (China), and Estonia. Based on PISA 2012 and 2018 data, Singapore ranks among the world's highest-performing education systems (OECD, 2014; 2019).

Although previous studies have examined social studies curricula in different countries in terms of various dimensions such as content, objectives, values, and learning outcomes (Öztürk & Öztürk, 2013; Osmanoğlu, 2014; Metin et al., 2017; Karauğuz & Özkara, 2018; Ilgaz & Çaykesen, 2019), these studies have

generally focused on limited aspects or specific country comparisons. In particular, there is a lack of comprehensive and up-to-date comparative research that simultaneously evaluates the 2023 Turkish Social Studies Curriculum and the 2020 Singapore Social Studies Curriculum in terms of educational philosophy, pedagogical structure, and holistic curriculum components. Therefore, this study aims to fill this gap by providing a systematic and multidimensional comparison of these two curricula. In this respect, the present study contributes to the existing literature by offering a comprehensive framework that integrates content, skills, values, assessment approaches, and pedagogical orientations while also providing insights for curriculum development and comparative education research.

The increasing number of comparative education studies is important for providing sustainable solutions to common educational challenges worldwide. Insights from different countries' approaches can guide other nation-states. Comparative education studies do not necessarily require a problem; sometimes, examining curricula, education systems, and textbooks in different countries is crucial for improving and enriching local education systems. Consequently, the present study conducts a comparative analysis of the social studies curricula in Singapore and Türkiye due to Singapore's educational success. The main research problem is formulated as follows: "What are the similarities and differences between the social studies curricula of Singapore and Türkiye?"

Based on the main research problem, the following sub-problems are addressed:

1. What are the similarities and differences between the content knowledge of Singaporean and Turkish social studies curricula?
2. What are the underlying educational philosophies of the Singaporean and Turkish social studies curricula?
3. What are the similarities and differences in the objectives of the Singaporean and Turkish social studies curricula?
4. What are the similarities and differences in the skills emphasized in the Singaporean and Turkish social studies curricula?
5. What are the similarities and differences in the values addressed in the Singaporean and Turkish social studies curricula?
6. What are the similarities and differences in the learning domains included in the Singaporean and Turkish social studies curricula?
7. What are the similarities and differences in the assessment and evaluation approaches of the Singaporean and Turkish social studies curricula?
8. What are the detailed curriculum contents and recommended pedagogical approaches in the Singaporean social studies curriculum?
9. What are the key considerations in implementing the Turkish social studies curriculum in practice?

Method

This study was conducted using a descriptive research design, one of the qualitative research methods. Descriptive research involves analyzing data based on pre-determined themes. The purpose of this analysis is to organize and interpret the findings. This study followed a process that included establishing a thematic framework, processing data according to this framework, identifying findings, and interpreting them (Yıldırım & Şimşek, 2021). The study comparatively examined the social studies curricula of Türkiye and Singapore. The study aimed to compare the social studies curriculum implemented in Singapore since 2020 with the Turkish social studies curriculum implemented from 2023 in terms of content knowledge, educational philosophy, objectives, skills, values, learning domains, assessment and evaluation approaches, curriculum usage, recommended pedagogy, and practical considerations.

Data Collection

In accordance with the research design, document analysis was used to collect the data. Document analysis is a qualitative research technique that seeks answers to research questions through systematic examination and interpretation of written materials (Bowen, 2009). The technique was preferred because it allows systematic collection, review, and evaluation of official and private records (Ekiz, 2003). Following the document analysis, a comparative education approach was applied to compare the findings from both countries. The comparison process employed a horizontal approach, where the educational dimensions of each country under investigation were examined side by side for the same time periods to identify similarities and differences (Ültanır, 2000).

Purposeful sampling was used to conduct an in-depth investigation from a holistic perspective. The 2020 Singaporean and 2023 Turkish social studies curricula were selected as data sources due to their recency and official status. The curricula examined were updated in 2020 for Singapore and 2023 for Türkiye. Specifically, the Turkish social studies curriculum for the second stage of primary education (grades 4, 5, 6, 7) and the Singaporean social studies curriculum for the first and second stages of primary education (grades 3, 4, 5, 6, 7, and 8) were included. In the first phase, the relevant documents were accessed through the official ministry websites of both countries. For Türkiye, the data were retrieved from www.meb.gov.tr using the keywords "Social studies curriculum 2023." For Singapore, the data were obtained from www.moe.gov.sg using the keywords "Social studies curriculum 2020." In the second phase, the authenticity of the data was verified. Official codes, emblems, and ministry approvals were examined to ensure the legitimacy of the documents. Both countries' curricula were published on official ministry websites, and the presence of emblems and official codes confirmed their authenticity.

In the third phase, the English documents were translated into Turkish. In the fourth phase, the documents were subjected to a descriptive analysis, in which they were digitized and subsequently analyzed. Finally, findings, conclusions, and recommendations were written based on the information derived from the data. In the sixth phase, the content, objectives, pedagogical recommendations, and assessment dimensions of the Turkish and Singaporean curricula were compared, and similarities and differences were determined (Ültanır, 2000).

Since this study was conducted solely through document analysis and did not involve human participants, animals, experiments, surveys, or interviews, ethics committee approval was not required.

Data Analysis

The data were analyzed using descriptive analysis (Patton, 2002). In this technique, the findings are systematically described, summarized, and interpreted. The purpose of descriptive analysis is to present the data in an organized and meaningful way. The analysis followed the stages of descriptive analysis, including establishing a framework, processing the data, identifying the findings, and interpreting the findings (Sözbilir, 2009; Yıldırım & Şimşek, 2021). In this study, the analysis was conducted according to the research questions, and the curricula of Singapore and Türkiye were compared in terms of content knowledge, educational philosophy, objectives, skills, values, learning domains, assessment and evaluation, curriculum design, recommended pedagogy, and implementation principles.

In qualitative research, validity and reliability are associated with the accuracy of the data and the consistency of interpretations. In this study, validity was ensured by using official curriculum documents published by the Ministries of Education of Türkiye and Singapore. Reliability was supported through the systematic examination and comparison of both curricula according to the research questions and the dimensions examined in the study (Lincoln & Guba, 1985).

Findings

This section presents a comparison of the social studies curricula of Türkiye and Singapore. Social studies education is provided in grades 4, 5, 6, and 7 in Türkiye, and in grades 3, 4, 5, 6, 7, and 8 in Singapore. In Türkiye, grade 8 includes a history course titled "History of the Principles and Reforms of Atatürk." The

Singaporean social studies curriculum was updated in 2020, while the Turkish social studies curriculum was updated in 2023.

Content Knowledge in the Social Studies Curricula of Singapore and Türkiye

The Singaporean social studies curriculum consists of four sections: Introduction, Content, Recommended Pedagogy, and Assessment. In the Introduction section, the philosophy of social studies and the objectives of the curriculum are presented. In the Content section, content design, detailed content usage, and detailed curriculum content are included. In the Recommended Pedagogy section, research- and inquiry-based learning approaches and the transformation of research approaches from the humanities into the social studies classroom are addressed. In the Assessment section, the assessment objectives, modes, and framework are presented (Ministry of Education [MOE], 2020).

In Türkiye, the social studies curriculum includes the following components: The Ministry of National Education curricula, objectives of the curricula, the perspective of the curricula, values, competencies, assessment and evaluation approaches in the curricula, individual development and curricula, conclusions, specific objectives of the social studies course curriculum, core skills in the social studies curriculum, values education in the social studies curriculum, considerations in the implementation of the social studies curriculum, the structure of the social studies curriculum, the number of pages and dimensions of the social studies textbooks for grades 4, 5, 6, and 7, and the learning outcomes and explanations for grades 4, 5, 6, and 7 (Ministry of National Education [MoNE], 2023).

Educational Philosophies Underlying the Social Studies Curricula of Singapore and Türkiye

In terms of educational philosophy, the Singaporean social studies curriculum emphasizes helping students better understand the interconnectedness of Singapore and the world they live in. It prepares students to become the citizens of tomorrow and enables them to make sense of human complexity. The curriculum encourages students to explore real-world issues relevant to their lives and to engage in inquiry-based learning. It supports the acquisition of knowledge and understanding through authentic learning experiences, while fostering critical and reflective thinking and promoting multiple perspectives. In addition, it nurtures tendencies that inspire students to take an interest in society and the world, encourages a deeper understanding of values that define Singaporean society, and cultivates empathy in their interactions with others. In this way, the curriculum aims to develop students into engaged and collaborative citizens who are responsible to their communities and the wider world.

In contrast, the Turkish social studies curriculum does not explicitly provide a clearly defined educational philosophy. Instead, it presents general statements as the perspective of the curriculum. While values, competencies, and objectives are included, these are not structured within a clearly articulated philosophical framework.

Objectives of the Social Studies Curricula of Singapore and Türkiye

Explanations regarding the objectives of the social studies curricula in Singapore and Türkiye are presented in Table 1.

Table 1

Objectives of the Social Studies Curricula in Singapore and Türkiye

Singapore	Türkiye
1. <i>Students as Knowledgeable Citizens will be able to:</i> 1.1. View the world from a global perspective. 1.2. Understand different viewpoints. 1.3. Apply reflective thinking in making informed decisions. 1.4. Analyze and make sense of complex situations. 1.5. Evaluate information, consider multiple perspectives, and practice reasoning and responsible decision-making. 2. <i>Students as Engaged Citizens will be able to:</i>	<i>The students will be able to:</i> 1. Be raised as citizens of the Republic of Türkiye who love their country and nation, are aware of and exercise their rights, fulfill their responsibilities, and possess national consciousness. 2. Understand the place of Atatürk's principles and reforms in the social, cultural, and economic development of the Republic of Türkiye and to be willing to uphold democratic, secular, national, and contemporary values.

Singapore	Türkiye
2.1. Understand the sense of belonging to their community and nation. 2.2. Engage with issues concerning societal problems. 2.3. Build social cohesion by appreciating societal diversity. 2.4. Recognize the implications of ethical thinking and decision-making outcomes. 3. <i>Students as Participatory/Collaborative Citizens will be:</i> 3.1. Willing to describe related issues and take action. 3.2. Resilient in addressing societal concerns despite challenges faced. 3.3. Empowered to take personal and collective responsibility to effect meaningful change for the well-being of society. 3.4. Able to serve in order to make a positive difference in the lives of others.	3. Know, with justification, that legal rules are binding for everyone and that all individuals and organizations are equal before the law. 4. Comprehend the fundamental elements and processes that constitute Turkish culture and history, and to recognize the necessity of preserving and developing the cultural heritage that fosters national consciousness. 5. Become familiar with the geographical characteristics of their local environment and the world, explain the interactions between humans and the environment, and develop spatial awareness skills. 6. Recognize the limitations of the natural environment and resources, strive to protect natural resources with environmental awareness, and adopt a sustainable environmental perspective. 7. Possess critical thinking skills as individuals who know how to access accurate and reliable information. 8. Understand basic economic concepts and grasp the role of the national economy in development and international economic relations. 9. Believe in the importance of work in social life and acknowledge that every profession is necessary and respectable. 10. Analyze historical evidence from different times and places, identify similarities and differences among people, objects, events, and phenomena, and perceive change and continuity. 11. Understand the development of science and technology and their effects on social life, and to use information and communication technologies consciously. 12. Observe scientific ethics in accessing, using, and producing knowledge, based on scientific thinking. 13. Apply basic communication skills and the fundamental concepts and methods of social sciences to regulate social relations and solve encountered problems. 14. Believe in the importance of participation and express their opinions for the resolution of personal and societal issues. 15. Comprehend the historical processes and contemporary impacts of human rights, national sovereignty, democracy, secularism, and the concept of the republic, and to organize their lives according to democratic principles. 16. Adopt national, spiritual, and universal values and understand the significance and means of becoming a virtuous individual. 17. Demonstrate sensitivity to issues concerning their country and the world. 18. Become aware of their physical and emotional characteristics, interests, desires, and talents as free individuals.

Note. Adapted from MOE (2020) and MoNE (2023).

The Singaporean curriculum includes a total of 13 objectives, consisting of 3 main objectives with their sub-objectives, whereas the Turkish curriculum includes 18 objectives. In terms of objectives, the Turkish social studies curriculum is more detailed. Both countries' social studies curricula aim to develop citizenship and values education, as well as critical thinking skills. However, the Turkish curriculum places greater emphasis on local culture, history, and interdisciplinary academic knowledge, while the Singaporean curriculum prioritizes students' inquiry-based learning, skill development, and the acquisition of a global perspective. In Türkiye, teaching is more focused on knowledge transmission and cultural awareness, whereas in Singapore, the learning process is based on active student participation and real-world connections. These differences are directly related to the educational philosophy and societal priorities of each country.

Skills Emphasized in the Social Studies Curricula of Singapore and Türkiye

Table 2 presents the skills included in the social studies curricula of Singapore and Türkiye.

Table 2

Skills Included in the Social Studies Curricula of Singapore and Türkiye

Singapore	Türkiye
1. Critical thinking skills 2. Problem-solving skills 3. Decision-making skills 4. Communication skills 5. Creative thinking skills 6. Effective research skills 7. Media literacy skills	1. Research, 2. Environmental literacy, 3. Understanding change and continuity, 4. Digital literacy, 5. Critical thinking, 6. Empathy, 7. Financial literacy, 8. Entrepreneurship, 9. Observation, 10. Map literacy, 11. Legal literacy, 12. Communication, 13. Collaboration, 14. Recognizing stereotypes and biases, 15. Using evidence, 16. Decision-making, 17. Spatial analysis, 18. Media literacy, 19. Spatial awareness, 20. Self-regulation, 21. Political literacy, 22. Problem-solving, 23. Social participation, 24. Drawing and interpreting tables, charts, and diagrams, 25. Correct, eloquent, and effective use of Turkish language, 26. Innovative thinking, 27. Understanding time and chronology

Note. Adapted from MOE (2020) and MoNE (2023).

While the Singaporean social studies curriculum identifies 7 skills that students are expected to acquire, the Turkish curriculum lists 27 skills. It can be stated that the Turkish social studies curriculum is prepared in much greater detail, except for incorporating the educational philosophy. Although both countries' curricula aim to develop core skills such as critical thinking and problem-solving, in Türkiye, the skill development process is more knowledge-focused, whereas in Singapore, skills are acquired in a process-oriented, inquiry- and experience-based manner. The 2020 Singaporean Social Studies Syllabus not only supports students in developing knowledge and understanding but also emphasizes acquiring various skills. These skills are designed to help students develop a critical and analytical perspective on social events and issues. Furthermore, the curriculum of Singapore focuses on fostering students' decision-making, ethical awareness, collaboration, and communication skills within an interdisciplinary and global context, whereas the Turkish curriculum supports the development of these skills in a more indirect manner. This difference can be interpreted as a direct reflection of the educational philosophy and instructional approach of the two countries.

Values Addressed in the Social Studies Curricula of Singapore and Türkiye

The objective of the social studies curriculum is to cultivate students' competencies so that they become knowledgeable, engaged, and participatory citizens. These competencies encompass the body of knowledge, skills, and values expressed in social studies. Table 3 presents the values included in the social studies curricula of Singapore and Türkiye.

Table 3

Values Included in the Social Studies Curricula of Singapore and Türkiye

Singapore	Türkiye
1. National identity and belonging 2. Responsibility and accountability 3. Social justice and equality 4. Inclusivity and respect for diversity 5. Solidarity and community awareness 6. Open-mindedness and tolerance 7. Environmental sustainability	1. Justice, 2. Importance of family unity, 3. Independence, 4. Peace, 5. Scientific approach / Rationality, 6. Diligence, 7. Solidarity, 8. Sensitivity / Awareness, 9. Honesty, 10. Aesthetics, 11. Equality, 12. Freedom, 13. Respect, 14. Love / Affection, 15. Responsibility, 16. Prudence / Conservation, 17. Patriotism, 18. Helpfulness / Benevolence

Note. Adapted from MOE (2020) and MoNE (2023).

While the Singaporean Social Studies curriculum identifies seven core values to be instilled in students, the Turkish Social Studies curriculum lists eighteen values. Although both programs aim to develop citizenship and social responsibility, in Türkiye, values are conveyed primarily through knowledge and cultural content, whereas in Singapore, values are fostered through students' engagement in inquiry, discussion, and

experiential learning processes. The Turkish curriculum emphasizes national identity and cultural awareness, while the Singaporean curriculum highlights not only national values but also global perspectives and ethical awareness. This difference reflects the respective educational philosophies and societal priorities of the two countries and is further reinforced by differences in teaching methodologies.

Learning Domains Included in the Social Studies Curricula of Singapore and Türkiye

Table 4 presents the learning domains in the Singapore and Turkish Social Studies curricula.

Table 4

Learning Domains in Singapore and Turkish Social Studies Curricula

Singapore	Türkiye
1. Citizenship and Governance	Individual and Society
2. Global Economic Forces	Culture and Heritage
3. Environmental Awareness and Sustainability	People, Places, and Environments
4. Diversity and Social Cohesion	Science, Technology, and Society
5. National Identity	Production, Distribution, and Consumption
6. Global Connections	Active Citizenship

Note. Adapted from MOE (2020) and MoNE (2023).

Both countries' curricula include six learning domains. Commonalities among these domains include the individual, citizenship, and economics. The "Active Citizenship" learning domain in Türkiye was addressed within the scope of global connections in the 2005 curriculum. The Turkish curriculum primarily encompasses local and national knowledge transmission along with interdisciplinary learning areas. In contrast, the Singaporean curriculum offers student-centered, process-oriented, and globally focused learning domains. While history and geography knowledge are emphasized in Türkiye, Singapore prioritizes students' understanding of the interaction between their own society and the global community, along with developing skills integrated with values. This distinction directly reflects the educational philosophies, societal priorities, and teaching-learning approaches of the two countries.

Assessment and Evaluation Approaches in the Social Studies Curricula of Singapore and Türkiye

Explanations regarding the assessment process in the Singapore and Türkiye social studies curricula are presented in Table 5.

Table 5

Assessment process in the social studies curricula in Singapore and Türkiye

No	Singapore	Explanation	Türkiye	Explanation
1	Formative Assessment	Classroom activities, group work, presentations, short quizzes, and written assignments. These methods allow for real-time evaluation of students' participation and learning processes. Creating concept maps, discussion groups, written or oral responses to questions, and problem-solving activities.	Formative Assessment	Short quizzes, in-class discussions, group work, short written responses, and poster activities. During this process, the teacher can identify students' deficiencies and provide support. Question-and-answer techniques and short written tests are frequently used.
2	Summative assessment	Written exams, multiple-choice tests, open-ended questions, and project or research assignments. These assessments are typically conducted at the end of the term and measure the student's overall achievement level. Students' research-based papers, exams, and comprehensive projects are included.	Summative assessment	Written exams, multiple-choice tests, project presentations, and comprehensive research assignments.

No	Singapore	Explanation	Türkiye	Explanation
3	Project-based assessment	Students prepare and present projects. Projects may involve developing solutions to global issues, designing social campaigns, or making recommendations related to Singapore's national policies.	Project- and performance-based assessment	Project work, drama activities, role-playing, and fieldwork. Historical Event Reenactment: Students dramatize a historical event and present the social and political conditions of that period to the class. Environmental Project: Students conduct research on local environmental issues and develop and present solutions to address them.
4	Performance-based assessment	Role-playing, simulations, interviews, and case studies. Students engage in solving social problems, demonstrating citizenship skills, participating in decision-making processes, taking part in community-based projects, proposing solutions to social events, or participating in decision-making simulations (aimed at applying what they have learned in real-life contexts).	Portfolio-based assessment	Students compile the work they have completed throughout the term into a portfolio, which is then used for evaluation. Learning Journal: Students record in writing what they have learned during the course, and this learning journal is assessed.
5	Reflective assessment	Reflective learning reports, identification of personal development goals, and feedback provided on progress toward these goals	Reflective assessment	Reflective reports, learning journals.
6	Self- and peer-assessment	Evaluating peers' contributions in group projects and reviewing one's own performance.	Self- and peer-assessment	Peer Assessment: In group work, students evaluate each other's contributions and provide positive and constructive feedback. Self-Assessment Forms: After completing their projects, students fill out forms that identify their own strengths and weaknesses.
7	Observation and Surveys	Observation forms, attitude surveys, and participation in social responsibility projects.	Assessment through Observation	The teacher observes students' contributions within the group, their level of participation in discussions, and their responsibilities. Observation In-Class Interaction: Teacher observes how students adopt democratic values (respect, collaboration, empathy) through their behavior in the classroom.
8	Digital Assessment Tools	Technology-supported assessment tools such as online exams, e-portfolios, and digital projects; creating e-portfolios, participating in online discussions, and delivering digital presentations.	Digital and Technology-Based Assessment	E-portfolios, digital presentations, online exams; students prepare a digital presentation related to social studies, present it in class, and are assessed.
9	Assessment		Using Rubrics	Students' projects, performances, or written assignments are evaluated based on pre-determined criteria. Rubric for the Project: When assessing a research project, the teacher scores the student using a rubric based on their ability to use resources, present, solve problems, and collaborate. Presentation Rubric: Students' classroom presentations are evaluated according to rubric categories such as content, language use, visual materials, and communication skills.

Note. Adapted from MOE (2020) and MoNE (2023).

Formative, summative, digital, reflective, observational, and peer assessments are present in both countries. In Singapore, performance-based and project-based assessments are presented separately, whereas in Türkiye, they are addressed under a single category. Unlike Singapore, Türkiye also employs portfolio and rubric-based assessment methods. In Türkiye, the assessment process is more knowledge-focused and outcome-oriented, whereas in Singapore, it is process-oriented and student-centered. The Turkish curriculum is strong in measuring students' academic knowledge acquisition but has a limited scope in assessing skill and value development. In contrast, the Singaporean curriculum aims to evaluate knowledge, skills, and values in an integrated manner and supports active student engagement in the learning process. These differences are directly related to each country's educational philosophy, instructional approaches, and societal priorities.

In Singapore, school-based assessment processes include exams, discussions, deliberative debates, and topic-based research. These processes engage students in curiosity, data collection, reasoning, and reflective thinking. Additionally, within the national assessment framework, learning evaluation and evidence of students' learning quality are obtained through both school-based and national assessment practices. National assessment is designed in alignment with school-based assessment and the social studies curriculum, aiming for students to acquire the relevant knowledge and skills. Students are expected to understand societal issues, develop critical and reflective thinking skills, and gain appreciation for multiple perspectives. Assessment objectives include: 1. Informed Understanding - demonstrating comprehension of social issues; 2. Interpretation and Evaluation of Sources/Information – understanding relevant information, drawing inferences from provided data, analyzing and evaluating evidence, comparing different perspectives, distinguishing between opinions and judgments, recognizing values and detecting biases, and deriving reasoned conclusions from evidence and arguments; 3. Construction of Explanations - analyzing social issues from multiple viewpoints, developing reasoned arguments, and making informed decisions; 4. Assessment Scheme - source-based case studies aimed at fostering critical, reflective, and perspective-taking students, structured question-and-answer processes.

Detailed Curriculum Content and Recommended Pedagogical Approaches in the Singapore Social Studies Curriculum

Table 6 presents explanations from Singapore regarding curriculum design, detailed curriculum content, and recommended pedagogy.

Table 6

Detailed curriculum content and recommended pedagogy in Singaporean Social Studies

Section	Explanation
Curriculum Design and Use of Detailed Curriculum Content	1. It specifies the intended learning outcomes designed to foster citizens who demonstrate loyalty to Singapore, engage actively in societal life, and possess the capacity to contribute to the nation's future development. 2. It organizes the outcomes and aims to develop 21st-century competencies as well as character and citizenship education. 3. It strengthens national education in order to foster youths' emotional connection to Singapore and support their internalization of social values that contribute to society, thereby ensuring that Social Studies extends beyond mere knowledge acquisition. 4. It keeps knowledge, skills, and values up to date. 5. It sequences the primary school social studies curriculum. 6. It arranges all subjects and levels in order to ensure coherence within the curriculum structure. 7. It supports students in applying the values and relevance of social studies in their daily lives. 8. It prevents content overload and ensures a proper balance between content and skills. 9. It provides opportunities for students to demonstrate commitment to and understanding of shared values through the use of alternative assessment tools. 10. It empowers individuals and enriches society.
Recommended Pedagogy	1. Inquiry- and research-based learning 2. Essential questions 3. What does being a citizen of the country mean to me?

Section	Explanation
	4. How do I make decisions for the benefit of society?
	5. How can I contribute to society's well-being?
	6. Approaches that shape citizenship
	7. Legal status
	8. Developing a sense of identity
	9. Participation in community relations
	10. Balancing competing interests and needs
	11. Holding governance functions
	12. Providing resources and services for the community
	13. Learning one's role in working for the benefit of society
	14. Making rules, enforcing rules, and governing

Note. Adapted from MOE (2020).

In the “Curriculum Design and Use of Detailed Curriculum Content” section, 10 explanations are provided, while the “Recommended Pedagogy” section includes 14 explanations. The Singaporean Social Studies curriculum presents a holistic framework aimed at empowering individuals and enriching society. This structure, which simultaneously develops students’ knowledge, skills, and values, seeks to prepare them as responsible and active citizens in both national and global contexts.

The pedagogical approach recommended for teachers in the Singaporean curriculum focuses on guiding students’ learning through inquiry- and research-based methods. The essential questions included in the program support students in developing progressive understanding and allow them to structure their individual thought processes. For example, questions such as “What does being a citizen of the country mean to me?” or “How do I make decisions for the benefit of society?” encourage students to analyze their own values, sense of identity, and social responsibilities.

These questions also guide teachers to ensure students’ active participation in learning processes and to facilitate the achievement of learning outcomes. The presence of essential questions serves to enhance the success of knowledge outcomes and promotes the integrated development of students’ skills, values, and knowledge. In this respect, the Singaporean curriculum is structured to enable teachers to implement a student-centered, process-oriented, and inquiry-based pedagogy effectively in the classroom.

Key Considerations in Implementing the Turkish Social Studies Curriculum

Table 7 presents the principles to be observed in practice in the Turkish Social Studies curriculum.

Table 7

Principles to be Observed in Practice in the Turkish Social Studies Curriculum

Items	Explanation
1	In the Social Studies learning areas, subjects such as history, geography, economics, sociology, anthropology, psychology, philosophy, political science, and law, as well as human rights, citizenship, and democracy, are addressed in an integrated manner. These topics should be taught not separately as history, geography, human rights, and citizenship, but through an interdisciplinary approach.
2	In achieving learning outcomes, the fundamental principles of Social Studies education-such as locality, relevance, interdisciplinarity, reflective inquiry, past-present-future connections, time-continuity-change, and flexibility-should be taken into account. Instructional durations may be adjusted, if necessary, in accordance with these emphasized principles.
3	Importance should be given to the understanding of “Social Studies as social sciences” and “Social Studies as reflective thinking.” Students should be guided to intuitively grasp the scientific methods employed by social scientists (e.g., geographers, historians). By utilizing events inside and outside the school, students should frequently compare real-life problems and contradictory situations and engage in reflective thinking on the social issues they encounter.
4	In the curriculum, values and skills are directly linked to learning outcomes. However, in order to teach values and skills within the framework of lifelong learning, these values or skills should also be associated with other relevant learning outcomes and learning areas when appropriate.

Items	Explanation
5	Concept instruction holds an important place in the curriculum. Therefore, classifications and different approaches to concept teaching should be considered. Efforts should be made to resolve conceptual confusion, conceptual ambiguity, and misconceptions.
6	National and religious holidays, local liberation and celebration days, significant events, and specific days or weeks should be used to develop students' historical sensitivity and national consciousness.
7	In Social Studies instruction, attention should also be paid to utilizing out-of-school environments. These activities can range from the immediate school surroundings (e.g., school garden) to marketplaces, government offices, factories, exhibitions, archaeological excavation sites, workshops, museums, and historical sites (historical buildings, monuments, museum cities, battlefields, virtual museum tours, etc.). Additionally, oral history and local history studies should be conducted where appropriate.
8	The Social Studies course should be supported with literary works such as legends, epics, folktales, proverbs, folk stories, folk songs, and poems. Students should be encouraged to read literary works that make the subjects appealing, such as novels, historical novels, short stories, memoirs, travel writing, and anecdotes. Moreover, selected learning outcomes can be supported through traditional or modern artistic products such as painting, music, miniature, engraving, calligraphy, sculpture, architecture, theatre, and cinema.
9	Current and controversial topics related to the learning outcomes can be introduced into the classroom using different discussion techniques and linked to problem-solving, critical thinking, evidence use, decision-making, and research skills.
10	In recent years, developments in digital technology have created new situations regarding citizenship rights and responsibilities (digital citizenship, e-Government, virtual commerce, social media, etc.) as well as certain issues (digital divide, identity theft, personal data privacy, cyber fraud, cyberbullying, etc.). In order to develop students' digital citizenship competencies, relevant in-class and extracurricular activities should be included.

In the Turkish Social Studies curriculum, ten fundamental principles to be observed in implementation have been specified. The Turkish Social Studies program aims to integrate learning areas through an interdisciplinary approach and to develop students' reflective thinking skills. The program addresses subjects such as history, geography, human rights, and citizenship not separately, but within an interwoven framework, emphasizing core principles such as flexibility, relevance, and locality in achieving learning outcomes. Students are encouraged to understand the methods used by social scientists and to engage in comparative thinking with real-life events both inside and outside the school. Values and skills are linked directly to learning outcomes, and concept instruction as well as the resolution of conceptual misconceptions occupy a significant place in the program. Moreover, through the use of out-of-school learning environments, literary and artistic works, current and controversial issues, and areas such as digital citizenship, the program aims to enable students to acquire knowledge, skills, and values in a holistic manner.

Discussion

In this study, the Social Studies curricula of Singapore (2020) and Türkiye (2023) were examined comparatively. The findings reveal both similarities and differences when compared to similar studies in the extant literature. The study identified similarities and differences in the goals, values, and skill development dimensions of both curricula. Our findings conclude that both curricula aim to develop fundamental skills such as critical thinking, problem-solving, and social responsibility awareness. However, while the Turkish curriculum emphasizes national identity, historical consciousness, and patriotism, the Singaporean curriculum focuses on modern themes such as multiculturalism, global citizenship, and environmental sustainability. These results are consistent with findings reported by Elçiçeği (2023), which indicate that themes of national identity and global citizenship are emphasized differently in the curricula of Social Studies. In this regard, the study contributes uniquely to the literature by being the first to comprehensively compare Türkiye's updated 2023 Social Studies curriculum with a high-performing education system such as Singapore's.

In the study, by Taşkın and Bozkurt (2024), which compared the Turkish and Singaporean curricula, it was stated that the Singaporean Social Studies curriculum had a philosophy aimed at helping students understand global issues, develop empathy, and strengthen social cohesion, whereas the Turkish curriculum targeted the development of national consciousness. It was also emphasized that the Singaporean curriculum

adopted a thematic approach, while the Turkish curriculum was structured according to an expanding environment and spiral program approach. The results obtained in the present study align with these conclusions. In Singapore, various performance tasks must be conducted at least once a year from grade 3 to grade 6 to assess and evaluate students' learning. While the current study focused on learning outcomes, the aforementioned study did not; instead, it examined learning areas, learning outcomes, and assessment processes in greater detail. The similarities and differences reported in that study are consistent with the present study. Our results reveal that, unlike Singapore, where seven skills and values are included, Turkish curriculum comprises 27 values and 18 skills. Singapore has 13 goals, whereas Türkiye has 18. The Singaporean curriculum aims to cultivate inquiry, problem-solving, and multiple perspectives among students, whereas the Turkish curriculum emphasizes citizenship awareness through detailed outcomes and values. The assessment process in Singapore and its stages are presented more transparently in the curriculum. One of the major differences between Türkiye and Singapore is that the Singaporean curriculum includes the educational philosophy of the course, whereas the Turkish curriculum does not. This difference is mainly due to the fact that Singapore has standardized the teaching process in line with centralized and performance-based educational policies, whereas Türkiye has adopted an outcomes-intensive structure that provides teachers with a wider scope for instructional practices. Overall, the Turkish Social Studies curriculum reveals a detailed and voluminous document.

In Altay's (2021) study comparing Turkish and Estonian Social Studies curricula, it was concluded that the curricula differed in terms of educational philosophy and structure. The curriculum of Estonia was designed to be student-centered and skill-based. Similarly, in the present study, the Singaporean curriculum has a clear educational philosophy aimed at developing students' inquiry skills. In the Turkish curriculum, philosophical foundations are included indirectly, which aligns with the structural differences noted by Altay (2021).

Elçiçeği (2023), in a comparative analysis of Turkish and Afghan Social Studies curricula and textbooks, reported that the Turkish curriculum emphasized sociology, philosophy, and interdisciplinary objectives, while the Afghan curriculum emphasized history and geography. The curricula of both countries made reference to their national leaders, and textbooks included the national anthem. It is a fact that the socio-political structure of Türkiye shapes citizenship education around national identity, whereas Singapore's multicultural society leads the curriculum to adopt a more inclusive approach, emphasizing universal values. Furthermore, the importance of interdisciplinary objectives in both the Singaporean and Turkish curricula is consistent with the findings of the present study.

In the study by Akhan and Çiçek (2019) examining Turkish and Russian students' perceptions of the "good citizen," it was found that Turkish students' citizenship understanding was framed more nationally, whereas Russian students emphasized universal citizenship. This finding aligns with the current study, which shows that Türkiye's Social Studies curriculum prioritizes national values and consciousness, whereas the Singaporean curriculum emphasizes universal citizenship and global awareness skills. This supports the conclusion of the study that Türkiye's approach to values education is more nationally oriented, while Singapore's is more universally oriented.

Akhan et al. (2019), in their study, titled "A Comparative Example of Social Studies Education: Türkiye and Russia Social Studies Curricula," concluded that both countries aimed to develop active citizens, but Russia's curriculum promoted a more universal concept of citizenship. The findings of this study are similar to the comparison between Singapore and Türkiye, showing that Singapore focuses on cultivating more universal citizens, while both countries emphasize instilling national values. Singapore's orientation is directly linked to educational policies aiming to enhance international competitiveness and strategies for integration into the global economy.

Kafadar et al. (2018), in their study, compared the Turkish, U.S., and French Social Studies curricula in terms of values education, finding that the countries based value transmission on their historical and cultural priorities. While that study focused only on values, the present study examined broader variables such as educational philosophy, unit structure, skills, and values. The findings are similar in nature: Singapore prioritizes universal values such as empathy, respect, social cohesion, and social responsibility, whereas the Turkish curriculum emphasizes national values such as justice, patriotism, cooperation, and thrift. Therefore,

in terms of values education, the two countries' curricula exhibit different orientations within the framework of the frequently highlighted "balance between national and universal values." This study fills a gap in the literature by examining these value differences not only at the level of values but also within the context of the entire curriculum.

Osmanoğlu and Yıldırım (2013), in their study, titled "A Comparison of 6th Grade Social Studies Curricula of Egypt and Türkiye," compared the 2007-2008 6th-grade Social Studies curricula in both countries. In contrast, the present study compared the elementary-level curricula implemented in Singapore (2020) and Türkiye (2023). It emphasizes that the curricula of both countries differ in content and goals and that the historical and social context of each country affects the structure of the curriculum. This result highlights the structural differences between the Singaporean and Turkish curricula. The Turkish curriculum is detailed, content-rich, and outcomes-based, whereas the Singaporean curriculum is more thematic, simplified, and structured to guide teachers during the instructional process. This reflects Türkiye's outcome-based approach, which increases content density during curriculum development; however, Singapore's design approach simplifies learning processes and guides teachers.

In conclusion, the findings of the current study largely support comparative Social Studies education studies in the literature. The Singaporean curriculum is more systematic pedagogically, emphasizing inquiry-based learning, performance tasks, and instructional guidance, whereas the Turkish curriculum is more detailed in terms of goals, values, and skills, but presents a more general framework in implementation and assessment. In this respect, the study contributes to both identifying the pedagogical aspects of Turkish Social Studies curriculum updated in 2023 and providing a comparative perspective with high-performing education systems such as Singapore. The findings obtained in this study, alongside comparisons with the literature, addressed the sub-questions of the study, and revealed the structural, pedagogical, and value-based aspects of the curricula. The present study was predicated exclusively on curriculum documents; consequently, its findings are not supported by empirical evidence from classroom implementations.

Recommendations:

Considering that the Türkiye Century Education Model (MoNE, 2024) has recently been implemented, some of the recommendations presented in this study may have already been addressed within the updated curriculum. Therefore, these suggestions should be interpreted as complementary contributions aimed at further improving and strengthening the current Social Studies curriculum in Türkiye.

1. The Turkish Social Studies curriculum could be further simplified, similar to the Singaporean example, to provide students with a clearer and more effective learning experience.
2. The educational philosophy of the Turkish curriculum should be explicitly stated, as in Singapore, to increase alignment between objectives and teaching processes and support teachers' interpretive capacity.
3. The Turkish curriculum should focus on providing information related solely to the course in terms of objectives, content, learning activities, and assessment, similar to the Singaporean.
4. Pedagogical approaches that develop students' inquiry, questioning, critical thinking, and problem-solving skills should be prioritized, and teachers should be provided with sample activities, guidance materials, and professional development support.
5. Skills and values in the Turkish curriculum should be defined more selectively and meaningfully, with clear guidance on how they can be developed in the content.
6. While preserving national identity and cultural values, the Turkish curriculum should also strengthen global citizenship, environmental awareness, and sustainability themes. Balancing national and global values is essential for enabling students to understand their local identity while developing responsibility as global citizens.
7. The utilization of formative assessment tools, such as rubrics, self-assessments, and portfolios, should be systematized, and a balance should be maintained between process and summative assessment, as evidenced by the Singaporean educational model.

Conclusion

This study compared the Social Studies curricula of Singapore (2020) and Türkiye (2023). The present study addresses a significant lacuna in the extant literature on the subject by comprehensively examining the Social Studies curricula of both countries with respect to content knowledge, program structure, objectives, educational philosophy, learning areas, skills, values, assessment and evaluation, principles to consider in implementation, curriculum design, and recommended pedagogical approaches. While previous studies generally focused on a single country or were limited to certain dimensions, this study addresses both national and global perspectives in a holistic manner. Consequently, it offers a novel perspective on the manner in which national educational policies are influenced by historical, cultural, and social contexts. The Singaporean Social Studies curriculum demonstrates a simple, holistic structure grounded in philosophical foundations. It centers on an “inquiry- and research-based learning” approach and aims to develop students as critical, reflective, and participatory citizens. The program’s objectives ensure that students maintain their local identity while adopting a global perspective, and are guided toward values such as social justice, equality, tolerance, and sustainability. The instructional process is predicated on the principles of “question-based learning” and “problem-solving,” with learning and assessment processes meticulously designed to complement each other.

In comparison, the Turkish Social Studies curriculum is more comprehensive, detailed, and explanatory. Although the educational philosophy is not explicitly stated, the objectives, skills, and values are extensive. The Turkish curriculum emphasizes national values, such as citizenship awareness, national identity, and the preservation of historical and cultural heritage. Contemporary elements, including digital citizenship, interdisciplinary approaches, and out-of-school learning environments, are also incorporated.

The Singaporean curriculum (2020) aims to develop individuals with a global perspective. The city-state of Singapore, which shares its name with the country, is presented as a global city with international relations playing a central role. Students are taught to understand both their local identity and how to act as global citizens. Emphasis is placed on multiculturalism, tolerance, and acceptance of differences. Students learn the values that enable various ethnic and religious groups in Singapore to live harmoniously.

In contrast, the Turkish Social Studies curriculum (2023) focuses on national identity and patriotism, resulting in a more local and national perspective rather than a global one. While students are provided with information about Türkiye’s regional and global position, the main focus is on Turkish culture, history, and values. Topics such as respect for diversity and tolerance are included, but primarily in the context of understanding the cultural differences within Türkiye.

The Singaporean curriculum (2020) places significant emphasis on the nation’s history, particularly the colonial period, the independence process, and economic success stories. Geography is taught mainly in the context of Singapore’s environmental sustainability, global position, and regional relations. Modern topics such as global trade routes, resource management, and urban planning are also included. In the 2023 Turkish curriculum, history and geography lessons focus on Türkiye’s geographical position, historical events, and national heroes, with special emphasis on the Ottoman and Republican periods. Geography education is directed toward understanding Türkiye’s local and regional structure, natural resources, and strategic position.

The general objectives of the Singaporean curriculum (2020) focus on helping students understand their multicultural and multi-religious society, while also developing a global perspective and essential skills such as media literacy and environmental sustainability. In contrast, the Turkish curriculum (2023) primarily emphasizes foundational knowledge in core subjects like history, geography, economics, and citizenship.

Both curricula aim to foster national identity, critical thinking, problem-solving, and social responsibility. However, the Singaporean approach specifically highlights the importance of individual belonging in a global context, while the Turkish model places greater emphasis on historical awareness and patriotism.

In terms of fostering national identity, citizenship skills, critical thinking, problem-solving, and social and environmental responsibility, the Social Studies curricula of both countries show similarities.

The Singaporean curriculum (2020) emphasizes values such as national identity, responsibility, and inclusivity. Within Singapore's multicultural society, values supporting social justice, equality, acceptance of differences, solidarity, respect for diversity, and social cohesion are central. Modern values, including environmental sustainability, global citizenship, and awareness of global issues, are also emphasized. The curriculum highlights both individual responsibility and contribution to society.

In the Turkish curriculum (2023), national and spiritual values such as patriotism, love of the flag, and historical awareness are highlighted, while universal values like democracy, justice, freedom, equality, and human rights aim to promote local and national identity while introducing Türkiye's geographical, historical, and cultural richness. Individual responsibilities within family and society are emphasized. In essence, the Turkish program emphasizes family and individual responsibilities, whereas the Singaporean program emphasizes contribution to society.

In Singapore (2020), the curriculum aims to develop skills such as problem-solving, decision-making, media literacy, creative thinking, responding to social issues, critical thinking, empathy, and understanding multiple perspectives. In Türkiye (2023), emphasis is placed on critical and creative thinking, research, effective communication, analyzing social events, making inferences and problem-solving, and digital literacy. A salient difference is that Singapore places a pronounced emphasis on empathy and understanding diverse perspectives. The Turkish curriculum encompasses a wide range of skills and values, which may impede the implementation of in-depth strategies. In contrast, the simpler structure of the Singaporean curriculum provides teachers with pedagogical flexibility and allows more room for inquiry-based learning. Both countries' assessment approaches emphasize formative and summative assessment; however, Singapore has a nationally coordinated comprehensive system, while in Türkiye, tools such as portfolios and rubrics are primarily recommended at a suggestive level.

In Singapore (2020), citizenship education focuses on understanding the country's social structure and being a responsible member of society. Students learn how to develop citizenship awareness and contribute to society in Singapore's multicultural context. Both local and global citizenship are emphasized, alongside themes such as global awareness, environmental consciousness, and sustainability. In Türkiye (2023), citizenship education is closely linked to transmitting national and spiritual values. Students are expected to gain knowledge about democratic rights, citizenship duties, and social responsibilities, covering topics such as the Turkish Constitution, human rights, democratic society, and the justice system.

The Social Studies curricula of Singapore and Türkiye are shaped by each country's national priorities, historical context, and cultural dynamics. Türkiye emphasizes national identity, patriotism, and historical awareness, whereas Singapore emphasizes multiculturalism, global citizenship, and environmental sustainability. Both curricula aim to develop critical thinking, problem-solving, and responsibility, but their focus areas and values differ.

This study makes a significant contribution to comparative education by demonstrating how Social Studies curricula are shaped by socio-cultural structures. Overall, the Singaporean curriculum is strong in depth and philosophical foundation, while the Turkish curriculum is strong in inclusivity and diversity. Both countries aim to cultivate critical and active citizens; however, Singapore directly links this aim to pedagogical practices, whereas Türkiye establishes this link more indirectly. The study seeks to provide a new perspective on citizenship education policies in Türkiye and highlight the importance of philosophical and pedagogical simplicity in curriculum development. The present study is constrained to an examination of curriculum documents. Subsequent research, incorporating the perspectives of teachers and students as well as classroom implementation, would facilitate a more comprehensive evaluation of these comparative analyses.

Declaration of Conflicting Interests

There is no conflict of interest.

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Ethics Approval and Consent to Participate

Since the research was carried out in line with the document review technique, it is in the category of studies that do not require an ethics committee report. In the study, no experiments, surveys or observations were conducted on humans, animals or any living creature. Existing documents were examined.

Declaration of AI Usage Statement

No artificial intelligence (AI) tools were used in the preparation, analysis, or writing of this manuscript.

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[Research Article / Araştırma Makalesi]

Parental Self Efficacy and Perceived Parenting Attitudes as Predictors of Parenting Styles in Preschool Parents

Okul Öncesi Dönemdeki Çocukların Ebeveynlerinde Ebeveynlik Stillerinin Belirleyicileri Olarak Ebeveyn Öz Yeterliliği ve Algılanan Ebeveynlik Tutumları

Ceyhan Turhan¹, Özge İdrisoğlu²

Keywords	Abstract
Parenting style Perceived parental attitude Self-efficacy	This study aims to examine the predictive impact of perceived parental attitudes and parental self-efficacy on current parenting styles of preschool parents. The study employs a correlational survey model, which is a quantitative research design. Data were collected from 202 parents of children aged 36-72 months using the Parental Attitude Scale, Berkeley Parental Self-Efficacy Scale, and the Shortened Perceived Parental Attitude Scale-Child Form (s-EMBU), and hierarchical regression analysis was applied to determine the predictive relationship between the variables. T-tests and ANOVA were used to analyze whether parental attitudes differed according to demographic variables. Findings revealed that repressive/authoritarian attitudes significantly differed based on income, education level, number of children, and employment status. Hierarchical regression analysis indicated that parental self-efficacy and a perceived democratic father attitude were significant predictors of democratic parenting styles. Also, regression analyses show that perceived paternal overprotection in childhood is a significant predictor of authoritarian parenting behaviors in adulthood. Additionally, mothers were found to exhibit significantly higher repressive attitudes than fathers. The results support the notion that both intergenerational patterns of parental attitudes and parental competence beliefs play a critical role in shaping current parenting styles during the preschool period. These findings highlight the importance of school-based parent guidance and psychoeducational programs in preschool settings, particularly those implemented by teachers and school counselors, that aim to strengthen parental self-efficacy and support more democratic and developmentally appropriate parenting practices.
Anahtar Sözcükler	Öz
Ebeveynlik stili Algılanan ebeveyn tutumu Öz yeterlik	Bu çalışma, algılanan ebeveyn tutumlarının ve ebeveyn öz yeterliliğinin okul öncesi dönemdeki ebeveynlerin mevcut ebeveynlik stilleri üzerindeki yordayıcı etkisini incelemeyi amaçlamaktadır. Çalışmada nicel bir araştırma modeli olan ilişkisel tarama modeli kullanılmaktadır. Veriler, 36-72 aylık çocukların 202 ebeveyninden, Ebeveyn Tutum Ölçeği, Revize Berkeley Ebeveyn Öz Yeterlilik Ölçeği ve Kısaltılmış Algılanan Ebeveyn Tutum Ölçeği-Çocuk Formu (s-EMBU-C) kullanılarak toplanmıştır. Değişkenler arasındaki yordayıcı ilişkiyi belirlemek için hiyerarşik çoklu regresyon analizi uygulanmış; ebeveyn tutumlarının demografik değişkenlere göre farklılık gösterip göstermediğini incelemek amacıyla bağımsız örneklem t-testi ve tek yönlü ANOVA kullanılmıştır. Bulgular, baskıcı/otoriter tutumların gelir düzeyi, eğitim durumu, çocuk sayısı ve istihdam durumuna göre anlamlı farklılıklar gösterdiğini ortaya koymuştur. Hiyerarşik regresyon analizi, ebeveyn öz yeterliliğinin ve çocuklukta algılanan babanın duygusal sıcaklığının demokratik ebeveynlik stillerinin anlamlı yordayıcıları olduğunu göstermiştir. Ayrıca regresyon analizleri, çocuklukta algılanan babanın aşırı koruyuculuğunun yetişkinlikteki otoriter ebeveynlik davranışlarının anlamlı bir yordayıcısı olduğunu ortaya koymaktadır. Buna ek olarak, annelerin babalara kıyasla anlamlı düzeyde daha yüksek baskıcı tutumlar sergilediği bulunmuştur. Sonuçlar, hem kuşaklar arası ebeveyn tutum örüntülerinin hem de ebeveyn yeterlilik inançlarının okul öncesi dönemde mevcut ebeveynlik stillerini şekillendirmede kritik bir rol oynadığı görüşünü desteklemektedir. Bu bulgular, özellikle öğretmenler ve okul psikolojik danışmanları tarafından uygulanan; ebeveyn öz yeterliliğini güçlendirmeyi ve daha demokratik ile gelişimsel açıdan uygun ebeveynlik pratiklerini desteklemeyi amaçlayan okul temelli ebeveyn rehberliği ve psiko-eğitim programlarının önemini vurgulamaktadır.

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Introduction

Parents are seen as key factors in children's behavioral, emotional, personality, and cognitive development (Holden & Edwards, 1989). For this reason, parenting has been the focus of researchers for many years and has been studied in its various dimensions from the 1930s to the present day. The most frequently used approach to understanding the diversity of parenting is to evaluate parents' attitudes toward raising children. Since the study of parenting attitudes began, many definitions have been proposed, but the most widely used categorization was developed by Baumrind (1967), who proposed three main classifications: democratic, authoritarian, and permissive parenting attitudes (Baumrind, 1971). The effects of parenting attitudes on child development have been the subject of numerous studies in the literature. Democratic parenting attitudes have been shown to be associated with higher self-esteem, self-confidence, emotion recognition and understanding, psychological resilience, social adjustment, and academic achievement in children; authoritarian parenting, on the other hand, has been linked to anxiety, depression, internet addiction, low self-efficacy, fear of negative evaluation, and behavioral problems (Bilge et al., 2022; Çakmak Tolan & Bolluk Uğur, 2024; Ersoy, 2018; Koçakoğlu & Sönmez, 2025; Koydemir-Özden & Demir, 2009; Spera, 2005; Steinberg et al., 1992; Troshikhina & Manukyan, 2016). These findings reveal that parenting attitudes are not only decisive for the quality of immediate parent-child interactions but also for children's long-term developmental outcomes.

While discussing the effects of parental attitudes on child development, studies on factors that may influence the attitudes exhibited by parents have gained importance. Belsky's (1984) model of determinants of parenting shows that, in addition to the parent's personality traits, work life, marital relationships, and the child's temperament, the parent's own developmental history is also a determinant of parenting. Studies in this context have revealed that individuals' perceptions of their own parents' parenting attitudes may influence the parenting they exhibit in adulthood. The intergenerational transmission of parenting has been examined in numerous studies, revealing that parents tend to use similar practices and strategies to those applied to them in their own childhood (Cabecinha-Alati et al., 2022; Talmon et al., 2019; van Ijzendoorn, 1992).

Chen and Kaplan (2001) found that constructive parenting is transmitted across generations through interpersonal relationships, social participation, and role-specific modeling. Bandura (1977) explains this through social learning theory, suggesting that children observe and model their parents' behaviors to develop their own behavioral repertoire, such that the attitudes and practices exhibited by parents can shape the child's future parenting. It is argued that this transmission is not limited to the behavioral level but also occurs at the cognitive and emotional levels; children not only observe the attitudes they see in their parents but also internalize them and develop cognitive schemas about parenting (Bugental & Johnston, 2000; Gibson & Francis, 2019; Parke & O'Neil, 1997; Patterson, 1997). Attachment theory also emphasizes the importance of perceived parental attitudes. According to Bowlby (1982) and Ainsworth (1978), the relationships children form with their caregivers are transformed into mental representations that guide subsequent relationships through "internal working models," which become active when the individual assumes the parental role and establishes relationships with their own child (Main et al., 1985). Therefore, perceived parental attitudes reflect the attachment patterns developed by the parent during childhood (Bugental & Johnston, 2000) and play a fundamental role in the display of parenting behaviors. Bronfenbrenner's (1979) ecological systems theory further offers a holistic perspective: a child's development is influenced not only by direct parental behavior but also by the perceptions and interpretations these behaviors create in the child's mind, such that perceived parental attitudes constitute one of the closest microsystem-level factors shaping development and creating intergenerational continuity in parenting.

Empirical studies support these theoretical accounts. Bailey et al. (2009), in a three-generation study, found that children who experienced strict discipline during childhood also practiced strict parenting toward their own children in adulthood. Similarly, individuals raised in an authoritarian family environment have been shown to exhibit oppressive parenting attitudes, while those raised in a democratic family tend to adopt more democratic practices (Karaman, 2019). Research on parent-infant relationships further demonstrates the intergenerational transmission of supportive parenting: pregnant women who recalled their own parents

as supportive, less intrusive, and more responsive were found to interact more harmoniously with their infants (Cox et al., 1985). Taken together, these studies underscore that past parenting experiences are clearly reflected in the practices of the new generation (Chen & Kaplan, 2001; Simons et al., 1991).

Another important factor influencing parenting is parental self-efficacy. According to Bandura's (1997, 2002) self-efficacy theory, an individual's perception of self-efficacy is directly related to their capacity for self-assessment and self-development, functioning as a powerful internal resource that guides motivation, persistence in the face of difficulty, and behavior. In this context, parenting self-efficacy is defined as an individual's belief in their capacity to fulfill parenting responsibilities (Bandura, 2002). Parents with high parental self-efficacy are expected to believe that they can effectively meet their children's needs and to exhibit more positive, supportive, and consistent parenting strategies (Ardelt & Eccles, 2001; Bandura, 1997; Sanders & Woolley, 2005). Research demonstrates a strong association between parental self-efficacy and warmth, responsiveness to children's needs, positive discipline, active parent-child interaction, and democratic parenting attitudes (Ardelt & Eccles, 2001; Coleman & Karraker, 1998; de Haan et al., 2009; Demirdöven & Özyürek, 2022; Jones & Prinz, 2005). Low parental self-efficacy, by contrast, has been associated with harsh, neglectful, inconsistent, and authoritarian parenting (Anicama, 2018; Demirdöven & Özyürek, 2022; Kong & Yasmin, 2022).

Parental self-efficacy appears to play an important role in the intergenerational transmission process. While it has been shown that the parenting attitudes of a parent's own mother and father influence their self-efficacy beliefs (Belsky, 1984), self-efficacy in turn shapes the parenting attitudes and practices parents exhibit today (Dumka et al., 2010; Fang et al., 2021; Richards, 2023; Taraban & Shaw, 2018). In addition to the attitudes the parent perceives from their own parents (Neppl et al., 2009), parental self-efficacy contributes to the parenting attitudes and practices displayed in adulthood. Studies (Bornstein et al., 2011) have shown that cultural values and social norms together shape parents' beliefs and, consequently, their parenting practices. It is expected that parents' beliefs about their own self-efficacy will influence their parenting attitudes. Examining this relationship is important both for understanding the intergenerational transmission of parenting attitudes and for establishing an evidence-based foundation for parent education programs.

Parental self-efficacy particularly relevant during the preschool years, when parents play a central role in supporting children's early learning experiences, school readiness, and developmental adjustment. Parents of preschool-aged children are often navigating the parenting role during a period in which competence beliefs remain relatively malleable and responsive to intervention (Dumka et al., 2010; Teti & Gelfand, 1991). This is especially important because foundational competencies developed during the preschool years, including language, self-regulation, and social skills, are highly sensitive to parenting quality (Shonkoff & Phillips, 2000). Research has shown that higher parental self-efficacy is associated with greater parental involvement in children's education during the preschool period (Pelletier & Brent, 2002), predicts children's school readiness both directly and indirectly through increased home-based parental involvement (Xiao et al., 2025), and is linked to more active engagement in children's early educational experiences (Amirazizi et al., 2024). Furthermore, parental self-efficacy during preschool years has been found to mediate the relationship between parenting style and children's learning outcomes, suggesting that it functions not only as a parental belief but also as an important mechanism through which parenting influences child development (Kong & Yasmin, 2022).

The preschool period, broadly defined as the years between birth and school entry (approximately 0–6 years of age), represents one of the most critical windows in human development (Shonkoff & Phillips, 2000). During this period, the brain exhibits extraordinary plasticity, and early experiences exert a foundational influence on the organization of neural circuits that underpin cognitive, linguistic, social, and emotional functioning throughout the lifespan (Shonkoff & Phillips, 2000). The family environment, and particularly the quality of parent-child interactions, constitutes the most proximal microsystem-level influence on development during these years (Bronfenbrenner, 1979). Research consistently demonstrates that warm, sensitive, and developmentally appropriate parenting during the preschool years is associated with stronger social-emotional competence in children, while inconsistent or harsh caregiving hinders healthy emotional regulation and interpersonal skill development (Baumrind, 1991; Darling & Steinberg, 1993). Research has consistently emphasized that experiences during the preschool years contribute not only

to children's immediate adjustment but also to their later academic achievement (Schweinhart et al., 1985), mental health, and social functioning (Barnett, 2011; Heckman, 2006; Shonkoff & Phillips, 2000). Therefore, understanding the factors associated with parenting attitudes during the preschool period is important for supporting healthy child development and promoting positive educational outcomes.

In addition to its developmental significance, preschool education represents one of the earliest formal contexts in which families and educational professionals establish regular and sustained interactions. Contemporary early childhood education frameworks emphasize that children's development is shaped not only by classroom experiences but also by family processes and parent–child interactions (Epstein, 2018; Sheridan et al., 2019). Consequently, family involvement and school–family partnerships are considered essential components of high-quality preschool education and have been associated with positive social, emotional, and academic outcomes for children (Fantuzzo et al., 2004; Mendez, 2010; Sheridan et al., 2010). Research has further demonstrated that parenting attitudes and parental beliefs influence preschool children's school readiness, social competence, behavioral adjustment, and early learning experiences (LaForett & Mendez, 2017; Sheridan et al., 2019). Therefore, understanding the factors associated with parenting attitudes during the preschool years may contribute not only to the parenting literature but also to efforts aimed at supporting children's developmental and educational outcomes through stronger family–school collaboration in early childhood settings.

Although a growing body of research has examined intergenerational transmission of parenting (Cabecinha-Alati et al., 2022; Talmon et al., 2019; van IJzendoorn, 1992) and the role of parental self-efficacy in parenting practices (Demirdöven & Özyürek, 2022; Jones & Prinz, 2005; Taraban & Shaw, 2018), these lines of research have largely developed separately. However, theoretical models of parenting suggest that parenting attitudes emerge through the combined influence of parents' developmental histories and their current psychological resources (Belsky, 1984). Therefore, examining perceived parental attitudes and parental self-efficacy together may provide a more comprehensive understanding of the factors that shape parenting attitudes. This issue may be particularly important during the preschool years, when parent–child interactions play a central role in children's developmental and educational experiences. Accordingly, the present study aims to examine the predictive roles of perceived parental attitudes received in childhood and parental self-efficacy on current parenting attitudes among parents of preschool-aged children. It is expected that the findings will contribute to the literature on parenting and early childhood education by informing family involvement, parent guidance, and psychoeducational practices implemented during the preschool years. In this context, the research questions are as follows:

1. Do parents' parenting attitudes differ significantly according to demographic variables?
2. Are parents' parenting attitudes significantly predicted by perceived parental attitudes received in childhood and their current levels of parental self-efficacy?

Methods/Materials

Research Design

The present study employs a correlational survey model as its quantitative research design. Correlational survey models aim to identify the existence or degree of co-variation between two or more variables and are utilized to reveal opinions, attitudes, and approaches regarding a specific subject within large samples (Büyüköztürk et al., 2012).

Study Group

The study group consists of parents residing in various provinces across Türkiye who have children aged between 36 and 72 months. Participants were recruited through convenience sampling, a non-probability sampling method in which individuals who are readily accessible and willing to participate are included in the study (Büyüköztürk et al., 2012). Data were collected between January 2025 and June 2025. To reach a broader and more diverse participant pool, the instruments were digitized and administered via Google Forms. The link to the online form was distributed through WhatsApp and Telegram groups composed

of parents with preschool-aged children. A total of 202 parents were reached through this process. Detailed demographic information regarding the participants is presented in Table 1.

Table 1

Parents' Demographic Information

		<i>f</i>	%
Gender	Female	151	74.8%
	Male	51	25.2%
Age	20-29 years	44	21.8%
	30-39 years	130	64.4%
	40 and over	28	13.9%
Education Status	Primary education	43	21.3%
	High school	56	27.7%
	Bachelor's degree	75	37.1%
	Postgraduate education	28	13.9%
Employment Status	Yes	93	46.0%
	No	109	54.0%
Income Level	Low income	132	65.3%
	Middle income	41	20.3%
	High income	29	14.3%
Number of Children	1	60	29.7%
	2	93	46.0%
	3 and over	49	24.3%
Total		202	100%

Analysis of the data reveals that the participants were predominantly female ($n = 151$, 74.8%) and concentrated within the 30–39 age range ($n = 130$, 64.4%). Regarding educational attainment, the largest cohort held a bachelor's degree ($n = 75$, 37.1%); however, a significant portion of the sample reported belonging to the low-income bracket (65.3%). Furthermore, 54% of the participants were not actively employed at the time of the study, and nearly half of the group ($n = 93$, 46%) had two children. This study was approved by Fatih Sultan Mehmet Vakıf University Scientific Research and Ethics Committee with protocol number 29/04.

Data Collection Tools

The data collection process involved the use of a Demographic Information Form developed by the researchers, the Parental Attitude Scale (Özyürek, 2017), the Revised Berkeley Parental Self-Efficacy Scale (Güler Yıldız et al., 2021), and the Shortened Perceived Parental Attitudes Scale–Child Form (Dirik et al., 2015). Permission for the use of all measurement scales was obtained from the respective authors comply with academic ethical standards. Detailed descriptions of the instruments are provided below.

Demographic Information Form

Developed by the researchers, this form was designed to capture essential participant characteristics, including age, gender, educational attainment, employment status, and number of children.

Parenting Attitude Scale (PAS)

Parenting styles were assessed using the scale developed by Özyürek (2017). This 38-item instrument utilizes a 5-point Likert-type format, ranging from "Strongly Disagree" (1) to "Strongly Agree" (5), allowing parents to report the approach that best fits their daily practices. The scale comprises three sub-dimensions: Democratic Attitude (15 items), Repressive/Authoritarian Attitude (12 items), and Extremely Tolerant Attitude (11 items), with higher scores indicating stronger alignment with the corresponding parenting style. In the original validation study involving 544 parents of preschool children, the scale demonstrated solid psychometric properties, with Cronbach's alpha coefficients of .87, .77, and .72 for the respective subscales and test–retest correlations of .82, .70, and .77. In the present study, the internal consistency coefficients were .85 for Democratic Attitude, .77 for Repressive/Authoritarian Attitude, and .75 for Extremely Tolerant Attitude, confirming the instrument's reliability for the current sample.

Revised Berkeley Parental Self-Efficacy Scale (BPSE-R)

To assess parents' sense of parenting competence, the scale originally developed by Holloway et al. (2019) and adapted into Turkish by Güler Yıldız et al. (2021) was employed. This 18-item instrument evaluates self-efficacy across two primary domains: Parenting-Specific Strategies and Child-Related Accomplishments. Responses are collected via a 6-point Likert-type scale, with higher total scores indicating stronger perceived parenting capability. The Turkish adaptation study reported an overall Cronbach's alpha of .91 and a test-retest stability coefficient of .67. In the present study, the overall internal consistency coefficient was found to be .92, confirming the instrument's reliability for the current sample.

Shortened Perceived Parental Attitudes Scale–Child Form (s-EMBU-C)

To measure participants' retrospective perceptions of their own upbringing, the study utilized the scale developed by Arrindell et al. (1999) and adapted into Turkish by Dirik et al. (2015). This 23-item instrument assesses how adults perceive the child-rearing behaviors of their parents across three dimensions: Emotional Warmth, Over-protection, and Rejection. Separate forms are used for maternal and paternal perceptions on a 4-point Likert-type scale, providing a nuanced view of each parent's influence. While the original Turkish adaptation study reported internal consistency coefficients ranging from .50 to .73, the present study observed notably higher reliability across all sub-dimensions. Specifically, Cronbach's alpha coefficients for maternal perceptions were .74 for Emotional Warmth, .80 for Over-protection, and .77 for Rejection; paternal perceptions demonstrated similarly strong reliability, with coefficients of .81, .79, and .78, respectively.

Data Analysis

Prior to the main analyses, the normality of the data distribution was examined through skewness and kurtosis statistics, and the data were found to be normally distributed. Hierarchical multiple regression analysis was then applied to determine the predictive relationships between the variables. Independent samples t-tests and one-way ANOVA were used to analyze whether parenting attitudes differed significantly according to demographic variables.

Findings

This section presents the empirical findings derived from diverse statistical procedures, including correlation and regression analyses. These analyses explore the relationships between parental attitudes and several key variables: parental demographics, perceived parental attitudes, and parental self-efficacy. The resulting data are summarized in the tables provided below.

Table 2

One-Way ANOVA Results for Parental Attitudes Based on Income Level

		Sum of Squares	df	Mean Squares	F	p	η^2
Democratic Attitude	Between Groups	27.477	2	13.738	.334	.716	0.003
	Within Groups	8186.602	199	41.139			
	Total	8214.079	201				
Repressive/Authoritarian Attitude	Between Groups	1355.466	2	677.733	21.460	<.001***	0.177
	Within Groups	6284.633	199	31.581			
	Total	7640.099	201				
Extremely Tolerant Attitude	Between Groups	11.403	2	5.701	.198	.821	0.002
	Within Groups	5731.176	199	28.800			
	Total	5742.579	201				

Note. *p<.05, **p<.01, ***p<.001

The analysis presented in Table 2 utilizes a One-Way Analysis of Variance (ANOVA) to investigate whether parental attitudes are significantly differentiated by income levels, thereby exploring how socioeconomic stability influences the psychological and emotional framework of the household. Specifically, the data indicates that Democratic Attitude ($F(2,199) = 0.33$, $p = .716$) and Extremely Tolerant Attitude ($F(2,199) = 0.20$, $p = .821$) do not exhibit significant variations across distinct income cohorts. In stark contrast,

the analysis identifies a highly significant relationship between income level and Repressive/ Authoritarian Attitude ($F(2,199) = 21.46, p < .001$). The partial eta-squared value (0.177) represents a large effect size within the social sciences, indicating that approximately 17.7% of the variance in authoritarian parenting behaviors can be directly attributed to the parent's income level. Post-hoc comparisons using the Bonferroni test indicated that the mean score for the Low-Income group ($M = 41.34, SD = 5.64$) was significantly higher than the Middle-Income group ($M = 35.75, SD = 6.18$) and High-Income group ($M = 36.02, SD = 4.98$) ($p < .001$).

Table 3*One-Way ANOVA Results for Parental Attitudes Based on Educational Background*

		Sum of Squares	df	Mean Squares	F	p	η^2
Democratic Attitude	Between Groups	84.737	3	28.246	.688	.560	.010
	Within Groups	8129.342	198	41.057			
	Total	8214.079	201				
Repressive/ Authoritarian Attitude	Between Groups	1937.353	3	645.784	22.422	<.001***	.253
	Within Groups	5702.746	198	28.802			
	Total	7640.099	201				
Extremely Tolerant Attitude	Between Groups	181.317	3	60.439	2.152	.095	.032
	Within Groups	5561.262	198	28.087			
	Total	5742.579	201				

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

The investigation detailed in Table 3 employs a One-Way Analysis of Variance (ANOVA) to explore the nexus between parental education levels and the parental attitudes. The results indicate a nuanced landscape where certain attitudes remain impervious to formal schooling, while others are fundamentally transformed by educational attainment. Specifically, neither the Democratic Attitude ($F(3,198) = 0.69, p = .560$) nor the Extremely Tolerant Attitude ($F(3,198) = 2.15, p = .095$) yielded statistically significant variations across the educational spectrum. In contrast, the analysis uncovers a profound and highly significant relationship between education level and the Repressive/ Authoritarian Attitude ($F(3,198) = 22.42, p < .001$). The partial eta-squared value signifies a massive effect size, suggesting that approximately 25.3% of the total variance in authoritarian behaviors is explained by the parent's educational background—a finding of exceptional strength in the social sciences. Post-hoc comparisons using the Bonferroni test indicated that the mean score for the bachelor's degree group ($M = 37.13, SD = 5.48$) and Postgraduate group ($M = 35.39, SD = 4.44$) was significantly lower than the other groups (primary education and high school) ($p < .001$).

Table 4*One-Way ANOVA Results for Parental Attitudes Based on the Number of Children*

		Sum of Squares	df	Mean Squares	F	p	η^2
Democratic Attitude	Between Groups	372.615	2	186.307	4.728	.010	.045
	Within Groups	7841.465	199	39.404			
	Total	8214.079	201				
Repressive/ Authoritarian Attitude	Between Groups	887.913	2	443.957	13.084	<.001***	.116
	Within Groups	6752.186	199	33.931			
	Total	7640.099	201				
Extremely Tolerant Attitude	Between Groups	95.194	2	47.597	1.677	.190	.017
	Within Groups	5647.385	199	28.379			
	Total	5742.579	201				

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

The investigation detailed in Table 4 shifts the analytical focus toward household dynamics, specifically examining how family size—measured by the number of children—serves as a catalyst for shifts in parental behavior. Notably, this analysis provides the first instance in the current dataset where Democratic Attitude ($F(2,199) = 4.728, p = .010, \eta^2 = .045$) is significantly influenced by a demographic variable. This pressure is further evidenced by the highly significant relationship identified between the number of children in the household and the Repressive/ Authoritarian Attitude ($F(2,199) = 13.084, p < .001, \eta^2 = .116$). The substantial

effect size implies that family size accounts for approximately 11.6% of the variance in authoritarian behaviors. Conversely, the findings indicate that the Extremely Tolerant Attitude remains statistically stable across different family sizes ($F(2,199) = 1.677, p = .190, \eta^2 = .017$). Post-hoc comparisons using the Bonferroni test indicated that the mean score for the Bachelor's degree group ($M = 37.13, SD = 5.48$) and Postgraduate group ($M = 35.39, SD = 4.44$) was significantly lower than the other groups (primary education and high school) ($p < .001$). Post hoc comparisons using the Bonferroni adjustment revealed that for democratic attitudes, parents with three or more children ($M = 62.57, SD = 5.91$) exhibited significantly lower scores compared to those with a single child ($M = 66.23, SD = 6.10$) and those with two children ($M = 65.05, SD = 6.56$). No statistically significant difference was observed between the one-child and two-child groups ($p > .05$). In contrast, the analysis for Repressive/ Authoritarian attitudes indicated significant differences across all pairwise comparisons ($p < .05$). Specifically, repressive/authoritarian attitude scores for parents with one child ($M = 36.68, SD = 6.06$), two children ($M = 39.69, SD = 5.46$), and three or more children ($M = 42.38, SD = 6.17$) were all significantly distinct from one another, suggesting that each incremental increase in the number of children is associated with a significant shift in repressive parenting tendencies.

Table 5*Independent Samples t-Test Results for Parental Attitudes by Parent Gender*

		n	Mean	SD	t	df	p	Cohen's d
Democratic Attitude	Mother	151	65.2715	6.16542	1.806	200	.072	.30
	Father	51	63.4118	6.89979				
Repressive/ Authoritarian Attitude	Mother	151	40.1987	5.89578	3.007	200	.003**	0.48
	Father	51	37.2549	6.47408				
Extremely Tolerant Attitude	Mother	151	26.0530	5.01835	-1.140	200	.256	0.18
	Father	51	27.0392	6.20954				

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 5 examines the influence of gender on parental attitudes through the application of an independent samples t-test, providing insight into how the roles of mothers and fathers may diverge or converge in the domestic sphere. The findings reveal that Democratic Attitude ($t(200) = 1.806, p = .072$) and Extremely Tolerant Attitude ($t(200) = -1.140, p = .256$) do not vary significantly between genders. In contrast, the Repressive/ Authoritarian Attitude dimension exhibits a statistically significant gender-based distinction ($t(200) = 3.007, p = .003$). The data indicates that mothers ($M = 40.20, SD = 5.89$) score higher on the authoritarian scale than fathers ($M = 37.25, SD = 6.47$), with a Cohen's d of signifying a moderate effect size (Cohen's $d = .48$).

Table 6*Independent Samples t-Test Results for Parental Attitudes Based on Employment Status*

		N	M	SS	t	sd	p	Cohen's d
Democratic Attitude	Yes	93	64.3548	6.89619	-.918	200	.360	0.30
	No	109	65.1835	5.93509				
Repressive/ Authoritarian Attitude	Yes	93	36.8602	5.62717	-5.986	200	<.001***	0.48
	No	109	41.6697	5.74626				
Extremely Tolerant Attitude	Yes	93	26.4086	5.15886	.261	200	.794	0.18
	No	109	26.2110	5.52113				

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 6 presents the analysis of parenting attitudes according to parents' employment status, conducted using an independent samples t-test. Regarding Democratic Attitude ($t(200) = -0.918, p = .360$) and Extremely Tolerant Attitude ($t(200) = 0.261, p = .794$), the findings show no statistically significant differences, with remarkably similar mean scores for democratic engagement across both working and non-working cohorts. In contrast, a significant and substantial difference emerged within the Repressive/ Authoritarian Attitude dimension ($t(200) = -5.986, p < .001$). Parents who are not currently active in the workforce reported significantly higher authoritarian scores ($M = 41.67$) compared to their working counterparts ($M = 36.86$). The

calculated Cohen's d (0.48) of signifies a medium effect size, suggesting a tangible trend rather than a mere statistical anomaly.

Table 7

Pearson Correlation Matrix Between Parenting Attitudes, Perceived Parental Attitudes, and Parental Self-Efficacy

	Parental - Self-Efficacy (Strategy)	Parental Self-Efficacy (Achievement)	Paternal Emotional Warmth	Paternal Overprotection	Paternal Rejection	Maternal Emotional Warmth	Maternal Overprotection	Maternal Rejection
Democratic Attitude	.570**	.571**	.292**	-.058	-.158*	.246**	-.022	-.111
Repressive/ Authoritarian Attitude	-.013	.085	.144*	.142*	-.090	.100	.109	-.066
Extremely Tolerant Attitude	-.210**	-.217**	-.073	.018	.065	-.109	-.012	.066

Note. * $p < .05$, ** $p < .01$ (2-tailed). $N = 202$

Table 7 shows the correlation between parental attitudes and perceived parental attitude and parenting self-efficacy. A strong, positive, and highly significant correlation exists between a democratic attitude and both dimensions of Parental Self-Efficacy, specifically Strategy ($r = .570$, $p < .01$) and Achievement ($r = .571$, $p < .01$). This style appears to be part of a healthy intergenerational cycle, as it correlates significantly with having been raised by a paternal emotional warmth ($r = .292$) or maternal emotional warmth ($r = .246$), suggesting that democratic values are effectively transmitted across generations through the mediation of self-confidence. In contrast, the data uncovers what may be termed a "competence drain" regarding the Extremely Tolerant Attitude, which exhibits a significant negative correlation with both the Strategy ($r = -.210$) and Achievement ($r = -.217$) dimensions of self-efficacy. The analysis of the Repressive/Authoritarian Attitude presents a more complex, situational picture, as it shows almost no statistical relationship with self-efficacy ($r = -.013$ and $.085$). Interestingly, it maintains only a slight positive correlation with having had a paternal emotional warmth ($r = .144$) or a paternal overprotection ($r = .142$).

Table 8

Hierarchical Regression Analysis Predicting Democratic Attitude

		B	Std. Error	Beta	t	p	R	R ²	ΔR^2	F
Model 1	Constant	56.201	3.729		15.071	<.001	.304	.092	.065	3.311**
	Paternal Emotional Warmth	.287	.152	.232	1.885	.061				
	Paternal Overprotection	-.045	.171	-.032	-.263	.793				
	Paternal Rejection	.048	.247	.029	.194	.847				
	Maternal Emotional Warmth	.182	.176	.127	1.031	.304				
	Maternal Overprotection	-.039	.157	-.029	-.248	.804				
	Maternal Rejection	.090	.216	.060	.419	.675				
Model 2	Constant	41.245	3.384		12.190	<.001	.640	.409	.385	16.709***
	Paternal Emotional Warmth	.328	.124	.266	2.651	.009				
	Paternal Overprotection	-.074	.140	-.053	-.529	.597				
	Paternal Rejection	.178	.201	.109	.884	.378				
	Maternal Emotional Warmth	-.146	.147	-.101	-.993	.322				
	Maternal Overprotection	.030	.129	.023	.233	.816				
	Maternal Rejection	-.159	.177	-.105	-.900	.369				

	B	Std. Error	Beta	t	p	R	R2	ΔR^2	F
Parental Self-Efficacy (Achievement)	.210	.059	.308	3.582	<.001				
Parental Self-Efficacy (Strategy)	.375	.098	.326	3.817	<.001				

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. β : Standardized coefficients; ΔR^2 : R-square change.

Dependent Variable: Democratic Attitude

Model 1: Perceived Parental Attitude (Father/ Mother emotional warmth, overprotection and rejection)

Model 2: Perceived Parental Attitude (Father/ Mother emotional warmth, overprotection and rejection), Parental Self-Efficacy (Achievement/Strategy)

Table 8 presents the results of a two-step hierarchical regression analysis conducted to determine the predictors of Democratic Attitude. In the first step, perceived parental attitudes (from the participants' own parents) were entered into the model. In the second step, dimensions of parental self-efficacy (Achievements and Strategies) were added to evaluate their incremental contribution to the variance.

In Model 1, the collective impact of perceived parental attitudes (both mother and father) was examined. The results indicate that Model 1 is statistically significant ($F=3.311$, $p < .01$), accounting for approximately 9.2% of the total variance ($R^2 = .092$) in the participants' democratic attitudes. However, when examining individual predictors, none of the perceived parental attitudes reached the traditional level of statistical significance ($p > .05$), although "Paternal Emotional Warmth" attitude showed a marginal trend toward significance ($\beta = .232$, $t = 1.885$, $p = .061$).

In Model 2, parental self-efficacy dimensions (Achievements and Strategies) were included in the analysis. The addition of these variables resulted in a significant improvement in the model's predictive power. The total variance explained increased to 40.9% ($R^2 = .409$), indicating that the inclusion of self-efficacy variables accounted for a substantial and significant increase in the variance ($\Delta R^2 = .317$, derived from the difference between Model 1 and Model 2). The overall model remained highly significant ($F = 16.709$, $p < .001$).

In the final model (Model 2), three variables emerged as significant positive predictors of Democratic Attitude:

Parental Self-Efficacy – Strategies: This was the strongest predictor in the model ($\beta = .326$, $t = 3.817$, $p < .001$), suggesting that parents who feel more competent in utilizing parenting strategies are more likely to adopt an authoritative/democratic style. Parental Self-Efficacy – Achievements: This dimension also significantly and positively predicted the dependent variable ($\beta = .308$, $t = 3.582$, $p < .001$). Perceived Democratic Father Attitude: Interestingly, once self-efficacy was controlled for, the influence of having had a democratic father became statistically significant ($\beta = .266$, $t = 2.651$, $p = .009$).

The hierarchical regression analysis demonstrates that while perceived upbringing (specifically paternal emotional warmth) plays a role, parental self-efficacy is a much more powerful determinant of a parent's democratic attitude. The transition from Model 1 to Model 2 underscores that a parent's belief in their own capabilities (both in achieving parenting goals and implementing strategies) explains the majority of the variance in their democratic attitude toward their own children.

Table 9

Hierarchical Regression Analysis Predicting Repressive/Authoritarian Attitude

	B	Std. Error	Beta	t	p	R	R2	ΔR^2	F
Constant	35.049	3.655		9.590	<.001	.251	.063	.034	2.182
Paternal Emotional Warmth	.106	.149	.089	.710	.479				
Paternal Overprotection	.365	.168	.270	2.174	.031				
Paternal Rejection	-.366	.242	-.233	-1.513	.132				
Maternal Emotional Warmth	-.058	.173	-.042	-.334	.738				
Maternal Overprotection	-.024	.154	-.019	-.158	.875				

		B	Std. Error	Beta	t	p	R	R2	ΔR^2	F
	Maternal Rejection	.064	.211	.044	.305	.761				
	Constant	35.527	4.061		8.749	<.001	.292	.085	.047	2.243
	Paternal Emotional Warmth	.081	.149	.068	.547	.585				
	Paternal Overprotection	.417	.169	.308	2.471	.014				
	Paternal Rejection	-.398	.241	-.253	-1.649	.101				
Model 2	Maternal Emotional Warmth	-.066	.176	-.047	-.373	.709				
	Maternal Overprotection	-.077	.155	-.060	-.498	.619				
	Maternal Rejection	.038	.212	.026	.181	.857				
	Parental Self-Efficacy (Achievement)	.148	.070	.225	2.104	.037				
	Parental Self Efficacy (Strategy)	-.222	.118	-.200	-1.885	.061				

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. β : Standardized coefficients; ΔR^2 : R-square change.

Dependent Variable: Repressive/Authoritarian Attitude

Model 1: Perceived Parental Attitude (Father/ Mother emotional warmth, overprotection and rejection)

Model2: Perceived Parental Attitude (Father/ Mother emotional warmth, overprotection and rejection), Parental Self-Efficacy (Achievement/Strategy)

Table 9 details a two-step hierarchical regression analysis aimed at identifying the predictors of Repressive/Authoritarian Attitude. The analysis evaluates the influence of perceived parental attitudes from the previous generation (Model 1) and the incremental impact of current parental self-efficacy (Model 2).

In the first step, the model included perceived maternal and paternal attitudes. Model 1 explained approximately 6.3% of the total variance in repressive/authoritarian attitudes ($R^2 = .063$, $F = 2.182$). The only statistically significant predictor in this step was perceived paternal overprotection ($\beta = .270$, $t = 2.174$, $p = .031$). This suggests that individuals who perceived their fathers as overprotective are more likely to adopt authoritarian attitudes in their own parenting. Other variables, including perceived maternal attitudes and paternal rejection or emotional warmth, did not significantly contribute to the model ($p > .05$).

In the second step, the dimensions of parental self-efficacy (Achievements and Strategies) were added to the model. The inclusion of these variables increased the total variance explained to 8.5% ($R^2 = .085$), with the table indicating an incremental change ($\Delta R^2 = .047$). The overall model remained significant ($F = 2.243$, $p < .05$).

Upon examining the final model (Model 2), the following findings emerged:

Perceived Paternal Overprotection: This remained a significant and positive predictor ($\beta = .308$, $t = 2.471$, $p = .014$). Its influence actually strengthened slightly after controlling for self-efficacy, indicating a robust intergenerational link between paternal overprotectiveness and repressive/authoritarian attitudes. Parental Self-Efficacy – Achievements: This dimension was found to be a significant positive predictor ($\beta = .225$, $t = 2.104$, $p = .037$). This suggests that higher confidence in achieving specific parenting outcomes is associated with a more repressive/authoritarian attitudes. Parental Self-Efficacy – Strategies: This variable showed a negative relationship with repressive/authoritarian attitudes ($\beta = -.200$); however, it did not reach the threshold for statistical significance ($t = -1.885$, $p = .061$).

The analysis reveals that perceived paternal overprotection is the most consistent predictor of an individual's repressive/authoritarian attitudes. The relatively low total R^2 (8.5%) suggests that other factors not included in this model—such as personality traits, child temperament, or socioeconomic stress—may also play substantial roles in determining authoritarian parenting attitudes.

Table 10*Hierarchical Regression Analysis Predicting Extremely Tolerant Attitude*

		B	Std. Error	Beta	t	p	R	R2	ΔR^2	F
Model 1	Constant	28.788	3.248		8.862	<.001	.122	.015	-.015	.495
	Paternal Emotional Warmth	.045	.132	.044	.342	.732				
	Paternal Overprotection	.070	.149	.060	.467	.641				
	Paternal Rejection	-.021	.215	-.015	-.098	.922				
	Maternal Emotional Warmth	-.154	.154	-.128	-1.000	.319				
	Maternal Overprotection	-.097	.137	-.087	-.705	.481				
	Maternal Rejection	.059	.188	.047	.314	.754				
	Constant	33.429	3.568		9.369	<.001	.245	.060	.021	1.546
Model 2	Paternal Emotional Warmth	.034	.131	.033	.263	.793				
	Paternal Overprotection	.075	.148	.064	.505	.614				
	Paternal Rejection	-.059	.212	-.043	-.279	.780				
	Maternal Emotional Warmth	-.051	.155	-.042	-.327	.744				
	Maternal Overprotection	-.114	.137	-.102	-.835	.405				
	Maternal Rejection	.139	.186	.110	.746	.456				
	Parental Self-Efficacy (Achievement)	-.077	.062	-.136	-1.252	.212				
	Parental Self Efficacy (Strategy)	-.100	.104	-.104	-.962	.337				

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. β : Standardized coefficients; ΔR^2 : R-square change.

Dependent Variable: Repressive/Authoritarian Attitude

Model 1: Perceived Parental Attitude (Father/ Mother emotional warmth, overprotection and rejection)

Model 2: Perceived Parental Attitude (Father/ Mother emotional warmth, overprotection and rejection), Parental Self-Efficacy (Achievement/Strategy)

Table 10 illustrates the results of a two-step hierarchical regression analysis conducted to identify the predictors of Extremely Tolerant Attitude. The analysis examined the predictive roles of perceived parental attitudes from the previous generation (Model 1) and the incremental contribution of current parental self-efficacy dimensions (Model 2).

In the first model, perceived maternal and paternal attitudes were entered as independent variables. The results indicate that Model 1 is not statistically significant ($F = 0.495$, $p > .05$). The variables included in this step explained only a negligible 1.5% of the total variance ($R^2 = .015$) in extremely tolerant attitudes. None of the individual predictors (perceived attitudes of the mother or father) reached statistical significance, suggesting that the participants' perceptions of how they were raised do not significantly predict their own extremely tolerant attitude in this sample.

In the second model, the dimensions of parental self-efficacy (Achievements and Strategies) were added to the analysis to observe their incremental impact. Although the total variance explained increased to 6.0% ($R^2 = .060$) with an incremental change of 2.1% ($\Delta R^2 = .021$), the overall model remained statistically non-significant ($F = 1.546$, $p > .05$).

In the final model (Model 2), none of the independent variables—neither the perceived parental attitudes nor the parental self-efficacy dimensions—emerged as significant predictors of a permissive parenting style ($p > .05$ for all coefficients). While "Parental Self-Efficacy – Achievements" ($\beta = -.136$) and "Strategies" ($\beta = -.104$) showed slight negative associations, these did not reach the threshold for statistical significance.

The findings from Table 10 suggest that Extremely Tolerant Attitude is not significantly predicted by the variables examined in this study (perceived upbringing and current self-efficacy). The lack of statistical

significance across both models indicates that other latent factors—such as cultural influences, specific child temperaments, or different psychological constructs not captured here—may be more influential in determining a permissive approach to parenting. In academic terms, the null hypothesis, which states that perceived parental attitudes and self-efficacy do not predict Extremely Tolerant Attitude, cannot be rejected based on this data.

Discussion

The primary objective of the present study was to investigate parenting attitudes during the preschool years. To achieve this, the study first examined whether parenting attitudes differ significantly based on various socio-demographic variables. Second, it evaluated how current parenting attitudes are predicted by parents' perceived parental attitudes from their own childhoods and their current levels of parental self-efficacy. In line with these objectives, the following sections discuss the significant relationships identified between these demographic factors, intergenerational experiences, and self-efficacy beliefs within early childhood educational contexts.

Socio-Demographic Variations in Parenting Attitudes

Regarding the first objective of the study, the findings indicated that certain socio-demographic variables significantly correlate with negative or repressive parenting attitudes. Income level, education status, and employment status all had a statistically significant impact on repressive scores. Parents with lower income and education levels, as well as those who are unemployed, reported higher levels of repressive attitudes. This may indicate that socio-economic stressors limit the psychological resources required for flexible parenting. Furthermore, statistically significant higher repressive scores were observed in mothers compared to fathers within this preschool sample.

Although many factors influence parenting styles and practices, parental socioeconomic status has been identified as an important factor in shaping parenting due to its close relationship with parental stress, which directly affects parenting behaviors (Wagner, 2024). Stressors such as unemployment, low income, and low education increase parental stress, which is positively associated with harsher disciplinary practices and increased parent–child conflict (Liu et al., 2020). In this context, maternal stress significantly predicts authoritarian parenting (Chen & Luster, 2002). Research consistently reports a negative association between parental socioeconomic status and negative parenting practices (Ayoub & Bachir, 2025; Teng et al., 2018). Income represents a critical protective factor that enhances parenting quality, especially in mother–partner family structures. As family income increases, inadequate parenting behaviors like low emotional warmth and harsh discipline significantly decline. This suggests that financial resources enhance parenting quality by reducing parenting-related stress and allowing parents to allocate more time and support for caregiving (Berger, 2007).

In addition to income, educational level has been shown to play an important role in parenting. Increases in educational level equip parents with more effective coping strategies when faced with life stressors such as financial strain. Conversely, economic stress may place direct pressure on parenting practices and, together with time constraints related to work demands, be associated with a higher likelihood of negative parenting patterns, including controlling, inconsistent, or less responsive behaviors, particularly among parents with lower income and lower levels of education (Anton et al., 2015). Research further indicates that mothers with higher levels of education tend to have greater knowledge about child development and parenting, which helps them better understand their children's developmental needs and have more realistic expectations. In contrast, limited or inaccurate parenting knowledge is associated with higher parenting stress and a greater likelihood of controlling or authoritarian parenting behaviors (de Castro Ribas et al., 2003). Consistent with these findings, parents who had completed only primary or secondary education demonstrated significantly higher levels of authoritarian parenting compared to parents with bachelor's or master's degrees (Demirdöven & Özyürek, 2022), and authoritarian parenting scores were found to decrease as mothers' educational levels increased (Şanlı & Öztürk, 2012).

Employment status has also been linked to authoritarian parenting. Studies have shown that non-working mothers exhibit significantly higher levels of authoritarian parenting compared to working mothers

(Demirdöven & Özyürek, 2022; Şanlı & Öztürk, 2012). Similarly, authoritarian and overprotective parenting attitudes are significantly higher among non-working parents (Aydoğdu & Dilekmen, 2016). Additionally, it is thought that the significantly higher oppressive scores observed in mothers compared to fathers may be related to the higher burden of caregiving tasks that mothers generally undertake in the sample population. Recent studies (Chen et al., 2025) also present findings showing that authoritarian mothers significantly overinvolved in their children's developmental process than fathers.

Overall, the present findings support the existing literature indicating that socioeconomic disadvantage is closely associated with authoritarian parenting attitudes. These findings are particularly important in the preschool context, given that authoritarian parenting has been associated with behavioral problems, lower social competence, and poorer emotional regulation in young children (Ayık et al., 2025; Sukumaran & Balakrishna, 2021). Since these competencies constitute important developmental outcomes targeted by preschool education, early childhood institutions may represent a valuable context for identifying families experiencing socioeconomic risk factors and providing preventive support. Family involvement and school–family partnership practices are considered central components of high-quality early childhood education (Epstein, 2018; Sheridan et al., 2019), placing preschool teachers and school counselors in a important position to support families through parent guidance and psychoeducational programs. Evidence from early childhood parent-focused interventions suggests that parenting support programs can strengthen positive parenting practices and reduce harsh disciplinary strategies among parents of young children (Sanders et al., 2014; Webster-Stratton & Reid, 2010). Such efforts may help promote more positive parenting practices and reduce the impact of risk factors associated with authoritarian parenting. Considering the long-term benefits of early intervention during the preschool years (Heckman, 2006; Shonkoff & Phillips, 2000), supporting families at this stage may contribute not only to children's social and emotional development but also to reducing the continuity of maladaptive parenting patterns across generations.

Predictors of Democratic Parenting Attitudes

Regarding the second objective of the study, the regression analysis revealed that current democratic parenting attitudes are primarily shaped by parental self-efficacy and perceived paternal emotional warmth. According to the hierarchical regression analysis, the inclusion of self-efficacy variables significantly increased the explained variance to 40.9%. This finding suggests that a parent's belief in their strategies and achievements is a stronger determinant of democratic parenting than their demographic background or upbringing alone. Specifically, perceived emotional warmth from the father in the past serves as a positive model for current democratic practices.

The findings strongly align with the literature highlighting the relationship between parental self-efficacy and parenting attitudes. Mothers with high self-efficacy perceptions have been shown to exhibit more positive parenting approaches (Hamovitch et al., 2019). The relationship between parental self-efficacy and effective and supportive parenting practices and democratic attitudes has been highlighted in numerous studies (Carbone et al., 2024; Vence & Brandon, 2017). This suggests that the psychological mechanism underlying the shift away from democratic parenting is often a decline in self-efficacy. Indeed, it has been found that the democratic parenting style shows a positive and meaningful relationship with self-efficacy (Ayık et al., 2025).

The findings also show that self-efficacy is related to how parents interpret their past parenting experiences. The fact that women with high self-efficacy report perceiving more support from their parents during childhood (Suzuki et al., 2009) suggests that perceived parental warmth may have an intergenerational effect through self-efficacy beliefs. In this context, the finding in our study that perceived emotional warmth from fathers predicts democratic parenting attitudes is meaningful in terms of both modeling processes and the developmental foundations of self-efficacy. Longitudinal studies also support this interpretation. A three-wave longitudinal study found that mothers' parental self-efficacy predicted supportive parenting practices over time (Glatz & Buchanan, 2015). Similarly, parental self-efficacy has been shown to be associated with more supportive and involved parenting behavior and less coercive parenting (Murdock, 2013) and to predict future positive control practices (Dumka et al., 2010).

Furthermore, from the perspective of fathers, it has been reported that fathers' perceptions of cognitive competence in parenting and the frequency of play interactions during the week significantly explain warmth and encouragement, which are characteristic features of democratic parenting (Kim & Shin, 2013). It has also been suggested that rough-and-tumble play between fathers and children in early childhood may be effective in regulating aggression (Paquette, 2004). Another study demonstrates that fathers' high level of self-efficacy is associated with warmth and positive control parenting behaviors (Shim & Lim, 2019). A similar pattern is observed for mothers. It has been found that as mothers' perceptions of their parenting competence increase, their democratic attitudes toward their children increase also (Demirdöven & Özyürek, 2022).

Within the preschool context, these findings hold important implications. Parental self-efficacy during the preschool years has been identified as a significant predictor of children's learning outcomes and school readiness, operating not merely as a correlate but as an active mediating mechanism linking parenting style to child development (Kong & Yasmin, 2022). Higher parental self-efficacy is associated with more positive home learning activities and stronger socio-emotional and language skills in preschool children (Gessulat et al., 2024), and with lower externalizing problem behaviors from preschool age onward (Glatz et al., 2024). Furthermore, parenting interventions targeting self-efficacy beliefs in preschool settings have demonstrated significant increases in parents' overall competence perceptions, with positive effects on parent–teacher relationships and children's school readiness (Resnik et al., 2023). These findings suggest that preschool institutions represent an especially strategic context for self-efficacy-focused parent guidance programs.

Another contribution of the study is that it reveals democratic parenting cannot be explained solely through self-efficacy; emotional learning and internalized relationship experiences (Van IJzendoorn, 1992) also independently contribute to these attitudes. The effect of parental warmth on democratic parenting appears consistent with the intergenerational transmission literature (Van IJzendoorn, 1992). It is noted that positive parenting attitudes are transmitted more harmoniously across generations, whereas the impact of negative attitudes increases, particularly in contexts of relational conflict and inconsistency (Lu et al., 2025). This finding suggests that emotional warmth is not merely a past experience but also an internal relationship schema that determines how parenting is structured. Indeed, studies addressing developmental continuity show that satisfying relationships with parents in early life have indirect but lasting effects on parenting behaviors in later life. It has been found that perceived satisfying relationships with parents in early adolescence increase marital satisfaction and educational attainment in young adulthood; these gains also lay the groundwork for more constructive and democratic parenting practices in middle adulthood (Chen et al., 2008). These results reveal that the effect of parental warmth operates not only directly but also within a lifelong developmental chain. Similarly, it has been reported that in contexts where first-generation parents' caregiving roles increase, compassionate parenting patterns involving love, empathy, emotional warmth, and reciprocity are strengthened (Shiraishi et al., 2022). Similarly, it has been shown that mothers who experienced less authoritarian parenting in their own childhoods are associated with exhibiting a warmer, more responsive, and stimulating parenting style in their interactions with their own children (Belsky et al., 2005). This finding suggests that the effect of parental warmth on democratic parenting may be shaped more through relational trust and emotional accessibility.

In this context, the study's findings point to two complementary pathways explaining democratic parenting. Parental self-efficacy provides a cognitive and motivational resource that determines “how” the parent behaves, while perceived emotional warmth from the father provides an emotional and relational foundation that determines “how” the parent relates. Therefore, democratic parenting emerges not only as a result of feeling competent but also as a result of having been accepted, understood, and emotionally supported in the past. Consequently, enhancing parental self-efficacy emerges as a primary objective for preschool guidance services, where tailored psychoeducational interventions can support parent’s confidence in managing early childhood developmental challenges.

Predictors of Authoritarian Parenting Attitudes

In contrast to democratic practices, the regression analyses showed that authoritarian parenting attitudes are negatively predicted by parental self-efficacy and positively predicted by perceived paternal overprotection. This result indicates that controlling and intrusive parenting patterns experienced in

childhood can be reproduced in adulthood in the form of similar authoritarian attitudes and it is often linked to feelings of inadequacy.

The literature strongly supports this negative link between self-efficacy and authoritarian or harsh parenting. Parents with low self-efficacy tend to adopt more authoritarian or neglectful parenting styles, which negatively affect children's development; therefore, empowering parents with resources and support is considered critical for positive parenting outcomes (Richards, 2023). Indeed, authoritarian parenting has been shown to be negatively related to parental self-efficacy (Cioca et al., 2025). Similarly, low parental self-efficacy has been found to be associated with lower parental warmth and higher hostile parenting scores; it has even been reported that parental self-efficacy completely mediates the relationship between fatigue and parenting warmth and hostility (Chau & Giallo, 2015). It is noted that when the need for competence is thwarted, parents are more likely to exhibit more excessive disciplinary responses; the feeling of inadequacy that arises when the parent feels unable to manage the child's behavior triggers anger, yelling, and controlling responses (de Haan et al., 2013). As mothers' perceptions of their parenting competence increase, authoritarian and controlling attitudes decrease (Demirdöven & Özyürek, 2022). It has been suggested that when parents' perceptions of self-efficacy are low, they experience failure in coping with their children's behavioral problems and may behave less democratically toward their children (Sanders & Woolley, 2005).

In addition to low self-efficacy, the findings highlight that perceived paternal overprotection in childhood is a significant predictor of adult authoritarian parenting, confirming the intergenerational transmission of controlling patterns. Considering the caregiver's current internal representations of attachment experiences and how these representations can be weakened or strengthened by contextual factors, there is strong evidence for the intergenerational transmission of attachment. It is emphasized that the intergenerational transmission of parenting occurs primarily through modeling and cognitive internalization processes (Van IJzendoorn, 1992). If children adopt and internalize their parents' attitudes, they are likely to exhibit similar attitudes toward their own children in adulthood (Dixon et al., 2009; Mızrakçı, 1994). Findings indicating that harsh, controlling, and authoritarian parenting styles are transmitted more strongly and consistently across generations are noteworthy. It has been shown that individuals exposed to harsh discipline are more likely to apply harsh discipline to their own children (Neppl et al., 2020). It has been suggested that this transmission occurs indirectly, through the harsh parenting in the first generation increasing behavioral problems in the child, and these behavioral problems triggering similar parenting attitudes in the second generation (Conger et al., 2009). Similarly, while the direct intergenerational transmission of parental reactive and hostile attitudes cannot always be demonstrated, it is argued that these attitudes create an aggressive personality organization in the child, and this structure feeds similar parenting cycles in later periods (Pierce et al., 2010).

Meta-analytic findings also support this pattern. It has been reported that there is a modest but consistent relationship between the parenting style individuals experienced in their own childhood and the parenting style they apply to their own children; in particular, experiences of emotional acceptance and emotional rejection are more decisive in intergenerational transmission than the dimensions of structure provision and autonomy (Geeraerts et al., 2025). This provides an important framework explaining why, in our study, authoritarian parenting was significantly predicted, whereas overly permissive attitudes were not. Indeed, it has been shown that adults raised with stricter and more authoritarian parenting are more likely to exhibit risky parenting behaviors in later life, and that this is partly related to attitudes that condone parent-child aggression (Boppana & Rodriguez, 2017). The influence of the older generation is also noteworthy in this transmission process. Grandmothers' reported parenting behaviors were found to be related to both mothers' and fathers' observed parenting behaviors; increased levels of control among grandmothers were higher controlling attitudes among fathers (Madden et al., 2015). It has been found that both mothers' and fathers' reports of parent-child aggression are strongly influenced by their perceived harsh parenting experiences from their own fathers (Morgan et al., 2023). These findings make the prediction of paternal overprotection predicting authoritarian attitudes in our study meaningful in terms of the father's role model in parenting.

In the context of early childhood education, authoritarian parenting styles have direct and critical effects on children's social-emotional development and adjustment processes. Characterized by high control and low emotional sensitivity, these strict parenting styles limit children's flexible emotional regulation skills,

leading them toward maladaptive strategies such as emotional suppression or avoidance (Maulana et al., 2026). Research supports this finding, it shows that as mothers' authoritarian attitudes increase, there is a clear decline in self-regulation skills among children enrolled in early childhood education (Uykan & Akkaynak, 2019). To break this negative cycle, early childhood education institutions must establish an active collaboration between educators and parents to build a supportive bridge between home and school. Establishing a healthy school-family partnership enables parents to acquire the necessary skills and understanding regarding child development, thereby allowing for the improvement of learning conditions at home in the child's best interest (Epstein, 1992). Through targeted parent education programs integrated into early childhood programs, it has been observed that families' use of harsh disciplinary method, such as physical punishment, and overly authoritarian commands decreases, thereby softening authoritarian attitudes and fostering healthier parent-child relationships (Gross et al., 2009; Sanders et al., 2014).

Non-Significant Prediction of Permissive Parenting Attitudes

Another noteworthy finding in our study is that permissive parenting attitudes were not significantly predictive. This suggests that permissive parenting may be influenced by external factors not included in the current study, such as child-specific characteristics (e.g., temperament), period and cultural parenting norms, or contextual stressors. Meta-analytic evidence also indicates that permissive attitudes are more situationally variable and less transmitted across generations compared to authoritarian patterns, as the intergenerational transmission of parenting is more pronounced for dimensions of emotional acceptance and rejection than for indulgence or permissiveness (Geeraerts et al., 2025). Therefore, unlike authoritarian parenting, permissive attitudes may be a less internalized, more situational, and culturally variable form of parenting. In conclusion, these findings show that controlling, authoritarian, and harsh patterns are transmitted more strongly and consistently across generations, whereas permissive attitudes are shaped more by contextual and external factors. This situation highlights the importance of focusing on internalized parenting schemas that involve control, overprotection, and authoritarianism in interventions aimed at breaking parenting cycles.

Conclusion

The present study examined the predictive roles of perceived parental attitudes and parental self-efficacy on the parenting styles exhibited by parents of preschool-aged children, alongside differences in parenting attitudes according to demographic variables. The findings indicate that parental self-efficacy is among the most salient correlates of democratic parenting attitudes. While socio-economic variables such as income and education level are significantly associated with the emergence of repressive/authoritarian attitudes, they are not as strongly related to democratic practices as a parent's sense of parenting competence. The findings also underscore the importance of the father's role in intergenerational processes, whereby perceived paternal warmth and overprotection are both associated with the next generation's parenting orientations. Overall, the transition toward democratic parenting appears to be more closely linked to a parent's current belief in their own capabilities than to their demographic characteristics. However, as the present study is based on cross-sectional data and regression analyses, the findings reflect associations and predictive patterns rather than causal relationships. Establishing causality would require longitudinal designs that track parenting variables across time.

Given that parental self-efficacy emerged as a significant predictor of democratic attitudes, intervention programs should move beyond merely providing informational content. Programs that support parents in recognizing their existing strengths, experiencing small but meaningful successes in daily parenting, and receiving clear and supportive feedback are likely to contribute to a stronger sense of parental self-efficacy. In preschool settings, such support can be effectively delivered through parent meetings and guidance activities conducted by school counselors. Teacher-led programs focusing on the developmental characteristics of preschool children and on improving parenting skills in areas where parents feel less confident may also contribute to parents feeling more competent. As parents begin to perceive themselves as more effective in managing everyday parenting situations, they may be more inclined to adopt flexible, democratic parenting practices.

Interventions that also encourage parents to reflect on their own childhood experiences may help them become aware of controlling or overprotective patterns that risk being replicated in current parenting, thereby supporting the development of more responsive and adaptive approaches. Since the preschool period is a critically sensitive window for personality formation and socio-emotional development and given that family attitudes play a central role in this process, preschool institutions are well-positioned to contribute to a holistic education and development process by actively engaging families and delivering evidence-based guidance programs.

At the policy level, the consistent association between socio-economic stressors—such as low income and unemployment—and repressive parenting attitudes should not be overlooked. Support systems targeting vulnerable groups should provide not only psychological guidance but also the material and social resources necessary to reduce the daily stressors that are associated with more rigid, authoritarian parenting behaviors. Policy initiatives that integrate parenting support into existing social welfare and early childhood education frameworks may be particularly effective in reaching the families most at risk.

Several limitations of the present study should be acknowledged. First, the cross-sectional nature of the data means that the findings reflect associations between variables at a single point in time and do not permit causal inferences. The regression analyses identify predictive relationships, but the directionality and causal mechanisms underlying these associations cannot be determined from the current design. Longitudinal studies tracking parents and children across developmental periods are needed to obtain more comprehensive and detailed insights into how perceived parental attitudes, self-efficacy, and parenting styles interact and change over time.

Second, a primary limitation lies in the gender distribution of the sample, as nearly three-quarters of participants were mothers. Although this reflects the traditional role of mothers as primary caregivers in many households, it limits the generalizability of the findings to fathers, whose self-efficacy and parenting attitudes may be shaped by different social and psychological factors. Future studies would benefit from recruiting more balanced samples or specifically examining paternal parenting processes. Third, the reliance on self-report measures introduces the possibility of social desirability bias, as parents may consciously or unconsciously report more democratic behaviors or higher competence levels than those occurring in daily practice. Future research might complement self-report data with observational methods to provide a more objective picture of actual parenting behaviors. Fourth, the study focused exclusively on parents of preschool-aged children (36–72 months); future work examining other developmental periods would allow for a broader understanding of how these variables operate across the lifespan. Finally, qualitative methods such as in-depth interviews could be employed to enrich the understanding of the subjective mechanisms through which self-efficacy beliefs and perceived parental attitudes shape current parenting practices.

Author's Note

A preliminary version of this study was presented at the 8th International Early Childhood Education Congress. This manuscript includes a larger sample size, significant revisions, and additional analyses.

CRedit authorship contribution statement

C. Turhan: Conceptualization, Literature search, Methodology, Supervision, Resources, Data collection, Writing, Review & editing.

Ö. İdrisoğlu: Conceptualization, Methodology, Supervision, Resources, Data collection, Analysis, Visualization, Writing.

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Declaration of AI Usage Statement

Artificial In this study, the AI tool Chat GPT (2026, version 5.2) was used solely for support purposes, specifically for grammar checking and language editing. All content generated or suggested by the AI has been reviewed for accuracy and originality by the authors, who take full responsibility for its use. Data obtained using AI tools was reviewed in line with ethical and academic principles. The use of AI adhered to the publication policies of COPE and the Kastamonu Education Journal. AI has not been included as an author or co-author of this work. The scientific content, accuracy, originality, and ethical responsibility of the research rest solely with the authors.

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Evaluating the Pilot 5th Grade Intensive English Language Curriculum Implemented in Türkiye

Türkiye’de Pilot Olarak Uygulanan Yabancı Dil Ağırlıklı 5. Sınıf İngilizce Öğretim Programının Değerlendirilmesi

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Keywords	Abstract
Curriculum evaluation Stake’s congruence-contingency model Intensive English language curriculum Fifth-grade students	This study evaluates the 5th Grade Intensive English Language Curriculum implemented as a pilot program in Türkiye through Stake’s Congruence-Contingency Model. A convergent parallel mixed-methods design was used, combining document analysis and non-participant classroom observations with quantitative data from a teacher questionnaire, an academic achievement test, and an attitude scale. The study was conducted during the first semester of the 2021–2022 academic year in five pilot secondary schools located in a provincial city in Türkiye. In the quantitative strand, student change was examined using a one-group pretest-posttest design; therefore, the findings were interpreted as within-semester change rather than as causal evidence of curriculum effectiveness. The findings showed that teachers had not received in-service training before the pilot implementation, the curriculum became markedly more demanding after Unit 15, and the textbook was viewed as inadequate for achieving the curriculum’s communicative aims. Students’ English achievement scores increased only slightly, while their attitudes toward English remained largely stable. Overall, the results indicate partial or weak congruence between curriculum intentions and classroom realities, particularly regarding developmental appropriateness, instructional materials, and communicative implementation. The findings suggest that before implementing such intensive foreign language programs, teachers should receive structured in-service training, textbooks should be directly aligned with curriculum outcomes, the projected B1.1 proficiency target should be reconsidered in light of fifth-grade students’ developmental characteristics, and balanced assessment tools including speaking skills should be developed.
Anahtar Sözcükler	Öz
Program değerlendirme Stake’in uygunluk-olasılık modeli Yabancı dil ağırlıklı İngilizce öğretim programı Beşinci sınıf öğrencileri	Bu çalışma, Türkiye’de pilot olarak uygulanan yabancı dil ağırlıklı 5. sınıf İngilizce öğretim programını Stake’in Uygunluk-Olasılık Modeli çerçevesinde değerlendirmektedir. Araştırmada yakınsayan paralel karma desen kullanılmış; doküman analizi, katılımsız sınıf gözlemleri, öğretmen anketi, akademik başarı testi ve tutum ölçeğinden elde edilen nicel veriler birlikte ele alınmıştır. Çalışma 2021-2022 eğitim-öğretim yılının ilk yarısında Türkiye’de bir il merkezinde yer alan beş pilot ortaokulda yürütülmüştür. Nicel boyutta öğrencilerdeki değişim tek gruplu öntest-sontest deseniyle incelenmiş; bu nedenle bulgular nedensel etki olarak değil dönem içindeki değişim olarak yorumlanmıştır. Bulgular, pilot uygulama aşamasındaki bu program öncesi öğretmenlere hizmet içi eğitim verilmediğini, programın 15. üniteden sonra belirgin biçimde ağırlaştığını ve ders kitabının programın iletişimsel amaçlarına ulaşmada yetersiz görüldüğünü göstermiştir. Öğrencilerin başarı puanları sınırlı düzeyde artmış, İngilizceye yönelik tutumları ise büyük ölçüde sabit kalmıştır. Genel olarak sonuçlar, özellikle gelişimsel uygunluk, materyaller ve iletişimsel uygulama açısından programın niyetleri ile sınıf gerçeklikleri arasında kısmi ya da zayıf bir uyuma işaret etmektedir. Bulgular, bu tür yoğun yabancı dil programlarının uygulanmadan önce öğretmenlere yapılandırılmış hizmet içi eğitim verilmesi, ders kitaplarının program kazanımlarıyla doğrudan uyumlu hazırlanması, B1.1 hedefinin beşinci sınıf öğrencilerinin gelişimsel özellikleri dikkate alınarak yeniden gözden geçirilmesi ve konuşma becerisini de içeren dengeli ölçme-değerlendirme araçlarının geliştirilmesi gerektiğini göstermektedir.

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Introduction

Language is a system of agreement within a linguistic community, in which individuals learn and speak the language primarily spoken in their environment (Doğan, 2012). As defined by Aksan (1975), the concept of native language refers to the language acquired from early interactions with one's immediate surroundings and later from broader social contexts. All other languages learned are classified as foreign languages (Demircan, 1990; Moeller & Catalano, 2015). The need to learn multiple languages has increased with global developments, and foreign language education in Türkiye has evolved significantly over time. Since the early Republican period, foreign language education reforms in Türkiye have progressively shifted from grammar-based to communicative approaches; the 2006 curriculum marked a decisive turn toward skills-based learning aligned with the European Language Portfolio (Ministry of National Education [MoNE], 2006). Subsequently, the 2013 reform extended English instruction to the 2nd grade and foregrounded communicative skills within a Common European Framework of Reference for Languages (CEFR) inspired framework (MoNE, 2013), while the 2018 curriculum reinforced an action-oriented approach aimed at achieving A2 proficiency by the end of middle school (MoNE, 2018a).

Despite efforts to enhance language education in Türkiye, the effectiveness of instructional curricula remains questionable, as the country continues to rank low in global English proficiency indices (Education First, 2021). One of the key issues lies in the persistence of traditional grammar-translation methods and insufficiently adapted instructional approaches that emphasize form over communicative competence (Can & Can, 2014; Işık, 2008). These outdated practices have led to low student engagement and poor learning outcomes. Moreover, practical implementation problems—such as teacher-centered practices and limited classroom interaction—have been documented as barriers to language acquisition (Paker, 2012). In addition, studies on curriculum implementation indicate that overloaded content and insufficient alignment with students' cognitive and linguistic readiness further hinder success (Durmuşçelebi & Suna, 2013). Collectively, these results underscore the pressing need for comprehensive reform that prioritizes modern, contextually relevant methodologies and long-term planning, grounded in empirical research. Against this background, the introduction of the Intensive English Language Curriculum (IELC) in 2017 represented a particularly ambitious policy intervention, and whether its stated communicative vision was realized in practice has not yet been examined using an explicit, multi-source evaluative framework.

Piloted in selected middle schools beginning in the 2017–2018 academic year, the 5th Grade IELC was designed as a CEFR-aligned intensive English program that substantially increased weekly English instruction in participating schools (MoNE, 2017a, 2017b). Official documents describe the curriculum as an action-oriented, year-long program organized around 40 sample units and approximately 550 hours of instruction, aiming to move learners from the A1-A2 band toward the first half of B1 (B1.1), with a strong emphasis on communicative language use, spoken interaction, and spoken production (MoNE, 2017a). In subsequent years, the implementation was supported with 5th- and 6th-grade materials prepared specifically for foreign-language-intensive schools (MoNE, 2018b). However, more recent policy documents indicate that the 2017 pilot should be understood historically, because current intensive foreign language implementations in Türkiye are now being reorganized under the Multi-Foreign Language Education Model and updated English curricula rather than continuing as the original single-grade pilot in the same form (MoNE, 2025; Board of Education and Discipline [BoED], 2025). For clarity, three pedagogical terms used throughout this article are briefly distinguished here. The term action-oriented refers to the CEFR-grounded approach in which learners accomplish meaningful communicative tasks in real or simulated social situations. Communicative refers broadly to instruction that prioritizes meaningful language use over structural drilling or grammar-translation. Skills-based denotes an emphasis on developing the four integrated language skills (listening, speaking, reading, and writing) as distinct yet interrelated competencies. The IELC combines all three orientations, yet the present study's evidence suggests they were realized to varying degrees in practice.

Despite meticulous planning and increased instructional hours, the IELC's effectiveness in achieving its stated objectives remains unclear. Several investigations have explored educators' perspectives on the curriculum (Dinçer & Koç, 2020; Dilekli, 2018; Erkan, 2020), with some incorporating feedback from parents and school administrators (Balım, 2020; Dündar & Merç, 2021). More recent studies likewise suggest that,

although the curriculum is valued for its communicative orientation and expanded instructional time, major concerns continue regarding attainability, material support, speaking development, assessment balance, and school-to-school variability (Gültekin Talayhan & Sakız, 2022; Özcanlı & İzci, 2023; Dinçer & Bal Gezeğin, 2024; Çokyaman & Ünal, 2025). Research has also demonstrated that despite expanded instructional time, students continue to struggle to attain the targeted B1.1 proficiency level (Yılmaz & İnce, 2019; Kaya, 2019).

Given these concerns, a curriculum evaluation grounded in an explicit evaluative framework is needed. Stake's Congruence-Contingency Model is particularly appropriate for this purpose because it enables evaluators to examine not only whether intended outcomes are achieved, but also how pre-implementation conditions and classroom processes shape those outcomes. Stake (1967) criticized evaluation approaches that rely mainly on informal judgments or isolated outcome measures and argued that curriculum evaluation should attend to the match between what educators intend to do and what actually occurs in practice. In this model, evaluation data are organized around three interrelated dimensions: antecedents, transactions, and outcomes. Antecedents refer to the conditions that exist before instruction, such as students' readiness, teachers' preparation, curriculum materials, institutional resources, and stakeholder expectations. Transactions refer to the instructional processes and interactions that occur during implementation, including teaching methods, classroom communication, use of materials, student participation, and assessment practices. Outcomes refer to the consequences of implementation and may include achievement, attitudes, skills, and other educational effects (Stake, 1967; Kutlu & Korkmaz, 2017).

Two concepts are central to the model: congruence and contingency. Congruence refers to the match between intended and observed conditions; that is, whether what the curriculum proposes is actually realized in practice. Contingency refers to the logical and empirical relationships among antecedents, transactions, and outcomes. In this sense, the model does not treat weak outcomes as isolated results; rather, it helps explain how limitations in teacher preparation, material alignment, classroom interaction, or assessment practices may constrain the realization of intended curriculum goals (Stake, 1967). This makes the model especially useful for evaluating curriculum reforms whose success depends on the alignment between policy intentions and classroom realities. Its main advantage is that it provides a holistic and context-sensitive evaluation by integrating documentary evidence, stakeholder views, classroom observations, and student outcome data. However, the model also has limitations: it requires multiple data sources, careful organization of evidence, and transparent evaluative judgment; moreover, its findings are closely tied to the specific implementation context and should therefore be generalized cautiously (Stake, 1967; Fitzpatrick et al., 2011; Stufflebeam & Coryn, 2014).

Previous curriculum evaluation studies have used Stake's model to identify gaps between intended and implemented curricula in both Turkish and international contexts. In Türkiye, Aksoy (2020) evaluated the 2017-updated secondary school English curriculum using Stake's congruence-contingency model and found that the curriculum's theoretical orientation and classroom implementation did not fully overlap. Similarly, Kaya (2018) used Stake's Countenance Evaluation Model to evaluate the 2012 middle school English language curriculum and reported discrepancies between intended curriculum objectives and students' attainment of language skills. Beyond English-language education, Altındağ and Korkmaz (2019) evaluated the 5th-grade mathematics curriculum in Türkiye using Stake's Congruence-Contingency Model and demonstrated the model's usefulness for examining the alignment among curriculum design, implementation, and outcomes across different subject areas. In an international context, Alata (2019) evaluated outcomes-based junior high school English curricula using Stake's Congruence-Contingency Model and emphasized implementation-related issues, including teacher preparation, instructional resources, and students' mastery of the intended outcomes. These studies show that the model is particularly useful for revealing not only whether a curriculum reaches its goals, but also where the mismatch between design and implementation emerges.

In the present study, Stake's model was used because the 5th Grade Intensive English Language Curriculum had ambitious communicative goals, an intensive instructional structure, and a projected proficiency target. Evaluating such a curriculum required more than examining student achievement scores alone. Therefore, this study uses Stake's model to compare official curriculum intentions with evidence obtained from document analysis, classroom observations, teacher questionnaire data, student achievement scores, and attitude scores. In this way, the study evaluates the degree of congruence among intended antecedents, obtained implementation evidence, and obtained outcomes, and examines whether

weaknesses in preparatory conditions and classroom implementation limited the realization of the curriculum's communicative aims.

The present study, therefore, evaluates the IELC as implemented in pilot schools during the first semester of the 2021–2022 academic year. Accordingly, the results should be interpreted as evidence for that historical implementation period rather than for the current Multi-Foreign Language Education Model or later-revised English curricula in Türkiye (MoNE, 2025; BoED, 2025). Within this historical implementation context, the study contributes to the curriculum evaluation literature by integrating documentary analysis, classroom observation, teacher questionnaire data, and matched pre- and post-student measures within Stake's theoretically grounded evaluative framework.

Purpose of Research

This research aims to evaluate the antecedents, transactions, and outcomes of the IELC in accordance with Stake's Congruence-Contingency Model (Stake, 1967). More specifically, the study compares the intended features of the curriculum, as stated in official program documents, with the obtained evidence gathered from teachers, classroom observations, and student data. In this study, congruence refers to the degree of correspondence between intended curriculum expectations and the evidence obtained from implementation and outcome data. Accordingly, the study addressed the following research questions:

Antecedents

RQ1. To what extent does the curriculum meet curriculum development criteria in the antecedents dimension?

RQ2. What are teachers' views on the antecedent dimension of the curriculum?

RQ3. What are students' attitudes toward English at the beginning of the teaching process?

RQ4. What are students' English achievement levels at the beginning of the teaching process?

Transactions

RQ5. To what extent are the curriculum's intended implementation processes congruent with teachers' classroom practices?

RQ6. What are teachers' views on the implementation process of the curriculum?

Outcomes

RQ7. To what extent are the intended curriculum outcomes congruent with the obtained implementation results?

RQ8. What are students' attitudes toward English at the end of the teaching process?

RQ9. What are students' English achievement levels at the end of the teaching process?

Method

Research Model

This study was guided by Stake's Congruence-Contingency Model (Stake, 1967), which conceptualizes curriculum evaluation in terms of antecedents, transactions, and outcomes, and emphasizes judging the fit between intended conditions and the evidence obtained. The model was selected because the present study sought not only to describe the curriculum, but also to compare official program expectations with evidence gathered from classrooms, teachers, and students. Because such an evaluation required both qualitative and quantitative evidence, a mixed-methods approach was adopted. Specifically, a convergent parallel design was used, in which qualitative and quantitative data were collected during the same phase of the study, analyzed separately, and brought together at the interpretation stage (Creswell & Plano Clark, 2011). This design was preferred because evaluating curriculum intent, classroom implementation, teacher views, and student outcomes required complementary evidence from multiple sources rather than relying on a single method. More concretely, at the interpretation stage, the qualitative descriptive results were organized

within Stake's antecedents–transactions–outcomes framework and placed alongside the quantitative summary statistics for each corresponding dimension. Congruence judgments were formed by assessing whether the two strands of evidence converged, partially overlapped, or contradicted each other.

In the quantitative dimension, the study employed a one-group pretest-posttest design to examine changes in students' English achievement and attitudes across the first semester of implementation. Because no control group was used, these results were interpreted with caution and not as evidence of a causal effect. In the qualitative dimension, the study was framed as a qualitative case study. Merriam (2009) states that when the unit of analysis is a bounded system such as a program, institution, process, or social unit, the study may be defined as a qualitative case study. In the present research, the bounded system was the evaluation of the Intensive English Language Teaching Curriculum (IELC) through official curriculum documents and its classroom enactment in the selected pilot-school context. Accordingly, document analysis and non-participant classroom observation were used to examine intended curriculum expectations and their classroom realization.

Operationalization of Congruence and Integration

For the antecedents dimension, intended evidence was derived from the official curriculum and related implementation documents, whereas obtained evidence was derived from the curriculum review form, teacher questionnaire, and pretest attitude and achievement scores. For the transactions dimension, intended evidence was derived from the curriculum's recommended teaching-learning processes and assessment approach, while obtained evidence came from classroom observations and the teacher questionnaire. For the outcomes dimension, intended evidence was derived from the curriculum's stated learning goals and assessment expectations, and the obtained evidence came from the teacher questionnaire, together with the posttest attitude and achievement data.

Congruence was judged analytically by comparing documentary expectations with the pattern of empirical evidence across the relevant data sources. Judgments were interpreted as congruent when the evidence obtained clearly supported the intended expectations, partially congruent when the evidence was mixed or only partly supportive, and incongruent when the evidence obtained consistently contradicted the intended curriculum. Integration occurred at the interpretation stage of the convergent design: qualitative and quantitative results were compared side by side for each dimension of Stake's model to produce overall evaluative inferences about the curriculum. In practice, this integration followed a thematic-alignment strategy: for each evaluative dimension, qualitative results from document analysis and classroom observation were organized thematically, then placed alongside quantitative frequencies and means. Where both strands converged, the convergent pattern strengthened the congruence judgment; where they diverged, the discrepancy was noted and interpreted as an area of uncertainty.

Table 1

Operationalization of Stake's Congruence-Contingency Model: Dimensions, Evidence Sources, and Evaluation Focus

Dimension	Evaluation Focus	Intended Evidence	Obtained Evidence
Antecedents	Pre-implementation conditions: whether the curriculum's design, content, teacher preparation, and resource alignment were sufficient to support its stated communicative goals	Official curriculum document (MoNE, 2017a); IELC implementation circulars; curriculum development standards (Objectives, Content, Learning Experiences, Evaluation)	Curriculum Review Form (53 items); Teacher Questionnaire — Antecedents section; Academic Achievement Test (pre-test); Attitude Scale (pre-test)

Transactions	Implementation processes: whether classroom instruction, material use, interaction patterns, and assessment practices reflected the curriculum's communicative and skills-based intentions	Curriculum's recommended teaching-learning activities; prescribed skill balance; suggested assessment approaches; intended use of materials and technology	Classroom Observation Form (40-minute sessions, 4 classes, 1 school); Teacher Questionnaire
Outcomes	Post-implementation results: whether student achievement and attitudes changed in the direction and magnitude the curriculum intended, and whether communicative competence was demonstrably developed	Curriculum's stated proficiency targets (A1→B1.1); anticipated attitudinal outcomes; expected communicative competence gains across all four skills	Academic Achievement Test (post-test); Attitude Scale (post-test); Teacher Questionnaire

Note. Intended evidence is derived from official curriculum documents and implementation guidelines; obtained evidence is gathered empirically through the listed data collection instruments. Congruence within each dimension is judged by comparing intended and obtained evidence, and contingency is assessed by examining how conditions in each dimension logically cascade into the next (Stake, 1967). IELC = 5th Grade Intensive English Language Curriculum; MoNE = Ministry of National Education.

Table 1 presents the operationalization of Stake's Congruence-Contingency Model as applied in this study. The three evaluation dimensions—antecedents, transactions, and outcomes—are shown alongside the type of evidence that represents curriculum intentions, the empirical sources used to gather the evidence, and the evaluative question guiding each dimension. This structure makes explicit how the study compares what the curriculum planned (intended evidence) with what was observed or measured (obtained evidence) and provides the conceptual architecture through which the congruence judgments reported in the Results section are formed. Taken together, the three dimensions correspond to a temporal sequence: antecedents reflect conditions that existed before implementation, transactions describe what happened during instruction, and outcomes capture what resulted from that instruction.

Study Group

The study group comprised English teachers teaching 5th-grade classes and 5th-grade students enrolled in five middle schools designated by the Ministry of National Education as pilot schools for the intensive implementation of foreign languages in a provincial city center in Türkiye during the 2021–2022 academic year. For the attitude scale, data were collected from 440 students in 19 fifth-grade sections across the five pilot schools, and complete pretest-posttest data from 429 students were included in the analyses. For the English achievement test, data were obtained from 320 students in 13 fifth-grade sections across three pilot schools. Classroom observations were conducted in four fifth-grade sections involving 96 students in one pilot school, and the teacher questionnaire was administered to 20 English teachers. The differences in sample sizes across instruments reflect the distinct logistical and methodological requirements of each data source. The attitude scale was administered across all five pilot schools to maximize coverage of student affective outcomes; the achievement test was limited to three schools where adequate testing conditions and student consent could be secured: the teachers in these three schools agreed to administer the English achievement test, while the teachers in the remaining two pilot schools declined to participate in its administration; and classroom observations were restricted to a single school to enable systematic observation of all fifth-grade sections by the same researcher using the same protocol. These sampling differences constrain direct cross-instrument comparisons and are acknowledged as a contextual limitation when integrating the results. These five schools were not selected by the researchers but were the complete set of schools officially designated by the Ministry of National Education's General Directorate of Basic Education as pilot sites for the intensive foreign language program in that provincial city, ensuring that the participant sample reflected the full local implementation context.

Data Collection Process and Tools

Ethical approval was obtained from the Research Ethics Committee for Social and Human Sciences at Kırıkkale University at its meeting dated 18 November 2021, Session No. 11, Decision No. 10. Official permission to conduct the study was also obtained from the Provincial Directorate of National Education and the relevant school administrations. Participation was voluntary, and all data were anonymized prior to analysis. Official curricular documents used in the study were publicly accessible. All data were collected during the first semester of the 2021–2022 academic year, and the results should therefore be interpreted as evidence about that implementation period. Within Stake's Congruence-Contingency Model, multiple data sources were used so that intended curriculum expectations could be compared with obtained evidence in the antecedents, transactions, and outcomes dimensions:

- Curriculum Review Form was used to evaluate IELC based on curriculum development criteria in the antecedents area.
- Classroom Observation Form was used to determine the extent to which the approaches suggested in the curriculum were implemented in the transactions area.
- The Academic Achievement Test and Elementary English Course Attitude Scale, developed by Baş (2012) for use as pretests and posttests, were administered in the antecedents and outcomes areas.
- A Teacher Questionnaire was administered to determine the teachers' opinions about the curriculum in the antecedents, transactions, and outcomes areas.

The academic achievement test and the attitude scale were administered twice, once at the beginning and once at the end of the first semester, in order to obtain pretest-posttest data. The attitude scale was implemented in five pilot schools, whereas the academic achievement test was administered in three pilot schools. Classroom observations were conducted in four 5th-grade classes at a pilot school on different days and times, with each observation lasting 40 minutes. The teacher questionnaire was administered face-to-face to 20 English teachers. These procedures enabled the comparison of intended curriculum expectations with obtained evidence across the three evaluative dimensions. Observations took place on four separate school days, with each session focusing on a different fifth-grade class section and its assigned English teacher. This schedule allowed all four fifth-grade teachers in the school to be observed once under comparable 40-minute lesson conditions. To promote procedural consistency, the same researcher conducted all observations using the same structured observation form and applied the same pre-specified recording parameters (physical environment, lesson entry, teaching-learning activities, lesson closure, and assessment activities) across all sessions.

Curriculum Review Form

A curriculum includes learning outcomes, content, learning experiences, and evaluation (Gültekin, 2017). The researchers initially drafted a Curriculum Review Form comprising 82 items that covered these essential components. The draft form was reviewed by one professor and two associate professors in the field of Curriculum and Instruction for scope, content relevance, and alignment with curriculum development principles; linguistic appropriateness was additionally reviewed by an associate professor in the field of Turkish Education. Expert feedback was obtained qualitatively through written comments and tracked revisions on the draft form rather than through numerical item ratings. In line with these expert suggestions, 29 items were removed, and wording was adjusted. Items removed were those considered redundant, not verifiable through document analysis alone, or ambiguously worded. Wording adjustments focused on aligning item language with recognized curriculum development criteria and ensuring that each statement could be evaluated with the three-option format (Yes, No, No Information) without requiring inference beyond what the official curriculum documents explicitly stated. The final form consisted of 53 items and included three response options: Yes, No, and No Information. The final version of the form was prepared in Turkish. The complete list of items is provided in Turkish (Appendix A) and English (Appendix B).

Teacher Questionnaire

A teacher questionnaire was developed as an evaluative instrument to gather teachers' views on the curriculum across Stake's antecedents, transactions, and outcomes dimensions. The questionnaire was initially drafted as a 40-item form and submitted for expert review to one professor and two associate professors in the field of Curriculum and Instruction regarding content relevance, coverage, and alignment with the evaluation dimensions; linguistic appropriateness was additionally reviewed by an associate professor in the field of Turkish Education. During the expert review process, conceptually overlapping items were consolidated, ambiguous wording was clarified, and new items were added to strengthen coverage of implementation-related issues, including remote instruction conditions, textbook adequacy, assessment practices, and the four basic language skills. Based on these reviews, the final form consisted of 48 items: 17 items for antecedents, 19 for transactions, and 12 for outcomes. Items were rated on a five-point Likert continuum from Strongly Disagree to Strongly Agree. Because the instrument was designed as an evaluative teacher-opinion questionnaire rather than as a standardized psychometric scale, no total score or dimension score was computed. Accordingly, teacher responses were analyzed and reported at the item level using frequencies and percentages. The final version of the questionnaire was prepared in Turkish. The complete list of items is provided in Turkish (Appendix C) and English (Appendix D).

Classroom Observation Form

The non-participant observation method was used to assess how teachers implemented the curriculum and to describe the classroom processes during implementation. This technique was chosen because it allows the researcher to observe classroom events without actively participating in the instructional process. The classroom observations were conducted by the first author, using the same structured observation form across all observations. Observations were carried out in all fifth-grade sections of one pilot secondary school on different days and at different times, with each observation lasting 40 minutes. In total, four lessons taught by four different English teachers were observed.

The Classroom Observation Form was not designed as a yes/no checklist or a graded rubric. Rather, it was a structured qualitative observation form that guided the observer in taking open-ended descriptive notes within predetermined categories. The form included introductory fields for course, time, class section, class size, theme, and learning outcome. The main observation categories were the physical classroom environment, lesson entry activities, teaching-learning activities, lesson closure, assessment-related activities, and other field notes. The form was drafted by the researchers and submitted for expert review to one professor and two associate professors in the field of Curriculum and Instruction regarding scope, content relevance, and the observability of the indicators; linguistic appropriateness was additionally reviewed by an associate professor in the field of Turkish Education. In line with these expert suggestions, the form was finalized without a separate pilot observation. The final version of the form is provided in Turkish (Appendix E) and English (Appendix F).

Attitude Scale

The Elementary English Course Attitude Scale, developed by Başı (2012), was used in its published form to evaluate students' attitudes toward English and to inform the evaluation's antecedents and outcomes dimensions. Permission to use the scale was obtained directly from its developer by e-mail correspondence before data collection. No adaptation of the instrument was undertaken in the present study. The scale consists of 27 items rated on a five-point Likert format and is organized into five sub-dimensions: sensitivity, consciousness, importance, method and materials, and language and culture. Scores range from 27 to 135, with higher scores indicating a more positive attitude toward English. In the original development study, the scale yielded a KMO value of .884, a significant Bartlett test, and a total Cronbach's alpha of .92. In the present study, Cronbach's alpha for the total scale was .91, whereas the sub-dimension coefficients ranged from .46 to .82. Because some sub-dimensions yielded relatively low reliability, sub-dimension results were interpreted cautiously. The lower values suggest that some sub-scales may capture heterogeneous constructs or be sensitive to context-specific response patterns among this age group. Accordingly, sub-dimension results—particularly for those with alphas below .70—are presented as exploratory indicators rather than as robust scale-level scores, and interpretations of the outcomes dimension draw on item-level patterns alongside sub-scale means.

Academic Achievement Test

To evaluate the curriculum's antecedents and outcomes, the researchers developed an academic achievement test aligned with the language functions and learning outcomes of the first five units of the IELC. The draft test was reviewed by three English teachers for difficulty level, linguistic accuracy, visual appropriateness, number of items, and distribution across content areas. Following expert feedback, the final instrument included 20 questions but 25 scorable responses. Nineteen questions were four-option multiple-choice items, whereas Question 20 consisted of six listening-based fill-in-the-blank responses scored separately. Accordingly, the total possible score was 25. The test addressed reading, writing, and listening skills. Speaking was not assessed because the administration period coincided with the COVID-19 pandemic, and the number of students was high. The test's Cronbach's alpha coefficient was .83. Questions 1 to 10, 12 to 15, and 17 to 19 assessed reading; Questions 11 and 16 assessed writing; and the six blanks embedded in Question 20 assessed listening. Therefore, the resulting scores were interpreted as indicators of English achievement rather than as direct measures of CEFR proficiency.

Data Analysis

Qualitative and quantitative data were analyzed separately first and then integrated during interpretation, in line with the convergent parallel design. In the qualitative case study strand, document analysis and classroom observation data were analyzed through descriptive analysis. Consistent with Merriam's (2009) view that documents constitute a major source of qualitative data and should be examined systematically within the bounded context of the case, the qualitative analysis followed four stages: establishing an analytic framework, processing the data according to this thematic framework, describing the results, and interpreting the results. Prior to analysis, a descriptive analysis matrix was prepared based on Stake's antecedents-transactions-outcomes dimensions and the main curriculum components addressed in the review form (learning outcomes, content, learning experiences, and evaluation). Within this framework, official curriculum documents were repeatedly read and organized under predetermined themes, and classroom observation notes were likewise classified according to the parameters specified in the observation form. The qualitative results were then aligned with the relevant research questions to compare the intended conditions and the evidence obtained within each evaluative dimension.

For the quantitative strand, descriptive statistics were calculated for the teacher questionnaire, academic achievement test, and attitude scale. Normality was assessed using skewness and kurtosis values and Normal Q-Q plots. The skewness of the attitude scale was -0.805, and the kurtosis was 0.227. For the academic achievement test, the skewness was 0.253, and the kurtosis was -0.828. These checks supported the use of parametric procedures. For the teacher questionnaire, frequencies and percentages were calculated. For the pretest-posttest achievement and attitude data, paired-samples t tests were used to examine within-group change. Because the quantitative component lacked a comparison group, the resulting differences were interpreted as within-group change over the semester rather than as causal effects of the curriculum. In addition, effect sizes were considered in the interpretation to distinguish statistical significance from practical magnitude.

Trustworthiness in the Qualitative Strand

In qualitative research, credibility, transferability, consistency, and confirmability constitute the main criteria for trustworthiness (Lincoln & Guba, 1985). In this study, credibility was supported through 40-minute classroom observations, multiple data sources, and expert review of the data-collection tools. This expert review involved one professor and two associate professors in the field of Curriculum and Instruction, who evaluated curriculum alignment, content coverage, item clarity, and the observability of classroom indicators, and an associate professor in the field of Turkish Education, who reviewed the instruments for linguistic appropriateness. Transferability was supported by providing a detailed description of the research setting and implementation context. Consistency was strengthened by following the same procedures throughout data collection, analysis, and reporting, and by using the same descriptive analysis framework across the qualitative data sources. Confirmability was addressed by clearly documenting participant characteristics, the research process, the analytic framework, and the derivation of results from the data. To strengthen the dependability of the qualitative analysis, a subset of the classroom observation classifications and a portion of the document analysis coding were reviewed by a second researcher with expertise in

curriculum evaluation. Disagreements were resolved through discussion until consensus was reached, and the agreed-upon categorizations were used in the final reporting.

Researcher Role

Transparency about the researcher's role is a fundamental criterion of trustworthiness in qualitative and mixed-methods research (Lincoln & Guba, 1985; Merriam, 2009). In the present study, the primary data collector was a graduate researcher and an English teacher with a background in curriculum development and English language education. This background facilitated familiarity with the curriculum documents and the observation parameters but also carried the potential for interpretive bias toward curriculum-level concerns. To mitigate this risk, the descriptive analytic framework was constructed and applied systematically, with evaluative categories established a priori from Stake's antecedents–transactions–outcomes dimensions and the curriculum development criteria specified in the data collection tools, rather than emerging from the researcher's interpretive preferences. The researcher's potential for bias was further mitigated by the involvement of the second researcher, as described below. Importantly, the researcher had no prior professional or personal relationship with the observed teachers or the schools involved, reducing the likelihood of observer effects on classroom behavior. The second researcher, who is a specialist in curriculum development and instruction, provided a critical independent perspective that further mitigated the risk of single-researcher bias: the second researcher contributed to the design of the analytic framework, reviewed a subset of the qualitative coding, and offered an independent assessment of the congruence judgments. This collaborative verification process substantially strengthened the credibility and confirmability of the study's qualitative strand.

Internal Validity Considerations in the Quantitative Strand

Internal validity refers to the extent to which observed changes in the dependent variable are attributable to the intervention under study. Because this study used a one-group pretest-posttest design, potential threats to internal validity were addressed cautiously. Participants were selected from schools in the same city and district with similar socio-economic and academic characteristics. The same researcher administered the same pretest and posttest instruments, a one-semester interval was maintained between applications, and pretest scores were screened for outliers. In the attitude analyses, only matched and complete pretest-posttest data sets ($n = 429$) were included; the achievement analyses were based on the 320 students with complete achievement test data. These precautions were intended to improve consistency in administration and to reduce avoidable threats to inference, although the design still does not permit strong causal claims.

Results

Results Regarding the Antecedents Area of the Curriculum

RQ1 and RQ2 addressed the antecedents area of the curriculum. RQ1 focused on the curriculum's alignment with curriculum development criteria based on document analysis.

According to the document analysis, the 5th Grade English Curriculum with an Emphasis on Foreign Language lacked transparency concerning stakeholder involvement and the curriculum development process. Although national and international needs were considered, an extensive analysis of individual needs was not conducted. The curriculum documents targeted a progression from A1 to the beginning of B1 (B1.1) in line with CEFR-oriented expectations (MoNE, 2017a, p. 10), yet the developmental and learning characteristics of students were insufficiently addressed.

As primary implementers, teachers were informed about the curriculum but did not receive in-service training. Additionally, no systematic evaluation methods, such as surveys or interviews, were utilized to identify deficiencies during implementation. Despite the curriculum's clearly stated general goals and a communicative, action-oriented instructional philosophy (MoNE, 2017a, pp. 3–4), significant gaps remained between the theoretical framework and practical realities.

The official curriculum document is organized around 40 sample units and approximately 550 hours of instruction (MoNE, 2017a, p. 9); however, it provides no clear guidance on how these hours should be distributed across the school year. Although the outcomes reflect everyday-life themes and cognitive development goals, affective and psychomotor domains receive limited explicit emphasis. Including complex structures such as the Passive Voice and Present Perfect Continuous Tense after Unit 15 exceeded the developmental readiness of 5th-grade students. Ornstein and Hunkins (2017) noted that when curricula are overloaded with too many objectives, effective delivery within the given time becomes unmanageable. Furthermore, an overcrowded curriculum often leads to superficial learning and teacher frustration due to limited time for in-depth exploration (Print, 1993).

The curriculum's content was organized according to educational principles, moving from simple to complex and concrete to abstract, while integrating familiar life themes such as health, holidays, and technology (MoNE, 2017a, p. 9). Although the themes were designed to engage students' interests, the increasing linguistic complexity after Unit 15 made them less developmentally appropriate. The spiral approach aimed to reinforce previously learned functions, and the use of sample expressions supported learning. Nevertheless, the lack of concrete examples of the suggested activities limited their practical applicability.

Suggested learning experiences promoted learner-centered and goal-oriented instruction, incorporating cartoons, songs, interviews, and stories. Activities aimed to foster skill development and positive attitudes toward English simultaneously. However, although rich in suggested activities, the curriculum lacked detailed practical examples for classroom application (MoNE, 2017a, pp. 17–54).

Assessment practices were aligned with CEFR principles, emphasizing alternative, process-oriented approaches (MoNE, 2017a, pp. 6–7). Techniques such as role-plays, listen-and-do tasks, and integrated assessments were recommended. However, the curriculum omitted corresponding assessment tools because it lacked affective and psychomotor outcomes. Furthermore, concrete examples of how to implement the suggested assessment techniques were not provided.

RQ2 examined teachers' views on antecedent conditions through the questionnaire. Item-level teacher questionnaire results for the antecedents dimension are presented in Table 2.

Table 2

Teachers' Questionnaire Results for the Antecedents Dimension

Item	SD f (%)	D f (%)	U f (%)	A f (%)	SA f (%)
1. The curriculum objectives are clearly stated.	0 (0)	0 (0)	5 (25)	8 (40)	7 (35)
2. The curriculum was prepared by considering teachers' views and expectations.	3 (15)	9 (45)	3 (15)	3 (15)	2 (10)
3. The curriculum was prepared by considering students' views and expectations.	4 (20)	7 (35)	8 (40)	1 (5)	0 (0)
4. Students' language needs were taken into account in the curriculum.	0 (0)	3 (15)	4 (20)	11 (55)	2 (10)
5. The curriculum learning outcomes are appropriate to students' prior knowledge.	6 (30)	8 (40)	0 (0)	5 (25)	1 (5)
6. The four basic language skills (reading, writing, speaking, listening) are balanced in the curriculum.	0 (0)	2 (10)	2 (10)	14 (70)	2 (10)
7. Students have sufficient cognitive entry characteristics for the curriculum.	0 (0)	4 (20)	7 (35)	6 (30)	3 (15)
8. Students have sufficient affective entry characteristics (motivation, interest, etc.) for the curriculum.	0 (0)	4 (20)	5 (25)	8 (40)	3 (15)
9. Students have sufficient psychomotor entry characteristics for the curriculum.	2 (10)	2 (10)	3 (15)	9 (45)	4 (20)
10. Parents have sufficient information about the intensive implementation.	8 (40)	8 (40)	3 (15)	1 (5)	0 (0)
11. School administrators have sufficient information about the intensive implementation.	5 (25)	8 (40)	3 (15)	4 (20)	0 (0)
12. Teachers implementing/who will implement the intensive curriculum received in-service training about the implementation.	6 (30)	14 (70)	0 (0)	0 (0)	0 (0)
13. The curriculum outcomes are attainable.	2 (10)	12 (60)	5 (25)	1 (5)	0 (0)
14. The curriculum outcomes complement one another.	0 (0)	2 (10)	2 (10)	13 (65)	3 (15)
15. The textbook is consistent with the curriculum.	11 (55)	6 (30)	3 (15)	0 (0)	0 (0)
16. The support materials provided by MoNE are consistent with the curriculum.	8 (40)	3 (15)	8 (40)	1 (5)	0 (0)

Item	SD f (%)	D f (%)	U f (%)	A f (%)	SA f (%)
17. The time allocated to the intensive implementation (15 hours) is sufficient.	0 (0)	3 (15)	1 (5)	14 (70)	2 (10)

Note. n = 20. SD = strongly disagree; D = disagree; U = undecided; A = agree; SA = strongly agree.

According to the teacher questionnaire, 75% of teachers agreed that the curriculum objectives were clearly stated, 65% agreed that students' language needs were considered, and 80% agreed that the four language skills were balanced in the intended design. However, 60% disagreed that teachers' views were considered in curriculum development, 55% disagreed that students' views were considered, and 70% disagreed that the learning outcomes were appropriate for students' prior knowledge.

Teachers also reported important implementation-related antecedent weaknesses: 80% indicated that parents were not sufficiently informed, 65% reported the same for administrators, and all teachers (100%) stated that they had not received in-service training about the intensive implementation. In addition, 70% disagreed that the outcomes were realistically attainable, 85% disagreed that the textbook was consistent with the curriculum, and 80% agreed that the allocated 15 hours per week were sufficient in principle. Taken together, these results suggest that the curriculum entered implementation with clear formal aims but with weak preparatory conditions for stakeholders and materials.

RQ3 examined students' attitudes toward English at the beginning of the teaching process. Table 3 presents the pretest results.

Table 3

Descriptive Statistics for Pretest Attitude Scores

Scales and dimensions	n	M	SD
English course attitude scale	429	106.03	18.81
Sensitivity dimension	429	24.05	4.43
Consciousness dimension	429	19.85	4.00
Importance dimension	429	31.18	5.95
Method and material dimension	429	19.64	4.96
Language and culture dimension	429	11.29	2.63

Note. n = number of students; M = mean; SD = standard deviation.

RQ3 results showed that students began the process with generally positive attitudes toward English (M = 106.03 out of 135). Sub-dimension scores were also relatively high across sensitivity, consciousness, importance, method and materials, and language and culture. Thus, student affective readiness was not weak at the outset, even though other antecedent conditions were less favorable.

RQ4 examined students' English achievement at the beginning of the teaching process. Table 4 presents the pretest achievement results.

Table 4

Descriptive Statistics for Pretest Achievement Scores

Test	n	M	SD
Academic achievement test	320	11.10	5.27

Note. n = number of students; M = mean; SD = standard deviation.

The academic achievement test, administered to 320 students, yielded a mean pretest score of 11.10 out of 25. This pattern suggests that students entered the semester with some prior knowledge but not enough to bridge the gap between the curriculum's ambitious outcomes and students' developmental readiness. Overall, the antecedents dimension can be interpreted as partially congruent: the intended curriculum was clearly articulated, but stakeholder preparation, material alignment, and level appropriateness were not sufficiently supported at the outset.

Results Regarding the Transactions Area of the Curriculum

RQ5 and RQ6 addressed the transactions area of the curriculum. RQ6 examined teachers' views on the implementation process. Item-level teacher questionnaire results for the transactions dimension are presented in Table 5.

Table 5

Teachers' Questionnaire Results for the Transactions Dimension

Item	SD f (%)	D f (%)	U f (%)	A f (%)	SA f (%)
18. The teaching-learning process functions smoothly during remote instruction.	4 (20)	11 (55)	5 (25)	0 (0)	0 (0)
19. Students actively participate in lessons during remote instruction.	6 (30)	10 (50)	2 (10)	2 (10)	0 (0)
20. Individual activities are included during remote instruction.	3 (15)	11 (55)	3 (15)	3 (15)	0 (0)
21. Group activities are included during remote instruction.	5 (25)	11 (55)	4 (20)	0 (0)	0 (0)
22. The activities ensure students' active participation in lessons.	1 (5)	4 (20)	5 (25)	10 (50)	0 (0)
23. The methods, techniques, and strategies suggested in the curriculum are used effectively in practice.	2 (10)	5 (25)	9 (45)	4 (20)	0 (0)
24. The textbook activities for reading skills are sufficient.	1 (5)	13 (65)	2 (10)	4 (20)	0 (0)
25. The textbook activities for writing skills are sufficient.	1 (5)	11 (55)	3 (15)	5 (25)	0 (0)
26. The textbook activities for speaking skills are sufficient.	1 (5)	13 (65)	4 (20)	2 (10)	0 (0)
27. The textbook activities for listening skills are sufficient.	1 (5)	14 (70)	3 (15)	2 (10)	0 (0)
28. Teacher-student interaction/communication is maintained during remote instruction.	1 (5)	5 (25)	4 (20)	7 (35)	3 (15)
29. The time allocated to lessons is used efficiently during remote instruction.	3 (15)	3 (15)	4 (20)	10 (50)	0 (0)
30. Teacher-centered instruction is conducted during remote instruction.	0 (0)	0 (0)	1 (5)	13 (65)	6 (30)
31. Student-centered instruction is conducted during remote instruction.	6 (30)	13 (65)	1 (5)	0 (0)	0 (0)
32. The textbook is sufficient to achieve the curriculum objectives.	8 (40)	8 (40)	4 (20)	0 (0)	0 (0)
33. The activities in the textbook support communication-based learning.	6 (30)	6 (30)	8 (40)	0 (0)	0 (0)
34. The classroom environment is sufficient for curriculum implementation.	4 (20)	10 (50)	6 (30)	0 (0)	0 (0)
35. The contexts suggested in the curriculum (songs, picture stories, videos, cartoons, etc.) are used effectively in lessons.	2 (10)	2 (10)	3 (15)	11 (55)	2 (10)
36. Technology (Web 2.0 tools, videoconferencing, blogs, etc.) is used effectively in language teaching.	1 (5)	6 (30)	2 (10)	10 (50)	1 (5)

Note. n = 20. SD = strongly disagree; D = disagree; U = undecided; A = agree; SA = strongly agree.

Teacher questionnaire responses indicated substantial weaknesses in the implementation process. Specifically, 75% of teachers disagreed that the learning-teaching process functioned smoothly during remote instruction; 80% disagreed that students participated actively; 70% disagreed that individual activities were sufficiently included; and 80% disagreed that group activities were included. At the same time, 50% agreed that the activities used in class supported participation, whereas 45% were undecided about whether the curriculum-recommended methods and strategies were used effectively.

Teachers also reported serious concerns about textbook adequacy: 70% found the reading activities insufficient, 60% found the writing activities insufficient, 70% found the speaking activities insufficient, and 75% found the listening activities insufficient. Furthermore, 80% disagreed that the textbook was sufficient to achieve the curriculum goals, 60% disagreed that it supported communicative learning, and 70% disagreed that the classroom environment was sufficient for implementation. In contrast, 50% agreed that class time was used efficiently, and 50% agreed that teacher-student interaction was maintained.

RQ5 focused on the congruence between intended implementation processes and observed classroom practices. Classroom observations in four 5th-grade sections supported these teacher reports. Classes were moderately sized (24-30 students) and were equipped with smart boards and internet access, yet traditional seating arrangements prevailed. Teachers generally used question-and-answer, reading aloud, matching, and occasional role-play activities, and students demonstrated basic familiarity with classroom English; however, student-student interaction remained limited, and the observed textbooks were inadequate for the curriculum's intended communicative level.

Assessment practices observed in classrooms included quizzes, vocabulary tasks, and project-based products displayed on bulletin boards. Nevertheless, speaking was neither assessed separately nor integrated into formal evaluation, despite the curriculum's strong communicative emphasis.

Overall, the transactions dimension was partially congruent and partially incongruent. Although some intended practices—such as target-language use, visual support, and alternative tasks—were visible, implementation remained predominantly teacher-centered, materially constrained, and weak in communicative interaction.

Results Regarding the Outcomes Area of the Curriculum

RQ7 addressed the outcomes area by examining the congruence between intended curriculum outcomes and the outcomes achieved during implementation. Item-level teacher questionnaire results for the outcomes dimension are presented in Table 6.

Table 6

Teachers' Questionnaire Results for the Outcomes Dimension

Item	SD f (%)	D f (%)	U f (%)	A f (%)	SA f (%)
37. Students reach the level projected in the curriculum (B1.1).	5 (25)	11 (55)	4 (20)	0 (0)	0 (0)
38. The curriculum encourages students to learn a language.	0 (0)	1 (5)	4 (20)	10 (50)	5 (25)
39. The curriculum improves students' English listening skills.	0 (0)	2 (10)	4 (20)	14 (70)	0 (0)
40. The curriculum improves students' English speaking skills.	2 (10)	12 (60)	5 (25)	1 (5)	0 (0)
41. The curriculum improves students' English reading skills.	0 (0)	1 (5)	4 (20)	14 (70)	1 (5)
42. The curriculum improves students' English writing skills.	0 (0)	3 (15)	4 (20)	13 (65)	0 (0)
43. Students' participation in lessons increases.	0 (0)	1 (5)	5 (25)	11 (55)	3 (15)
44. The assessment techniques suggested in the curriculum are effective in determining whether students have achieved the outcomes.	0 (0)	7 (35)	7 (35)	6 (30)	0 (0)
45. Using the assessment activities suggested in the curriculum is economical during remote instruction.	2 (10)	4 (20)	14 (70)	0 (0)	0 (0)
46. The examinations administered throughout the semester measure all four language skills equally.	7 (35)	12 (60)	1 (5)	0 (0)	0 (0)
47. At the end of the curriculum, students can express themselves in daily life by using the targeted language.	4 (20)	13 (65)	3 (15)	0 (0)	0 (0)
48. The assignments suggested in the curriculum contribute to students' language-learning process.	0 (0)	1 (5)	3 (15)	10 (50)	6 (30)

Note. n = 20. SD = strongly disagree; D = disagree; U = undecided; A = agree; SA = strongly agree.

The teacher questionnaire results indicated that the intended end-of-year outcomes were only partially realized. 80% of teachers disagreed that students had reached the projected B1.1 level. At the same time, 75% agreed that the program encouraged language learning; 70% agreed that listening improved; 75% agreed that reading improved; and 65% agreed that writing improved; however, 70% disagreed that speaking improved. In addition, 95% disagreed that exams measured all four language skills equally, 85% disagreed that students could use the language effectively in daily life, and 80% agreed that curriculum-based homework contributed positively to learning.

RQ8 examined students' attitudes toward English at the end of the teaching process. Table 7 presents the pretest-posttest attitude results.

Table 7

Paired-Samples t Test Results for Attitude Pretest-Posttest Scores

Scales and dimensions	Time	n	M	SD	df	t	p
English attitude scale	Pretest	429	106.03	18.81	428	.350	.727
English attitude scale	Posttest	429	106.52	20.37	428	.350	.727
Sensitivity dimension	Pretest	429	24.05	4.43	428	13.562	< .001*
Sensitivity dimension	Posttest	429	19.90	4.39	428	13.562	< .001*
Consciousness dimension	Pretest	429	19.85	4.00	428	.393	.694
Consciousness dimension	Posttest	429	19.96	4.09	428	.393	.694

Scales and dimensions	Time	n	M	SD	df	t	p
Importance dimension	Pretest	429	31.18	5.95	428	.370	.712
Importance dimension	Posttest	429	31.34	6.36	428	.370	.712
Method and material dimension	Pretest	429	19.64	4.96	428	1.153	.250
Method and material dimension	Posttest	429	20.04	4.84	428	1.153	.250
Language and culture dimension	Pretest	429	11.29	2.63	428	.263	.793
Language and culture dimension	Posttest	429	11.24	2.76	428	.263	.793

Note. n = number of students; M = mean; SD = standard deviation; df = degrees of freedom. *p < .05.

Regarding attitudes, the overall pretest and posttest scores did not differ significantly, indicating relative stability in students' general attitudes toward English. However, the sensitivity dimension decreased significantly from 24.05 to 19.90, with a moderate effect size (approximately $d_z = 0.65$). This means that the program did not strengthen students' affective engagement with English and may even have weakened one important affective component, despite the stability of the total attitude score.

RQ9 examined students' English achievement at the end of the teaching process. Table 8 presents the paired pretest-posttest achievement results.

Table 8

Paired-Samples t Test Results for Achievement Pretest-Posttest Scores

Test	Time	n	M	SD	df	t	p
Academic achievement test	Pretest	320	11.10	5.27	319	2.532	.012*
Academic achievement test	Posttest	320	12.21	5.66	319	2.532	.012*

Note. n = number of students; M = mean; SD = standard deviation; df = degrees of freedom. *p < .05.

For academic achievement, the pretest mean score was 11.10, and the posttest mean score was 12.21. This increase was statistically significant ($p < .05$), but its practical magnitude was small (approximately $d_z = 0.14$). Accordingly, the results point to limited improvement rather than strong curricular attainment. Because this instrument was not a standardized CEFR proficiency test and covered only the first five units, these results should be interpreted as modest curriculum-based gains rather than as evidence that students approached the targeted B1.1 level. Overall, the outcomes dimension ranged from partial congruence to incongruence: some skills appeared to improve, but the intended communicative and proficiency targets were not convincingly reached.

Table 9 summarizes the congruence and contingency results across all three evaluation dimensions.

Table 9

Summary of Congruence and Contingency Across Stake's Evaluation Dimensions

Dimension	Intended Conditions	Obtained Evidence	Congruence	Contingency: Effect on Next Dimension
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Antecedents (Pre-conditions)	Communicative objectives aligned with CEFR; in-service training for teachers; textbook aligned with curriculum; developmental appropriateness of learning outcomes; clear distribution of ~550 instructional hours	Although curriculum objectives were stated in CEFR-aligned communicative terms, the intended A1→B1.1 proficiency progression proved developmentally challenging for the age group, particularly after Unit 15, where complex structures exceeded readiness levels; no in-service training was provided to teachers; the widely used textbook was not aligned with the curriculum; instructional hour distribution was not clearly specified; stakeholder participation in the design process was absent	Partial	↓ Underprepared teachers and inadequate materials directly constrained the quality of classroom transactions
Transactions (Processes)	Communicative, learner-centered instruction; balanced coverage of four skills; use of recommended materials; technology-supported learning environments; integration of speaking assessment	Teacher-centered practices predominated (Q&A, read-aloud, gap-fill); limited speaking opportunities; textbook-constrained lessons; no formal speaking assessment; inadequate technology; traditional seating	Partial to Incongruent	↓ Constrained opportunities for productive skill practice and communicative interaction may have contributed to limiting the attainment of the targeted learning outcomes, although other contextual factors (including pandemic-related conditions) cannot be excluded
Outcomes (Results)	B1.1 proficiency by the end of the year; communicative competence in all four skills; positive and sustained attitudes toward English learning	Limited English achievement gains (pretest M = 11.10 → posttest M = 12.21 out of 25); stable overall attitudes; sensitivity sub-dimension declined; B1.1 target not reached	Partial to Incongruent	— Outcomes dimension reflects the cumulative effect of antecedent and transaction gaps

Note. Congruence judgments are based on the convergence of qualitative and quantitative evidence. Congruent = obtained evidence fully supports intended expectations; Partial = evidence is mixed or partly supportive; Partial to Incongruent = evidence predominantly contradicts intended expectations. The contingency column shows how gaps in each dimension cascaded into the next, following the antecedents → transactions → outcomes logic of Stake's Congruence-Contingency Model (Stake, 1967).

Table 9 provides an integrated overview of the congruence and contingency results across all three evaluation dimensions. As the table makes clear, none of the dimensions achieved full congruence between the curriculum's intent and what was observed in practice. In the antecedents dimension, critical gaps were identified in teacher preparation, textbook alignment, and the developmental appropriateness of learning outcomes—conditions that the curriculum assumed would be in place but that were largely absent. These antecedent gaps had direct consequences for classroom implementation: in the transactions dimension, teachers predominantly relied on teacher-centered, textbook-driven methods rather than the communicative, skill-balanced instruction prescribed by the curriculum, and speaking was not formally assessed despite being a central curricular goal. The cascading effect of these gaps is reflected in the outcomes dimension, where student achievement gains were modest, and the targeted B1.1 proficiency level was not reached within the observed semester. The contingency column makes this cumulative logic visible: weaknesses in preparatory conditions constrained implementation quality, and implementation limitations,

in turn, restricted the attainment of targeted learning outcomes. Taken together, the pattern across all three dimensions supports the overall evaluative judgment of partial congruence.

Discussion

The Antecedents Area of the Curriculum

The curriculum was examined against curriculum development standards by analyzing the curriculum itself, teachers' opinions, and students' academic and attitudinal levels prior to implementation. Designed with an action-oriented approach based on CEFR, the curriculum's objectives and philosophy were articulated and aligned with the general aims of Turkish National Education.

However, the lack of transparency regarding stakeholder participation in curriculum development is a significant shortcoming. Despite stakeholder participation being critical to curriculum reform (Kaya & Ok, 2016), there was no evidence of such involvement in the 5th-grade IELC. Although the Ministry of National Education (MoNE) announced that English teachers would receive training during the 2017–2018 academic year (MoNE, 2017b), the questionnaire results revealed that the teachers participating in this study had not received any in-service training beforehand. This result is consistent not only with Dinçer and Koç's (2020) qualitative evaluation but also with more recent studies showing that teachers continue to report limited professional support, material shortages, and implementation problems across settings (Özcanlı & İzci, 2023; Çokyaman & Ünal, 2025). It is also compatible with reports of problems such as an abundance of objectives and a lack of materials (Eminoğlu Küçüktepe & Kerimoğlu, 2021), a lack of necessary technology, materials, and equipment (Kambur & Demirbulak, 2021), and Karakuş's (2021) conclusion that insufficient professional development impedes successful curriculum delivery.

Moreover, no formative assessment tools, such as surveys or observations, were employed during implementation, neglecting crucial feedback mechanisms needed for curriculum refinement. The curriculum's design—40 sample units planned across an approximately 550-hour school year—was deemed overly intensive. Similar concerns persist in the recent literature. Özcanlı and İzci (2023) reported that teachers questioned the program's manageability under varying local conditions, while Çokyaman and Ünal (2025) concluded that implementation should be improved and standardized rather than left to highly variable school practices. Earlier studies likewise reported imbalances in assessment and a lack of evaluation of listening and speaking skills (Balım, 2020), as well as a predominance of classical approaches over skill-based evaluation (Dilekli, 2018). In addition, Kayabaşı and Köse (2019) highlighted that teachers perceived the curriculum as excessively dense and beyond students' proficiency levels.

An additional limitation was the curriculum's predominant emphasis on the cognitive domain, with limited explicit attention to affective and psychomotor outcomes that would support holistic communicative competence. Furthermore, although the curriculum was designed to include approximately 550 instructional hours, it lacked detailed guidance on their distribution, increasing the likelihood of uneven implementation across schools. This limitation can also be read alongside Gültekin Talayhan and Sakız's (2022) argument that the 5th-grade English curriculum should be reconsidered in light of inclusive education principles so that content, teaching strategies, and learning environments can better respond to learners' diverse developmental needs.

Teacher evaluations highlighted that while the balance among the four basic language skills and the consistency of learning outcomes were appreciated, the coursebook did not align with the curriculum. Research by Eminoğlu Küçüktepe and Kerimoğlu (2021) similarly indicated the absence of an appropriate coursebook under IELC.

Regarding content, the curriculum partially fulfilled development criteria. As Baykara (2013, p. 167) emphasized, content should progress from simple to complex and align with students' developmental stages. The curriculum generally reflected these principles through a spiral approach and life-related examples. However, after Unit 15, complex structures such as the Passive Voice and the Present Perfect Continuous Tense were introduced, exceeding the developmental readiness of 5th graders. This mismatch, similarly observed by Dilekli (2018), appears to remain a recurring concern. Erkan (2020) likewise noted that the

curriculum becomes markedly more complex after the midpoint of the year, and Kaya (2019) reported that even increased instructional time did not necessarily enable students to attain the intended B1.1 target.

While efforts were made to ensure content progression across grade levels, some topics failed to adhere to the principle of moving from known to unknown, risking gaps in students' understanding. Dilekli's (2018) results also indicated that the content sometimes exceeded students' capabilities, necessitating external resources to bridge learning gaps.

Pretest and posttest analyses further corroborate these concerns. The mean pretest score was 11.10, and the posttest score was 12.21 out of 25, indicating low academic achievement levels. This result likely stems from curriculum intensity and misalignment with students' readiness. On the other hand, pretest scores on the attitude scale (mean = 106.03) revealed that students initially held positive attitudes toward English, consistent with Güngör and Geçikli's (2021) results.

In summary, the antecedents dimension shows only partial congruence. The curriculum was conceptually strong in its stated aims and communicative orientation, yet the preparatory conditions required for successful implementation—stakeholder involvement, teacher training, textbook alignment, and developmental appropriateness—were not adequately secured.

The Transactions Area of the Curriculum

Teachers' opinions and classroom observations were analyzed to assess the alignment between the curriculum's learning outcomes and its implementation. Observations revealed that teachers often selected their coursebooks without aligning them with the curriculum's targeted level of communicative competence. This problem is consistent with more recent evidence. Özcanlı and İzci (2023) reported that teachers wanted stronger material support and clearer program guidance, while Çokyaman and Ünal (2025) similarly emphasized the need to reduce school-to-school differences and standardize implementation conditions.

Teachers also reported that the official textbook and supplementary materials did not adequately develop productive skills, particularly speaking. Observations confirmed that in-class practices emphasized traditional activities such as reading and writing, with limited opportunities to improve speaking skills, thus undermining the curriculum's communicative objectives.

Furthermore, classrooms lacked the technological resources to implement listening and speaking activities, relying solely on smart boards. Similarly, Gül (2019) identified insufficient technological infrastructure as a significant barrier to the successful delivery of the curriculum. Traditional seating arrangements, observed across classrooms, further restrict interaction and collaborative learning, both of which are essential to communicative, learner-centered approaches.

The predominant teaching method remained traditional, focusing on teacher-centered practices such as reading aloud, fill-in-the-blank exercises, and question-and-answer sessions. Although these techniques reinforced basic structures, they failed to promote authentic communication. This mirrors Nam's (2005) results in the Korean context, where teachers preferred traditional methods over communicative approaches due to various constraints. Similar tendencies were reported by Yılmaz and İnce (2019), who observed that even when teachers were aware of the communicative objectives, instructional practices remained traditional due to contextual barriers, such as exam pressure and a lack of institutional support. More recent evidence also points in the same direction: Özcanlı and İzci (2023) and Çokyaman and Ünal (2025) both indicate that teachers value the program yet continue to encounter structural and pedagogical constraints that limit its implementation. The present study confirms that these systemic limitations persist and significantly hinder the enactment of communicative language teaching in Turkish classrooms.

Teachers also expressed uncertainty about applying the curriculum's recommended methods and strategies, echoing Kaya's (2019) results, which attributed this hesitation to insufficient professional training. This lack of preparedness contributed to inconsistencies between curriculum intent and classroom practices.

Additional challenges included the absence of a unified coursebook aligned with the curriculum, the curriculum's intensive structure, the frequent use of the native language in classrooms, and environments ill-suited to communicative activities. Pandemic-related restrictions further limited opportunities for group

work and peer collaboration, resulting in low levels of student participation in discourse activities essential for developing oral proficiency.

Despite these challenges, some positive practices were observed. Teachers effectively incorporated multimodal resources, such as songs, cartoons, and illustrated stories, and utilized smartboards to enhance the learning environment. Bulletin boards displaying student-created projects reflected efforts toward alternative assessment practices and visual engagement. However, a significant gap remained in the assessment of speaking skills, which were not evaluated through direct and valid methods, limiting the comprehensive development of communicative competence. This issue remains highly relevant in recent literature. Dinçer and Bal Gezegin (2024) found that teachers considered speaking assessment necessary, yet they also reported being unprepared, experiencing workload, and needing clearer guidance and in-service training. Accordingly, the problem is not simply the absence of speaking-focused assessment, but also the lack of a workable assessment culture and support structure.

In conclusion, the transactions dimension also ranges from partial congruence to incongruence. The main problem was not the total absence of communicative intent, but its weak enactment under textbook- and classroom-related constraints and pandemic-related constraints. In other words, what the curriculum asked for and what classrooms could realistically sustain were not fully aligned.

The Outcomes Area of the Curriculum

To evaluate the outcomes area of IELC, the curriculum, teachers' opinions, students' achievement levels, and attitudes toward English learning were analyzed. The curriculum documents projected an ambitious progression from A1 to B1.1; however, the evidence gathered in this study suggested that students' performance remained below expectations, especially after the increase in difficulty observed beyond Unit 15. Although some language structures were introduced, students struggled to express themselves effectively in real-life communicative contexts, suggesting that spontaneous language use, a central component of communicative competence, was underdeveloped.

Posttest results from the academic achievement test showed a mean score of 12.21, compared with a pretest mean of 11.10. Although this improvement was statistically significant, its effect size was small. Yılmaz and İnce (2019) similarly found that although students' academic performance improved, they did not attain the targeted curricular expectations. Likewise, Kaya (2019) argued that the curriculum's dense structure and rapid progression surpass students' cognitive readiness. This study aligns with such results, as posttest results revealed only limited gains despite increased instructional hours, underscoring a misalignment between curriculum intensity and student development. This interpretation is also consistent with Çokyaman and Ünal's (2025) conclusion that the program is perceived as useful but is undermined by implementation problems that prevent expected gains from being fully realized. At the same time, these test scores should be interpreted as evidence of English achievement rather than as direct CEFR proficiency results.

Regarding attitudes, the general posttest mean score (106.52) did not differ significantly from the pretest. Yet the significant decline in the sensitivity dimension suggests that overall stability should not be interpreted as an unambiguously positive result. The curriculum may have maintained students' general orientation to English while failing to sustain their emotional engagement with the learning process. This point deserves special attention because Orman and Hamurcu (2023) reported that, within the intensive 5th-grade program, the sensitivity dimension of English attitude was a significant predictor of achievement.

Teachers noted that curriculum-based assignments enhanced engagement and supported language development. Nevertheless, a major shortcoming was the failure to thoroughly implement the assessment tools and techniques recommended by the curriculum. Assessment practices in communicative language teaching must reflect the four-skill emphasis: speaking, listening, reading, and writing (Brown, 2004; Richards, 2006). However, research shows that exams tend to focus on reading and writing skills while neglecting speaking skills.

A broader evaluation of the antecedents, transactions, and outcomes areas revealed an interconnected chain of deficiencies. Overloaded outcomes and insufficient developmental fit in the antecedents dimension weakened classroom enactment in the transactions dimension; in turn, teacher-centered instruction, inadequate materials, and limited speaking assessment constrained the outcomes

dimension. Thus, the central evaluation problem appears to be not merely a matter of curriculum ambition, but of the failure to translate that ambition into workable classroom practice.

The absence of a comprehensive, longitudinal evaluation also limited the ability to measure the retention and transferability of the acquired language skills, weakening the overall outcome assessment. Furthermore, when curriculum objectives are overly ambitious, and the content is excessively dense, it often exceeds learners' cognitive readiness - particularly among younger students - and widens the gap between intended learning outcomes and the realities of classroom implementation (Nunan, 2003; Breen & Littlejohn, 2000). This interpretation is further reinforced by Çokyaman and Ünal (2025), who found that students and teachers generally considered the program beneficial, yet also pointed to implementation deficiencies and recommended reducing school-based disparities, standardizing the instructional process, and sustaining the program by strengthening its weak components. The study's contribution lies in combining teacher perspectives, student assessment data, and classroom observations, offering a triangulated view that validates concerns previously raised in the literature and highlights areas needing further systemic support.

Despite these challenges, positive aspects were observed: the curriculum's learning outcomes were clearly articulated, teacher-student communication remained visible, and modest gains in English achievement were obtained. Even so, these strengths were insufficient to close the gap between intended communicative proficiency targets and students' actual performance. From a Stake-based perspective, the overall curriculum picture is therefore best described as partially congruent, but weak in implementation and in achieving outcomes.

Limitations

Several limitations should be acknowledged. First, the quantitative component used a one-group pretest-posttest design; therefore, the observed changes should be interpreted as within-group changes across the semester rather than as causal evidence of curriculum effectiveness. The absence of a control group means that observed pre-post differences cannot be attributed exclusively to the IELC; maturation, seasonal effects, and pandemic-related conditions cannot be ruled out.

Second, the academic achievement test covered only the first five units of the curriculum and did not assess speaking. Therefore, the achievement results reflect early-semester curriculum-based gains rather than overall curriculum attainment or CEFR-level proficiency. The absence of a direct speaking assessment is particularly important because the IELC placed strong emphasis on communicative language use, spoken interaction, and spoken production.

Third, classroom observations were limited to one pilot school and four fifth-grade sections. Therefore, the observation findings should be interpreted as context-specific evidence of classroom implementation rather than as representative of all pilot schools.

Fourth, a separate pilot administration of the Teacher Questionnaire was not conducted before the main study. This was mainly due to the limited number of English teachers working in the pilot schools and the intention to include all available teachers in the main data collection process. Conducting a separate pilot administration with a subgroup of these teachers would have further reduced the already limited sample in the main study. Although the questionnaire was refined through expert review, the absence of a separate pilot administration limited the opportunity to identify possible response-process problems before data collection. For this reason, findings from the teacher questionnaire should be interpreted with caution as descriptive evidence of teachers' views within the specific implementation context.

Fifth, expert review for the researcher-developed forms was obtained qualitatively through written comments and revisions rather than through numerical item ratings. Therefore, quantitative expert-agreement indices, such as a Content Validity Index or a percentage agreement, could not be calculated or reported. This limitation should be considered when interpreting the evidence for the content adequacy of the Curriculum Review Form, Teacher Questionnaire, and Classroom Observation Form.

Finally, the study reflects the first-semester implementation context for the 2021–2022 academic year, including constraints related to remote or hybrid teaching. Accordingly, the results should be read as an evaluation of that historical pilot implementation rather than of the later Multi-Foreign Language Education

Model or the revised English curricula introduced after 2025 (MoNE, 2025; BoED, 2025). These limitations indicate that the congruence judgments offered in this study are best understood as context-specific evaluative inferences that require multi-site, longitudinal, and more comprehensive investigations to confirm, refine, or revise.

Implications and Recommendations

The results of this study suggest several considerations to improve the effectiveness of the IELC. To begin with, the active involvement of teachers, school administrators, and other stakeholders in the curriculum design phase is vital. When those who implement a curriculum are also part of its development, the resulting content is more likely to address practical needs and realities.

Another key recommendation is to provide thorough in-service training for teachers, not only at the beginning of implementation but also throughout the process. Without continuous support, educators may struggle to apply new teaching methods effectively. In addition, the curriculum itself could benefit from simplification. Reducing the number of learning outcomes and units would make goals more manageable within the given instructional time.

Moreover, focusing solely on cognitive targets overlooks the importance of other learning domains. Learning outcomes should be expanded to include affective and psychomotor goals, helping students build positive attitudes and real-life communication habits. Teaching materials, particularly textbooks, must also be revised to reflect these aims. Materials that fail to support communicative learning limit the impact of even the most well-designed curricula.

To foster more active classroom environments, student-centered approaches such as group tasks, peer interaction, and interactive activities should be promoted. These techniques allow learners to use the language in meaningful ways. At the same time, providing schools with sufficient technological tools—such as multimedia resources and access to digital learning platforms—can support the development of listening and speaking skills.

Assessment practices also need to be reconsidered. Exams and tasks should evaluate all four language skills equally. In particular, speaking deserves more emphasis, as it is often neglected in practice. Furthermore, the targeted proficiency levels should be realistic and adjusted according to students' developmental stages. Overly ambitious goals may lead to frustration rather than progress.

Lastly, incorporating cultural relevance into lesson content and employing emotionally engaging instructional strategies can help sustain students' motivation. When learners see the value of English in their own lives and feel connected to what they are learning, long-term success becomes more attainable.

Collectively, the recommendations above converge on three primary stakeholder groups: curriculum designers and policymakers bear responsibility for ensuring textbook alignment, developmentally appropriate proficiency targets, and a formal implementation feedback mechanism; teacher educators and professional development providers need to address communicative methodology and speaking assessment alongside curriculum content in pre-implementation training; and school administrators can most directly support delivery through adequate technology provision, flexible seating for interaction, and equitable assessment of all four language skills. These priorities point toward a more sustainable and contextually responsive approach to implementing intensive foreign language curricula in Türkiye.

Conclusion

In conclusion, IELC presented a clear communicative vision and an ambitious proficiency target, but the evidence gathered from documents, teachers, classroom observations, and student measures does not demonstrate strong alignment between the intended design and the results. The curriculum appeared stronger on paper than in practice. Its formal aims, thematic structure, and extended instructional time created potential advantages, yet these were undermined by limited teacher preparation, weak textbook alignment, insufficient implementation focused on speaking, and outcomes that remained below the intended level.

When the antecedents, transactions, and outcomes are considered together, the most defensible overall judgment is that the curriculum demonstrated only partial congruence. Some curriculum-based gains were observed, and students did not have a negative attitudinal baseline; however, the intended communicative proficiency trajectory was not convincingly realized within the observed implementation context. These results should not be generalized automatically to later intensive foreign language models in Türkiye, because the policy framework has since shifted toward the Multi-Foreign Language Education Model and updated English curricula (MoNE, 2025; BoED, 2025). The study's original contribution lies in being among the first to apply Stake's Congruence-Contingency Model to this curriculum using a multi-source, mixed-methods design that integrates documentary, observational, and student-level evidence. The resulting evaluative picture—one of partial congruence rather than outright failure or clear success—offers a more nuanced account of the curriculum's implementation record than has been available from single-method studies, and it specifies the particular dimensions (teacher preparation, materials alignment, speaking assessment) in which the congruence gap is greatest.

Author's Note

This article is derived from the first author's master's thesis, completed at Kırıkkale University under the supervision of the second author.

CRedit authorship contribution statement

G. Taşci: Conceptualization, Methodology, Investigation, Data curation, Formal analysis, visualization, writing – original draft.

İ. D. Taş: Conceptualization, methodology, supervision, validation, writing – review & editing.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to research, authorship, and/or publication of this article.

Ethics Approval and Consent to Participate

This study was approved by the Research Ethics Committee for Social and Human Sciences at Kırıkkale University at its meeting dated 18 November 2021, Session No. 11, Decision No. 10.

Declaration of AI Usage Statement

In this study, the AI tool(s) ChatGPT (accessed: 10.03.2026; 5.4 Plus) and Grammarly (accessed: 10.03.2026; Premium) were used. The tools were used only for English translation, language editing, and proofreading support. No research data were collected, generated, analyzed, or interpreted using AI tools. All language suggestions were reviewed by the authors, who take full responsibility for the accuracy, originality, and integrity of the manuscript. AI was used in compliance with COPE and Kastamonu Education Journal publication policies. AI tools were not listed as authors or co-authors.

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Appendix A

Curriculum Review Form - Turkish Version

No.	Madde	Evet	Hayır	Bilgi Yok
GİRİŞ				
1	Program geliştirme çalışmasında karar ve koordinasyon grubu oluşturulmuştur.			
2	Program geliştirme çalışmasında program çalışma grubu yer almıştır.			
3	Program geliştirme çalışmasında danışma grubu yer almıştır.			
4	Program geliştirme çalışma planı hazırlanmıştır.			
5	Program geliştirme sürecinde tüm paydaşlar yer almıştır.			
6	Program geliştirme sürecinde ihtiyaç analizleri (Birey, toplum ve konu alanı) yapılmıştır.			
6.1	Birey (ilgi alanlarına, gelişim ve öğrenme özelliklerine uygunluğu)			
6.2	Toplum (eğitim alanında ulusal ve uluslararası yönelimler dikkate alınmış mı?)			
6.3	Konu alanı			
7	Programda temel alınan bir program geliştirme yaklaşımı vardır.			
8	Taslak programın pilot uygulaması yapılmıştır.			
8.1	Taslak programın pilot uygulaması için iyi bir örneklem (coğrafi bölgelerin temsil edilmesi, yerleşim yerlerinin temsil edilmesi vb.) alınmıştır.			
8.2	Taslak program için pilot okullar seçilmiştir.			
8.3	Taslak programın ön uygulaması için okul yöneticisi ve öğretmenlere hizmet içi eğitim verilmiştir.			
8.4	Pilot uygulama sonrası elde edilen verilerin etkililiği hakkında çeşitli bilgi araçları (anket, görüşme, gözlem vb.) ile veri toplanmıştır.			
9	Öğretim programının genel amaçları açık ve net olarak ifade edilmiştir.			
10	Öğretim programının genel amaçları, Türk Milli Eğitiminin uzak ve genel hedefleri ile tutarlıdır.			
11	Öğretim programının felsefesi açık olarak belirlenmiştir. (Dayandığı eğitim felsefesi, tasarım yaklaşımı, benimsenen öğrenme kuramı/kuramları vb.)			
KAZANIMLAR				
12	Öğrenme kazanımları birbiriyle tutarlıdır.			
13	Öğrenme kazanımları öğretim programının genel amaçları ile tutarlıdır.			
14	Öğrenme kazanımları yaşamla ilişkilendirilmiştir.			
15	Öğrenme kazanımları, toplumun ihtiyaçlarına dönüktür.			
16	Öğrenme kazanımları, öğrenenlerin ihtiyaçlarına dönüktür.			
17	Öğrenme kazanımları, konu alanının ihtiyaçlarına dönüktür.			
17.1	Öğrenme kazanımları iletişimsel yeterliliği geliştirecek niteliktedir.			
17.2	Öğrenme kazanımları dil becerilerini (dinleme, okuma, konuşma ve yazma) geliştirecek niteliktedir.			
18	Öğrenme kazanımları öğrenenin bilişsel, duyuşsal ve psikomotor gelişimini destekleyecek niteliktedir.			

No.	Madde	Evet	Hayır	Bilgi Yok
19	Öğrenme kazanımlarında üst düzey öğrenmelere yer verilmiştir.			
20	Öğrenme kazanımları öğrencilerin gelişim özelliklerine uygundur.			
21	Öğrenme kazanımları öğrencilerin öğrenme özelliklerine uygundur.			
22	Kazanım ifadeleri kazanım yazma ilkelerine uygun olarak yazılmıştır.			
23	Öğrenme kazanımları programın felsefeleri ile tutarlıdır.			
24	Öğrenme kazanımları önerilen süre içerisinde ulaşılabilir.			
İÇERİK				
25	Programın içeriği, kazanımlar ile tutarlıdır.			
26	Programın içeriği öğrencinin yaşadığı toplumsal koşullara göre (yaşamla ilişkilendirme) düzenlenmiştir.			
27	Programın içeriği aşamalı ve birbirinin önkoşulu olacak şekilde sıralanmıştır.			
28	Programın içeriğinde ön örgütleyicilere (bölüm/ünite başlarında özetler, alt başlıklar vb.) yer verilmiştir.			
29	Programın içeriği öğrencilerin gelişim özelliklerine uygundur.			
30	Programın içeriği öğrencilerin öğrenme özelliklerine uygundur.			
31	Programın içeriğinin düzenlenmesinde disipline uygun programlama yaklaşımı (doğrusal, modüler, sarmal vb.) kullanılmıştır.			
32	Programın içeriği bilimsel olarak doğrudur (çağdaş düzeyde kazandırılması gereken bilimsel bilgi).			
33	Programın içeriğinde yer alan bilgiler birbiriyle tutarlıdır.			
34	Programın içeriğinde temel öğretim ilkelerine (somuttan soyuta/kolaydan zora vb.) yer verilmiştir.			
35	Programın içeriği öğrencinin iletişim becerisini destekleyecek niteliktedir.			
36	Programın içeriği öğrencinin dil becerilerini (dinleme, okuma, konuşma ve yazma) geliştirecek niteliktedir.			
ÖĞRENME YAŞANTILARI				
37	Kazanımların nasıl kazandırılacağına ilişkin öğretme-öğrenme etkinliklerine yer verilmiştir.			
38	Öğrenme yaşantıları düzenlenirken öğretim ilkeleri (hedefe görelilik, öğrenciye görelilik, ekonomiklik, kaynaşıklık vb.) göz önüne alınmıştır.			
39	Öğretme-öğrenme etkinlikleri öğrencilerin gelişim özelliklerine uygundur.			
40	Öğrenme yaşantıları öğrencinin öğrenme özelliklerine uygundur.			
41	Öğrenme yaşantıları öğrencinin derse aktif olarak katılımını destekleyecek niteliktedir.			
42	Öğrenme yaşantıları öğrencinin kazanımlara ulaşmasını destekleyecek niteliktedir.			
43	Öğrenme yaşantıları öğrencinin iletişim becerisini geliştirecek niteliktedir.			
44	Öğrenme yaşantıları öğrencinin dil becerilerini (dinleme, okuma, konuşma ve yazma) geliştirecek niteliktedir.			
DEĞERLENDİRME				
45	Öğretim programında ölçme ve değerlendirmenin ne şekilde yapılacağı açık bir şekilde belirtilmiştir.			

No.	Madde	Evet	Hayır	Bilgi Yok
46	Öğretim programında kazanımları yoklamaya yönelik ölçme araç ve teknikleri önerilmiştir.			
47	Öğretim programında önerilen ölçme araç ve teknikleri kazanımları yoklamaya uygundur.			
48	Öğretim programında bilişsel, duyuşsal ve psikomotor alan kazanımlarını ölçmeye yönelik ölçme araç ve teknikleri önerilmiştir.			
49	Öğretim programında bilişsel, duyuşsal ve psikomotor alan kazanımlarını ölçmeye yönelik önerilen ölçme araç ve teknikleri uygundur.			
50	Öğretim programında dil becerilerini (dinleme, okuma, konuşma ve yazma) yoklamaya yönelik ölçme araç ve teknikleri önerilmiştir.			
51	Öğretim programında dil becerilerini (dinleme, okuma, konuşma ve yazma) yoklamaya yönelik önerilen ölçme araç ve teknikleri uygundur.			
52	Öğretim programında öğrencinin iletişim becerisini yoklamaya yönelik ölçme araç ve teknikleri önerilmiştir.			
53	Öğretim programında öğrencinin iletişim becerisini yoklamaya yönelik önerilen ölçme araç ve teknikleri uygundur.			

Appendix B

Curriculum Review Form - English Translation

No.	Item	Yes	No	No Information
INTRODUCTION				
1	A decision and coordination group was established for the curriculum development process.			
2	A curriculum working group took part in the curriculum development process.			
3	An advisory group took part in the curriculum development process.			
4	A curriculum development work plan was prepared.			
5	All stakeholders took part in the curriculum development process.			
6	Needs analyses (individual, society, and subject area) were conducted during the curriculum development process.			
6.1	Individual: suitability to students' interests and developmental and learning characteristics.			
6.2	Society: whether national and international trends in education were taken into account.			
6.3	Subject area.			
7	The curriculum is based on a curriculum development approach.			
8	The draft curriculum was piloted.			
8.1	A suitable sample was selected for the pilot implementation of the draft curriculum (e.g., representation of geographical regions and settlement types).			
8.2	Pilot schools were selected for the draft curriculum.			
8.3	In-service training was provided to school administrators and teachers before the pilot implementation of the draft curriculum.			
8.4	After the pilot implementation, data on effectiveness were collected through various information-gathering tools (e.g., questionnaire, interview, observation).			
9	The general objectives of the curriculum are stated clearly and explicitly.			
10	The general objectives of the curriculum are consistent with the broad and general goals of Turkish National Education.			
11	The philosophy of the curriculum is clearly specified (e.g., educational philosophy, design approach, adopted learning theory/theories).			
LEARNING OUTCOMES				
12	The learning outcomes are consistent with each other.			
13	The learning outcomes are consistent with the general objectives of the curriculum.			
14	The learning outcomes are associated with daily life.			
15	The learning outcomes address the needs of society.			
16	The learning outcomes address the needs of learners.			
17	The learning outcomes address the needs of the subject area.			
17.1	The learning outcomes are likely to develop communicative competence.			

No.	Item	Yes	No	No Information
17.2	The learning outcomes are likely to develop language skills (listening, reading, speaking, and writing).			
18	The learning outcomes support learners' cognitive, affective, and psychomotor development.			
19	Higher-order learning is included in the learning outcomes.			
20	The learning outcomes are appropriate to students' developmental characteristics.			
21	The learning outcomes are appropriate to students' learning characteristics.			
22	The learning outcome statements are written in accordance with the principles of writing learning outcomes.			
23	The learning outcomes are consistent with the philosophy of the curriculum.			
24	The learning outcomes are attainable within the recommended time.			
CONTENT				
25	The content of the curriculum is consistent with the learning outcomes.			
26	The content of the curriculum is organized according to the social conditions in which students live (connection with daily life).			
27	The content of the curriculum is sequenced progressively and in prerequisite order.			
28	Advance organizers (e.g., summaries and subheadings at the beginning of sections/units) are included in the curriculum content.			
29	The content of the curriculum is appropriate to students' developmental characteristics.			
30	The content of the curriculum is appropriate to students' learning characteristics.			
31	A programming approach appropriate to the discipline (e.g., linear, modular, spiral) was used in organizing the curriculum content.			
32	The content of the curriculum is scientifically accurate (scientific knowledge that should be acquired at a contemporary level).			
33	The information included in the curriculum content is internally consistent.			
34	Basic teaching principles (e.g., concrete-to-abstract/easy-to-difficult) are reflected in the curriculum content.			
35	The content of the curriculum is likely to support students' communication skills.			
36	The content of the curriculum is likely to develop students' language skills (listening, reading, speaking, and writing).			
LEARNING EXPERIENCES				
37	Teaching-learning activities explaining how the learning outcomes will be achieved are included.			
38	Teaching principles (e.g., goal-orientedness, learner-appropriateness, economy, coherence) were considered when organizing learning experiences.			
39	The teaching-learning activities are appropriate to students' developmental characteristics.			
40	The learning experiences are appropriate to students' learning characteristics.			

No.	Item	Yes	No	No Information
41	The learning experiences are likely to support students' active participation in the lesson.			
42	The learning experiences are likely to support students' achievement of the learning outcomes.			
43	The learning experiences are likely to develop students' communication skills.			
44	The learning experiences are likely to develop students' language skills (listening, reading, speaking, and writing).			
EVALUATION				
45	How assessment and evaluation will be conducted is clearly stated in the curriculum.			
46	Assessment tools and techniques for assessing the learning outcomes are suggested in the curriculum.			
47	The assessment tools and techniques suggested in the curriculum are appropriate for assessing the learning outcomes.			
48	Assessment tools and techniques for assessing cognitive, affective, and psychomotor learning outcomes are suggested in the curriculum.			
49	The assessment tools and techniques suggested for assessing cognitive, affective, and psychomotor learning outcomes are appropriate.			
50	Assessment tools and techniques for assessing language skills (listening, reading, speaking, and writing) are suggested in the curriculum.			
51	The assessment tools and techniques suggested for assessing language skills (listening, reading, speaking, and writing) are appropriate.			
52	Assessment tools and techniques for assessing students' communication skills are suggested in the curriculum.			
53	The assessment tools and techniques suggested for assessing students' communication skills are appropriate.			

Appendix C

Teacher Questionnaire - Turkish Version

Değerli Öğretmenler, bu anket Yabancı Dil Ağırlıklı 5. Sınıf İngilizce Öğretim Programını uygulayan İngilizce öğretmenlerinin öğretim programına ilişkin görüşlerini belirlemek amacıyla hazırlanmıştır. Size en uygun olan seçeneği işaretleyiniz.

No.	Madde	Kesinlikle katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Kesinlikle katılıyorum
GİRDİ DEĞERLENDİRME						
1	Programın amaçları açık bir şekilde belirtilmiştir.					
2	Program öğretmenlerin görüşleri ve beklentileri dikkate alınarak hazırlanmıştır.					
3	Program öğrencilerin görüşleri ve beklentileri dikkate alınarak hazırlanmıştır.					
4	Programda öğrencilerin dil ihtiyaçları göz önünde bulundurulmuştur.					
5	Programın kazanımları öğrencilerin ön bilgisine uygundur.					
6	Programda 4 temel beceri (okuma-yazma-konuşma-dinleme) dengeli bir şekilde verilmiştir.					
7	Öğrenciler program için yeterli bilişsel giriş davranışlarına sahiptir.					
8	Öğrenciler program için yeterli duyuşsal giriş özelliklerine (motivasyon, ilgi vb.) sahiptir.					
9	Öğrenciler program için yeterli psikomotor becerilere sahiptir.					
10	Veli, hazırlık uygulamasına ilişkin yeterli bilgiye sahiptir.					
11	Yöneticiler, hazırlık uygulamasına ilişkin yeterli bilgiye sahiptir.					
12	Programın uygulayıcısı olan/olacak öğretmenler hazırlık uygulaması hakkında hizmet içi eğitim almışlardır.					
13	Programın kazanımları ulaşılabilir niteliktedir.					
14	Programın kazanımları birbirini tamamlar niteliktedir.					
15	Ders kitabı program ile tutarlıdır.					
16	MEB tarafından sunulan destek materyali program ile tutarlıdır.					
17	Hazırlık uygulamasına ayrılan süre (haftada 15 saat) yeterlidir.					
SÜREÇ DEĞERLENDİRME						
18	Uzaktan eğitim sürecinde öğrenme-öğretme süreci sorunsuz olarak işlemektedir.					
19	Uzaktan eğitim sürecinde öğrenciler derse etkin olarak katılmaktadır.					
20	Uzaktan eğitim sürecinde derste bireysel etkinliklere yer verilmektedir.					
21	Uzaktan eğitim sürecinde derste grup etkinliklerine yer verilmektedir.					
22	Etkinlikler öğrencinin derse etkin bir şekilde katılımını sağlamaktadır.					
23	Programda öngörülen yöntem, teknik ve stratejiler süreçte etkili olarak kullanılmaktadır.					
24	Ders kitabında yer alan okuma becerilerine ait etkinlikler yeterlidir.					
25	Ders kitabında yer alan yazma becerilerine ait etkinlikler yeterlidir.					
26	Ders kitabında yer alan konuşma becerilerine ait etkinlikler yeterlidir.					
27	Ders kitabında yer alan dinleme becerilerine ait etkinlikler yeterlidir.					
28	Uzaktan eğitim sürecinde derste öğretmen-öğrenci etkileşimi/iletişimi sağlanmaktadır.					
29	Uzaktan eğitimde derse ayrılan süre verimli kullanılmaktadır.					
30	Uzaktan eğitim sürecinde öğretmen merkezli bir öğretim yürütülmektedir.					
31	Uzaktan eğitim sürecinde öğrenci merkezli bir öğretim yürütülmektedir.					
32	Ders kitabı programın amaçlarını gerçekleştirmek için yeterlidir.					
33	Ders kitabında yer alan etkinlikler iletişime dayalı öğrenmeyi desteklemektedir.					

No.	Madde	Kesinlikle katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Kesinlikle katılıyorum
34	Sınıf ortamı programı uygulamak için elverişlidir.					
35	Programda önerilen bağlamlar (şarkılar, resimli hikâyeler, videolar, çizgi filmler vb.) derste etkin bir şekilde kullanılmaktadır.					
36	Dil öğretiminde teknoloji (Web 2.0 araçları, video konferanslar, bloglar vb.) etkin bir şekilde kullanılmaktadır.					
SONUÇ DEĞERLENDİRME						
37	Öğrencilerin seviyeleri programda öngörülen düzeye (Ara ve Orta Düzey Kullanıcı [B1.1]) ulaşmaktadır.					
38	Program öğrencileri dil öğrenmeye karşı teşvik etmektedir.					
39	Öğretim programı öğrencilerin İngilizce dinleme becerisini geliştirmektedir.					
40	Öğretim programı öğrencilerin İngilizce konuşma becerisini geliştirmektedir.					
41	Öğretim programı öğrencilerin İngilizce okuma becerisini geliştirmektedir.					
42	Öğretim programı öğrencilerin İngilizce yazma becerilerini geliştirmektedir.					
43	Öğrencilerin derse katılımı artmaktadır.					
44	Programda önerilen ölçme değerlendirme teknikleri öğrencinin kazanımlara ulaşip ulaşmadığını belirlemede etkili olmaktadır.					
45	Programda önerilen ölçme değerlendirme etkinliklerini kullanmak uzaktan eğitim sürecinde ekonomiktir.					
46	Dönem boyunca yapılan sınavlar 4 temel dil becerisini de eşit oranda ölçmektedir.					
47	Öğretim programı sonunda öğrenci günlük hayatta öğrenilen dili kullanarak kendini ifade etmektedir.					
48	Programda önerilen ödevler öğrencinin dil öğrenme sürecine katkı sağlamaktadır.					

Appendix D

Teacher Questionnaire - English Translation

Dear Teachers, this questionnaire was prepared to determine the views of English teachers implementing the 5th Grade Intensive English Language Curriculum. Please mark the option that best reflects your opinion.

No.	Item	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
ANTECEDENTS EVALUATION						
1	The curriculum objectives are clearly stated.					
2	The curriculum was prepared by considering teachers' views and expectations.					
3	The curriculum was prepared by considering students' views and expectations.					
4	Students' language needs were taken into account in the curriculum.					
5	The curriculum learning outcomes are appropriate to students' prior knowledge.					
6	The four basic language skills (reading, writing, speaking, listening) are balanced in the curriculum.					
7	Students have sufficient cognitive entry characteristics for the curriculum.					
8	Students have sufficient affective entry characteristics (motivation, interest, etc.) for the curriculum.					
9	Students have sufficient psychomotor entry characteristics for the curriculum.					
10	Parents have sufficient information about the intensive implementation.					
11	School administrators have sufficient information about the intensive implementation.					
12	Teachers implementing/who will implement the intensive curriculum received in-service training about the implementation.					
13	The curriculum outcomes are attainable.					
14	The curriculum outcomes complement one another.					
15	The textbook is consistent with the curriculum.					
16	The support materials provided by MoNE are consistent with the curriculum.					
17	The time allocated to the intensive implementation (15 hours) is sufficient.					
TRANSACTIONS EVALUATION						
18	The teaching-learning process functions smoothly during remote instruction.					
19	Students actively participate in lessons during remote instruction.					
20	Individual activities are included during remote instruction.					
21	Group activities are included during remote instruction.					
22	The activities ensure students' active participation in lessons.					
23	The methods, techniques, and strategies suggested in the curriculum are used effectively in practice.					
24	The textbook activities for reading skills are sufficient.					
25	The textbook activities for writing skills are sufficient.					
26	The textbook activities for speaking skills are sufficient.					
27	The textbook activities for listening skills are sufficient.					
28	Teacher-student interaction/communication is maintained during remote instruction.					
29	The time allocated to lessons is used efficiently during remote instruction.					
30	Teacher-centered instruction is conducted during remote instruction.					
31	Student-centered instruction is conducted during remote instruction.					
32	The textbook is sufficient to achieve the curriculum objectives.					

No.	Item	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
33	The activities in the textbook support communication-based learning.					
34	The classroom environment is sufficient for curriculum implementation.					
35	The contexts suggested in the curriculum (songs, picture stories, videos, cartoons, etc.) are used effectively in lessons.					
36	Technology (Web 2.0 tools, videoconferencing, blogs, etc.) is used effectively in language teaching.					
OUTCOMES EVALUATION						
37	Students reach the level projected in the curriculum (B1.1).					
38	The curriculum encourages students to learn a language.					
39	The curriculum improves students' English listening skills.					
40	The curriculum improves students' English speaking skills.					
41	The curriculum improves students' English reading skills.					
42	The curriculum improves students' English writing skills.					
43	Students' participation in lessons increases.					
44	The assessment techniques suggested in the curriculum are effective in determining whether students have achieved the outcomes.					
45	Using the assessment activities suggested in the curriculum is economical during remote instruction.					
46	The examinations administered throughout the semester measure all four language skills equally.					
47	At the end of the curriculum, students can express themselves in daily life by using the targeted language.					
48	The assignments suggested in the curriculum contribute to students' language-learning process.					

Appendix E**Classroom Observation Form - Turkish Version**

Ders:

Saat:

Sınıf-Şube:

Sınıf Mevcudu:

Tema:

Kazanım:

No.	Madde
1	Sınıfın fiziksel ortamı
2	Dersin giriş etkinlikleri (dikkat çekme, güdüleme, hedeften haberdar etme, önkoşul bilgilerin hatırlanması)
3	Öğretme-öğrenme etkinlikleri
3.1	Kullanılan yöntem ve teknikler
3.2	Kullanılan materyaller
3.3	Öğretmen-öğrenci etkileşimi
3.4	Öğrenci-öğrenci etkileşimi
3.5	Derste kullanılan etkinlikler (bireysel-grup etkinlikleri)
3.6	Eğitim durumu değişkenleri (ipuçları, katılım, pekiştirme, dönüt-düzeltilme)
4	Dersin bitirilişi (özet, eğitsel oyun vb.)
5	Ölçme ve değerlendirmeye ilişkin etkinlikler
6	Diğer notlar

Appendix F

Classroom Observation Form - English Translation

Course:

Time:

Class/Section:

Class Size:

Theme:

Learning Outcome:

No.	Item
1	Physical classroom environment
2	Lesson entry activities (attention getting, motivation, informing students about objectives, recalling prerequisite knowledge)
3	Teaching-learning activities
3.1	Methods and techniques used
3.2	Materials used
3.3	Teacher-student interaction
3.4	Student-student interaction
3.5	Activities used in the lesson (individual/group activities)
3.6	Instructional process variables (cues, participation, reinforcement, feedback-correction)
4	Lesson closure (summary, educational game, etc.)
5	Assessment-related activities
6	Other notes

[Research Article / Araştırma Makalesi]

A Demographic Analysis of Work–Life Balance in Teacher Educators

Öğretmen Eğitimcilerinde İş-Yaşam Dengesinin Demografik Analizi

Duygu Şallı¹

Keywords	Abstract
Higher education Teacher educators Work life balance	In contemporary higher education systems, academic staff play a central role not only in knowledge production but also in teaching processes and the preparation of future professionals. In particular, teacher educators working in faculties of education occupy a key position in directly influencing the quality of this process due to their continuous interaction with pre-service teachers. In this context, work–life balance is considered not only an indicator of academic well-being but also a critical factor in terms of the quality of instructional processes and the professional development of future teachers. This study aims to examine the work–life balance levels of teacher educators working in faculties of education and to determine whether these levels differ according to selected demographic variables. In addition, the study seeks to contribute to the literature theoretically by discussing the potential implications of teacher educators’ well-being for the teacher education process. A quantitative cross-sectional survey design was employed in the study. Data were collected from 503 teacher educators working in the education faculties of various universities in Türkiye using the Work-Life Balance Scale. Descriptive statistics, independent samples t-test, and one-way analysis of variance (ANOVA) were used for data analysis. The findings indicate that teacher educators’ work–life balance levels are generally between moderate and high. Significant differences were found in the dimensions of work–life harmony and personal time allocation according to gender, with male teacher educators obtaining higher scores. In terms of marital status, married teacher educators were found to have significantly higher levels of work-oriented life. Work–life balance also showed significant differences according to academic rank and career stage, with higher levels observed among senior teacher educators. The results reveal that work–life balance among teacher educators varies according to demographic characteristics. Therefore, the work–life balance of teacher educators in faculties of education is considered a critical educational component in terms of their role as models for future teachers. In this regard, it is recommended that higher education institutions develop inclusive and flexible institutional policies to support both academic well-being and teaching quality.
Anahtar Sözcükler	Öz
Yükseköğretim Öğretmen eğitimcileri İş-yaşam dengesi	Günümüz yükseköğretim sistemlerinde akademisyenler yalnızca bilgi üretiminde değil, aynı zamanda öğretim süreçlerinde ve geleceğin profesyonellerinin yetiştirilmesinde merkezi bir rol üstlenmektedir. Özellikle eğitim fakültelerinde görev yapan öğretmen eğitimcisi olan akademisyenler, öğretmen adaylarıyla etkileşim içerisinde olmaları nedeniyle bu sürecin niteliğini doğrudan etkileyen kilit bir konumda yer almaktadır. Bu bağlamda iş–yaşam dengesi, yalnızca akademik iyi oluşun bir göstergesi değil, aynı zamanda öğretim süreçlerinin kalitesi ve geleceğin öğretmenlerinin mesleki gelişimi açısından da kritik bir unsur olarak değerlendirilmektedir. Bu çalışma, eğitim fakültelerinde görev yapan öğretmen eğitimcilerinin iş–yaşam dengesi düzeylerini incelemeyi ve bu düzeylerin seçilen demografik değişkenlere göre farklılaşıp farklılaşmadığını belirlemeyi amaçlamaktadır. Ayrıca çalışma, öğretmen eğitimcilerinin iyi oluş düzeylerinin öğretmen yetiştirme sürecine olası yansımalarını tartışarak literatüre teorik katkı sunmayı hedeflemektedir. Araştırmada nicel, kesitsel tarama modeli kullanılmıştır. Veriler, Türkiye’deki çeşitli üniversitelerin eğitim fakültelerinde görev yapan 503 akademisyenden İş–Yaşam Dengesi Ölçeği aracılığıyla toplanmıştır. Verilerin analizinde betimsel istatistikler, bağımsız örneklem t-testi ve tek yönlü varyans analizi (ANOVA) kullanılmıştır. Bulgular, öğretmen eğitimcilerinin iş–yaşam dengesi düzeylerinin genel olarak orta ile yüksek arasında olduğunu göstermektedir. Cinsiyete göre iş–yaşam uyumu ve kişisel zaman ayırma boyutlarında anlamlı farklılıklar bulunmuş; erkek öğretmen eğitimcilerinin daha yüksek puanlara sahip olduğu belirlenmiştir. Medeni durum açısından evli öğretmen eğitimcilerinin iş odaklı yaşam düzeylerinin anlamlı biçimde daha yüksek olduğu saptanmıştır. İş–yaşam dengesi, akademik unvan ve kariyer evresine göre anlamlı farklılık göstermekte; kıdemli öğretmen eğitimcilerinde daha yüksek düzeylerde görülmektedir. Elde edilen bulgular, yükseköğretimde iş–yaşam dengesinin demografik özelliklere göre farklılaştığını ortaya koymaktadır. Bu nedenle, eğitim fakültelerinde görev yapan öğretmen eğitimcilerinin iş–yaşam dengesi, geleceğin öğretmenlerine rol model olma işlevi açısından kritik bir eğitimsel bileşen olarak değerlendirilmektedir. Bu doğrultuda, hem akademik iyi oluşu hem de öğretim kalitesini desteklemek amacıyla yükseköğretim kurumlarının esnek ve kapsayıcı kurumsal politikalar geliştirmesi önerilmektedir.

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Introduction

Teacher education occupies a strategic position within higher education because it is responsible for preparing future teachers and, consequently, contributing to the quality and sustainability of educational systems. Within this process, teacher educators play a pivotal role by fostering prospective teachers' pedagogical knowledge, professional competencies, and professional identities (Swennen et al., 2010). Accordingly, the quality of teacher educators and teacher education programs has been widely recognized as a critical determinant of educational quality and student outcomes at both institutional and systemic levels (European Commission, 2013; Flores, 2018). The work-life balance of teacher educators in faculties of education extends beyond individual well-being, carrying important implications for the quality of teacher preparation, including prospective teachers' professional expectations, motivational orientations, and perceptions of teaching as a career.

The term teacher educator is used to describe all those who actively facilitate the formal learning of student teachers and teachers, whether at the level of initial teacher education or continuing professional development (European Commission, 2013). In this role, teacher educators contribute both to the generation of academic knowledge and to the professional development of prospective teachers through their role as educators and mentors. Research indicates that the well-being and professional sustainability of teacher educators influence the effectiveness of teacher education programs by enhancing instructional engagement, mentoring quality, and professional role modelling (Flores, 2018; Murray, 2008). A substantial body of research further demonstrates that supportive organizational conditions are fundamental to achieving work-life balance among teacher educators. Organizational characteristics such as flexible work arrangements, manageable workloads, family-friendly policies, collegial support, and supportive leadership consistently emerge as key predictors of employees' ability to balance professional and personal responsibilities (Casper et al., 2024; Mazerolle & Barrett, 2018; Noor, 2011). Within higher education, institutional environments that promote autonomy, flexibility, and organizational support are more likely to facilitate sustainable work practices while reducing work-life conflict among academics. Consequently, improving working conditions should be regarded as a strategic organizational priority for promoting academic well-being and strengthening work-life balance. Viewed from this perspective, work-life balance is not merely an individual outcome but a context-specific phenomenon shaped by the interaction of institutional, professional, and personal factors (Daumiller et al., 2020; Toffoletti & Starr, 2016). Because teacher educators exert a profound influence on prospective teachers' professional identities, values, and pedagogical understandings, their well-being and work experiences may also indirectly contribute to the professional development of future teachers through sustained educational interactions and professional role modelling (Flores, 2018; Swennen et al., 2010). Therefore, improving the working conditions of teacher educators in faculties of education should be considered not only essential for organizational sustainability but also a strategic investment in enhancing the quality of teacher education and strengthening the long-term capacity of educational systems.

Teacher educators are expected to fulfill multiple professional responsibilities, including teaching, research, administration, consulting, and institutional service, while simultaneously preparing future teachers and supporting their professional learning and identity development. In addition to fulfilling traditional academic responsibilities, they are expected to integrate disciplinary expertise with pedagogical knowledge, mentor future teachers, and foster the development of their professional identities through mentoring and role modeling (Ataş, 2018; Swennen et al., 2010). These diverse responsibilities reflect the increasingly complex nature of academic work and contribute to the growing workload demands in higher education (Houston et al., 2006).

While engaging in multiple professional roles can create opportunities for professional development and career enrichment, it can also increase the risk of role overload, work-family conflict, and difficulties in maintaining work-life balance, particularly in institutional contexts where institutional support is limited (Daumiller et al., 2020; Sabagh et al., 2018). To meet performance expectations, maintain research productivity, and advance their academic careers, faculty members often extend their workload beyond formal working hours to include personal and family lives (Houston et al., 2006). At the same time, teacher

educators bear a broader societal responsibility, such as training prospective teachers equipped to educate future generations as competent professionals and responsible citizens (Klasová & Korobaničová, 2017).

This study aims to determine the work–life balance levels of teacher educators working in faculties of education and to examine whether these levels differ significantly according to various demographic characteristics. Focusing on teacher educators who play a direct role in preparing prospective teachers, the study provides empirical evidence from the context of teacher education in Türkiye. Furthermore, the findings are discussed within the broader teacher education literature, particularly in relation to teacher educators' well-being, professional roles, and working conditions, without making claims about educational quality or teacher preparation outcomes. In interpreting the findings, work–life balance is viewed not only as an individual experience but also as one shaped by the organizational context and professional roles of teacher educators within faculties of education. Accordingly, the study aims to contribute to a more contextually grounded understanding of work–life balance in academia and to inform discussions on institutional practices that support the professional well-being of teacher educators.

Specifically, the study seeks to:

1. determine the overall work–life balance levels of teacher educators working in faculties of education;
2. examine whether work–life balance differs according to gender;
3. examine whether work–life balance differs according to marital status;
4. examine whether work–life balance differs according to academic rank;
5. examine whether work–life balance differs according to administrative function; and
6. examine whether work–life balance differs according to professional tenure.

Theoretical Framework

Balance refers to the capacity to regulate contradictions arising from demands across multiple life domains while taking individual needs and priorities into account (Clutterbuck, 2003). Within the work–life literature, balance is conceptualized not as a static or equal distribution of time and resources, but as an ongoing process of negotiation shaped by structural constraints, role expectations, and individual agency. In this sense, work–life balance represents a relational and context-dependent construct rather than a universal or fixed state. The emergence of the work–life balance concept in the mid-1980s coincided with a period marked by intensified work demands, extended working hours, and the growing dominance of productivity-oriented values promoted by consumer culture (Smith, 2010). This historical moment reflects a broader shift in which work increasingly encroached upon non-work domains, thereby challenging traditional boundaries between professional and private life. Early discussions of work–life balance were deeply embedded in gendered assumptions, positioning paid work as the primary domain of men and domestic and caregiving responsibilities as the primary domain of women (Davies & Frink, 2014). Business life serves an economic purpose by helping to fulfill satisfactory living conditions. However, this is not its only function; it also serves as a basis for self-defining and perceived efficiency and helps to create a sense of life through organized efforts (Dagenais-Desmarais et al., 2014). People who are in business life professionally face many situations where they have to make difficult choices. This situation raises the need for individuals to establish a balance between work and life to ensure that they work properly both at work and at home. What matters here are the subjective meanings attributed to the professional and private life of the individual, and their attitudes towards establishing a balance between these two spaces towards these meanings (Voydanoff, 2005). Increasing job demands can make it difficult for many employees to integrate their jobs with the rest of their lives (Reindl et al., 2011). In addition, today's technological developments with the virtual workspaces have led to major changes in the way people work (Kreiner, 2009; Towers et al., 2006). As a result of these changes brought by technology, the line between work and life has become more blurred with the emergence of communicating and sharing information at all hours of the day. The lack of detectable and pronounced boundaries has led to a further increase in the lack of balance between work life and personal life (Whittington et al., 2011). In this process, academicians are required to maintain multiple roles—academic, administrative, and educational. In this sense, examining work–life balance through explicit demographic

variables provides a means of understanding how balance is differentially constructed, negotiated, and experienced within the contemporary higher education ecosystem.

Gender and Work-Life Balance: Gender Role and Role Strain Perspectives

From a theoretical perspective, Gender Role Theory helps explain how traditional gender role expectations shape societal beliefs about the appropriate responsibilities of men and women, often leading to unequal distributions of paid and unpaid labor across work and family domains. (Littlejohn & Foss, 2009). These ideologies construct certain activities as appropriate for one gender while implicitly excluding the other, thereby constraining individuals' role choices and opportunities. Research has shown that such norms surrounding parenting, marriage, and family life systematically limit women's capacity to accumulate human capital and advance professionally (Forson & Özbilgin, 2003). In line with this theoretical framework, the discourses of female teacher educators regarding work-life balance are structured by work/care regimes that are a product of gender discussions (Toffoletti & Starr, 2016). At the same time, the increased participation of women in the workforce has resulted in role expansion rather than role replacement. Role Strain Theory offers a useful lens for understanding how women's simultaneous engagement in professional and domestic roles can intensify pressure and limit recovery opportunities. Despite acquiring new competencies and assuming greater professional responsibilities, female academicians continue to face structural barriers such as gender inequality, glass ceiling effects, and persistent societal assumptions regarding caregiving roles (Finlay, 2008; Hacifazlıoğlu, 2010). Parallel to broader socioeconomic changes, many societies have experienced a gradual increase in dual-earner households since the late twentieth century, accompanied by evolving expectations regarding the division of paid and unpaid labor within families (Bianchi & Milkie, 2010; Goldscheider et al., 2015). Although fathers are increasingly encouraged to participate in childcare and household responsibilities, research continues to indicate that women perform a disproportionate share of caregiving and domestic work (Craig & Mullan, 2011). Consequently, work-life balance is increasingly recognized as a concern for both women and men. However, gender differences remain evident, as work and family responsibilities are often experienced and negotiated differently across gender groups (O'Laughlin & Bischoff, 2005; Winslow, 2010). This shift underscores the necessity for analytical frameworks that treat gender not as a binary determinant, but as a dynamic, relational, and contextually varied variable in higher education settings. Therefore, significant differences in work-life balance components are theoretically expected between male and female teacher educators due to the complex interplay of internalized gender ideologies, domestic demands, and shifting professional identities.

Marital Status and Boundary Permeability in Academia

Boundary Theory, as developed by Ashforth et al. (2000), provides a robust framework for understanding the structural underpinnings of work-life imbalance within the academic sphere. According to this theory, individuals construct physical, temporal, and psychological boundaries between 'work' and 'family' domains to manage role transitions or to maintain a degree of segmentation between these spheres. However, the 'permeability' of these boundaries dictates the extent to which the demands of one role intrude into the other. Particularly when boundaries are characterized by high flexibility, the encroachment of one role's responsibilities upon the time or cognitive space of another renders boundary management an increasingly complex process. In this context, the degree of permeability or rigidity of these boundaries serves as a critical determinant of how individuals experience and negotiate their role identities.

Within this framework, demographic variables such as marital status and family structure emerge as pivotal factors influencing the flexibility or rigidity with which individuals manage these boundary transitions. Contemporary scholarship emphasizes that work-life balance is a fluid and evolving construct, continuously reshaped by shifting domestic arrangements and institutional conditions (Wattis et al., 2013). While single academicians may possess more flexible or easily segmented personal boundaries due to fewer non-work institutional commitments, married or partnered individuals face highly integrated boundary systems. Marriage inevitably increases the volume of non-work responsibilities and multi-role configurations within the domestic sphere. Consequently, for married faculty members, the domestic domain demands higher cross-boundary navigation, making them more vulnerable to severe boundary integration or conflict when academic pressures spill over into personal spaces. In the contemporary era, the integration of digitalization

into organizational processes has rendered the boundaries defined by Ashforth et al. (2000) significantly more permeable. Given the nature of academic work—characterized by increasingly blurred spatial and temporal constraints—these boundaries have become progressively indistinct. The intrusion of academic demands into family time, and conversely, the seepage of domestic responsibilities into the professional environment via digital tools, can transform boundary management into a site of crisis. For married scholars, this technological permeation creates a compounding effect; digital connectivity continuously breaches the home boundary, forcing a constant negotiation between marital duties and academic productivity. Therefore, examining work-life balance through the lens of marital status allows for a deeper understanding of how boundary permeability and structural domestic changes shape an academician's ability to maintain a distinct separation between their professional and private lives.

Academic Rank, Tenure, and Career Stages as Determinants of Autonomy and Pressure

Academic ranks and professional tenure represent distinct structural milestones in higher education that directly shape an individual's degree of job autonomy, institutional pressure, and time management capability. Within the framework of Career Stages perspectives, the professional expectations and structural vulnerabilities of faculty members differ significantly across academic ranks. Early-career academics, such as research assistants and assistant professors, operate under intense institutional scrutiny, performance-based metrics, and the persistent anxiety of securing tenure or promotion. This structural vulnerability often forces early-career scholars to over-extend their professional investments, leading to a high encroachment of academic work into personal life spheres.

Conversely, advancing through the academic ranks to senior positions (such as associate and full professors) typically grants faculty members a higher degree of academic autonomy and institutional security. Academic autonomy offers senior scholars greater control over their research agendas, teaching schedules, and daily temporal boundaries, enabling them to implement more effective boundary-setting strategies. Therefore, academic rank and tenure act as major structural determinants of work-life balance; higher ranks are theoretically expected to provide the structural leverage needed to buffer against role conflict, whereas lower ranks expose individuals to heightened role overload due to precarious institutional demands.

Within this context, the lived experiences of work intensity across different academic ranks can also be interpreted through the concept of the Hidden Curriculum, which refers to the implicit values, norms, and expectations transmitted through institutional practices rather than formal instruction (Giroux, 1983; Jackson, 1968). In higher education, how senior and junior teacher educators navigate work intensity and negotiate their role expectations serves as an unwritten normative framework through which professional attitudes towards work and life are indirectly transmitted within the faculty. Furthermore, Social Learning Theory emphasizes that individuals learn behaviors, attitudes, and norms through the observation of significant others (Bandura, 1977). Accordingly, the work-life practices and boundary management strategies modeled by tenured or high-ranking teacher educators serve as critical behavioral benchmarks for early-career scholars and students alike, particularly in fields related to teacher education where professional identity development is central. Taken together, these perspectives highlight that the impact of academic rank and tenure on work-life balance extends beyond individual well-being, influencing institutional socialization and the broader educational climate within teacher-training processes.

Administrative Duties and Role Overload

In higher education, assuming institutional governance roles alongside traditional scholarly expectations presents a unique structural challenge to work-life interface dynamics. From a theoretical standpoint, administrative duties function as major drivers of Role Overload, which occurs when an individual encounters a volume of professional expectations that exceeds their temporal and cognitive capacity. Academicians with administrative roles must simultaneously manage traditional responsibilities (such as research, teaching, and mentoring) and intensive bureaucratic or managerial tasks. This structural accumulation of roles creates severe time scarcity, often leading to a substantial compression of personal life domains. However, as explored by Ezzedeen and Zikic (2017), navigating highly demanding, complex, or boundaryless career spaces frequently forces individuals to actively construct more advanced boundary

management strategies and proactive time-allocation tactics. Consequently, while administrative duties structurally increase the risk of role overload, they may also compel scholars to exercise higher individual agency and implement rigid segmentation strategies to preserve their well-being. Therefore, examining work-life balance through the lens of administrative status is crucial; it reveals whether managerial responsibilities primarily deteriorate balance through role overload or trigger the deployment of protective boundary-setting behaviors. Beyond these distinct demographic considerations, contemporary literature emphasizes that the overall meaning and experience of balance in academia has become increasingly dynamic. Rather than reflecting stable and uniform conditions, work-life balance is continuously reshaped by shifting organizational expectations, role configurations, and broader socio-economic pressures.

Beyond these distinct demographic considerations, contemporary scholarship highlights that the meaning and experience of balance in academia has become increasingly dynamic, shifting from a simple time-allocation problem to a multidimensional phenomenon deeply intertwined with occupational well-being and structural transformations (Toffoletti & Starr, 2016; Wattis et al., 2013). Although work-life balance has been extensively studied in broad corporate contexts (Badri, 2023; Boakye et al., 2022; Eshun & Segbenya, 2024; Famewo et al., 2026; Franco et al., 2021; Opoku et al., 2023; Quinn & Hartland-Grant, 2024; Tran Thi Siem et al., 2025), a growing body of national and international literature emphasizes the need to evaluate teacher educators through specialized, multi-variable analytical frameworks.

Empirical evidence indicates that work-life balance within higher education does not operate in isolation; rather, it shares significant correlations with psychological and behavioral outcomes unique to the academic profession. For instance, scholars have frequently investigated how work-life outcomes are compromised by modern occupational pathologies, establishing notable links between work-life conflict and academic burnout levels among higher education faculty (Yıldırım & Şenel, 2023). Similarly, the phenomenon of work addiction (workaholism) has been identified as a critical antecedent that diminishes both generic work-life balance and highly specified work-family sub-domains among university professors (Apaydın, 2011).

Furthermore, the intense competition and performance pressures inherent in contemporary higher education structures have given rise to chronic presenteeism—the act of attending work despite physical or psychological illnesses—which has been shown to heavily damage an academicians ability to maintain distinct boundaries, thereby exacerbating work-family conflicts (Ertürk et al., 2017). Conversely, positive psychological frameworks demonstrate that a well-negotiated work-life interface acts as a fundamental driver of subjective well-being and positive self-evaluation among educational scholars (Yerlioğlu, 2020).

The necessity of contextualizing these variables has been further accelerated by recent structural changes in work organization. Recent exploratory research on teacher educators highlights how remote working models and virtualized higher education spaces have simultaneously offered temporal flexibility and triggered boundary crises, forcing a re-evaluation of traditional balance paradigms (Uysal & Çayır Yılmaz, 2024). In their comprehensive review, Thilagavathy & Geetha (2021) noted that while demographic variables such as age, gender, and marital status remain vital, mainstream international literature frequently prioritizes high-level corporate policies over context-specific individual outcomes. This gap is corroborated by recent bibliometric analyses tracking published research on the work-life interface, which explicitly point out a historical concentration of global literature in developed Western economies and call for a greater inclusion of diversified institutional, sectoral, and national contexts by mapping national postgraduate theses (Taşkın, 2024).

Within the Turkish context, while empirical inquiries regarding the work-life interface have historically concentrated on schoolteachers or generic service sector employees (Ordu, 2021; Tekin & Demirkasimoğlu, 2023), specialized investigations focusing directly on teacher educators working in faculties of education remain notably scarce. Indeed, current bibliometric analyses mapping national postgraduate theses clearly demonstrate that the work-life balance literature urgently requires sectoral and institutional diversity (Taşkın, 2024). This gap is theoretically and practically profound; because teacher educators serve as the primary behavioral and professional models for prospective teachers, their internal work-life struggles, experiences of role overload, and institutional well-being directly reflect upon the teacher-training climate and the pedagogical values transmitted to future generations. To address these conceptual, contextual, and

multi-variable gaps identified across the literature, this study aims to examine the unique academic climate in faculties of education in depth. Specifically, it investigates the work–life balance levels of teacher educators serving in these faculties and determines whether these levels significantly differ according to selected demographic variables, namely gender, marital status, academic rank, seniority, and administrative duties. Furthermore, the study seeks to explore the potential reflections of teacher educators' well-being on the teacher-training process, thereby contributing a comprehensive, demographics-grounded theoretical framework to the existing literature.

Method

Research Model

In this study, the survey model from quantitative research methods was used since the work life balance of academicians was examined using various variables. According to this model, it is aimed to describe the research subject as it exists (Karasar, 2005).

Study Area and Selected Sample

The population of the study consists of teacher educators working in faculties of education at universities in Türkiye during the 2024–2025 academic year. The sample comprises 503 teacher educators who were selected using a convenience sampling method.

Table 1

Distributions Regarding the Demographic Characteristics of Academicians

Groups	Frequency(n)	Percentage (%)
Gender		
Female	274	%54,47
Male	229	%45,53
Marital Status		
Married	298	%59,28
Single	205	%40,72
Rank		
Assoc. Dr. (Ph.D.)	99	%19,68
Assist. Prof. Dr.	117	%23,26
Dr.	80	%15,90
Assist. Prof.	43	%8,55
Research Assist.	164	%32,61
Administrative Function		
Yes	189	%37,58
No	314	%62,42
Tenure (years)		
0-5 Years (Early Career)	104	%20,67
6-10 Years (Beginning Middle Career)	126	%25,05
11-15 Years (Mid Career)	95	%18,89
16-20 Years (Late Mid Career)	98	%19,48
21 Years and Above (Advanced Career)	80	%15,90

Table 1 presents the descriptive statistics regarding the demographic and professional characteristics of the teacher educators participating in the study. In terms of gender, 54.47% of the participants (n = 274)

were female and 45.53% (n = 229) were male. Regarding marital status, 59.28% (n = 298) were married, whereas 40.72% (n = 205) were single. With respect to academic rank, 32.61% (n = 164) of the participants were Research Assistants, 23.26% (n = 117) were Assistant Professors, and 19.68% (n = 99) were Senior Faculty (Associate Professors). Additionally, 15.90% (n = 80) Dr, and 8.55% (n = 43) were Lecturers. These findings indicate that the sample largely consisted of early and mid-career teacher educators. In terms of administrative function, 37.58% (n = 189) of the participants reported holding an administrative position, whereas 62.42% (n = 314) did not. Regarding tenure, 25.05% (n = 126) had 6–10 years of experience (early-mid career), 20.67% (n = 104) had 0–5 years (early career), 19.48% (n = 98) had 16–20 years (late-mid career), 18.89% (n = 95) had 11–15 years (mid-career), and 15.90% (n = 80) had 21 years or more (advanced career).

Instruments For Data Collection

Work-Life Balance Scale

The work-life balance scale developed by Apaydın in 2011 was prepared as a 5-point Likert type. Prior to data collection, permission to use the scale was obtained from the scale developer. Cronbach Alpha value of .91 is high. The scale consists of 4 dimensions as Work-Life Cohesion, Neglection of Life, Self-Allocation, and Work-Oriented Life. To evaluate the internal consistency of the Work-Life Balance Scale utilized in this study, Cronbach's Alpha reliability analyses were conducted. The findings yielded robust reliability coefficients across the sub-dimensions, with .86 for Work-Life Cohesion, .79 for Neglection of Life, .82 for Self-Allocation, and .81 for Work-Oriented Life. The overall internal consistency for the aggregate Work-Life Balance score was determined to be .88. Given that coefficients of 0.70 and above are traditionally categorized as 'good,' while those exceeding 0.80 are regarded as 'excellent' within social science scholarship (Hair et al., 2019), it is evident that the current dataset exhibits a high degree of psychometric reliability and is eminently suitable for further inferential statistical procedures.

Data Collection

Data were collected on a voluntary basis between March and May 2025 using an online survey distributed to the institutional email addresses of the participants, which were obtained from the official websites of the universities. The use of an online survey helped to overcome time and location-related barriers (Şimşek et al., 2005)

Data Analysis and Interpretation

Demographic information of the academicians participating in the study was calculated with frequencies and percentages in order to conduct descriptive analyses. In order to determine whether the research variables were normally distributed, kurtosis and skewness values were examined and it was determined that the data showed a normal distribution. Independent Group T-Test, One-Way Analysis of Variance and LSD test were used in the analysis of the data. The research project has received approval from the Ethics Committee at Marmara University, specifically within the Institute of Educational Sciences. The ethical evaluation was finalized on January 24, 2025, and the issue number of the ethics assessment document is 959324.

Findings

This section presents the findings of the study based on descriptive statistics and group comparisons. First, overall work-life balance levels of academicians are reported. Subsequently, differences across gender, marital status, academic rank, and career stage are examined. Prior to the data analysis, the normality of the data distribution was assessed. Given the sample size (n=503), Kolmogorov-Smirnov test results and skewness and kurtosis values were examined. Although the Kolmogorov-Smirnov test yielded significant results ($p < .05$) due to its high sensitivity to large sample sizes, the skewness and kurtosis values were evaluated to make a final assessment. Since the skewness and kurtosis values were within the acceptable range of -1.5 to +1.5, it was determined that the data demonstrated a sufficient approximation to a normal distribution to justify parametric analyses (Tabachnick & Fidell, 2013). Consequently, parametric tests, including independent samples t-test and one-way ANOVA, were employed for the analysis.

Table 2*Kurtosis and Skewness Values*

	Kurtosis	Skewness	Kolmogorov-Smirnov Z	p
Work-Life Cohesion	-.425	-.280	2.299	.000
Neglection of Life	-.508	-.135	1.483	.025
Self-Allocation	-.700	-.209	2.133	.000
Work-Oriented Life	-.24	-.322	2.179	.000
General Work-Life Balance	-.67	-.185	1.426	.034

Table 3*Average Work Life Balance Scores of Academicians*

	N	Ort	Ss	Min.	Max.
Work-Life Cohesion	503	3,388	0,728	1,330	5,000
Neglection of Life	503	3,383	0,781	1,000	5,000
Self-Allocation	503	3,550	0,834	1,250	5,000
Work-Oriented Life	503	3,572	0,811	1,000	5,000
General Work-Life Balance	503	3,456	0,643	1,600	4,950

According to Table 2, the average scores of the academicians were calculated as following; for "general work-life balance" is high as 3.456 ± 0.643 , the average for "work-life cohesion" is medium as 3.388 ± 0.728 , the average for "neglection of life" is medium as 3.383 ± 0.781 , the average for "self-allocation" is high as 3.550 ± 0.834 , and the average for "work-oriented life" is high as 3.572 ± 0.811 .

Table 4*Differentiation of Work-Life Balance Scores by Gender*

	Groups	N	Avg.	Ss	t	sd	p
Work-Life Cohesion	Female	274	3,295	0,750	-3,064	501	0,002
	Male	229	3,483	0,695			
Neglection of Life	Female	274	3,324	0,821	-1,781	501	0,075
	Male	229	3,442	0,734			
Self-Allocation	Female	274	3,467	0,844	-2,372	501	0,018
	Male	229	3,634	0,816			
Work-Oriented Life	Female	274	3,632	0,810	1,747	501	0,081
	Male	229	3,512	0,810			
General Work-Life Balance	Female	274	3,406	0,672	-1,858	501	0,064
	Male	229	3,507	0,609			

Note. Independent group t-test

The results of the independent groups t-test reveal that there is no notable variation in the overall work-life balance score between genders regarding the dimensions of "neglect of life" and "work-oriented life". However, a clear distinction was found in the "work-life cohesion" dimension ($t(501) = -3.064$; $p = 0.002 < 0.05$). Males ($\bar{x} = 3.483$) demonstrated higher work-life cohesion scores compared to females ($\bar{x} = 3.295$). Additionally, the "self-allocation" scores exhibited a marked difference by gender ($t(501) = -2.372$; $p = 0.018 < 0.05$). Males ($\bar{x} = 3.634$) had higher self-allocation scores than females ($\bar{x} = 3.467$).

Table 5*The Influence of Civil status on Work-Life Balance Scores*

	Groups	N	Avg.	Ss	t	sd	p
Work-Life Cohesion	Married	298	3,425	0,689	1,650	501	0,116
	Single	205	3,318	0,797			
Neglection of Life	Married	298	3,371	0,762	-0,516	501	0,606
	Single	205	3,407	0,817			
Self-Allocation	Married	298	3,560	0,830	0,393	501	0,694
	Single	205	3,530	0,844			
Work-Oriented Life	Married	298	3,643	0,776	2,904	501	0,005
	Single	205	3,434	0,862			
General Work-Life Balance	Married	298	3,479	0,613	1,203	501	0,249
	Single	205	3,410	0,697			

Note. Independent group t-test

According to the independent groups t-test results presented in Table 4, conducted to explore the difference in work-life balance between academicians and their relationship status, no significant difference was found in the overall work-life balance score based on relationship status. Additionally, no significant variations were found in the dimensions of "work-life cohesion," "self-allocation," and "work-oriented life" when considering relationship status. However, a significant difference was observed in the "work-oriented life" dimension ($t_{(501)}=2.904$; $p=0.005<0,05$). In this dimension, married academicians had higher scores ($\bar{x} = 3.643$) compared to their single counterparts ($\bar{x} = 3.434$).

Table 6*Differentiation of Work-Life Balance Scores by Rank*

	Groups	N	Avg.	Ss	F	p	Difference
Work-Life Cohesion	Assoc. Dr. (Ph.D.)	99	3,597	0,685	3,613	0,003	
	Assist. Prof. Dr.	117	3,439	0,738			2>4
	Dr.	80	3,283	0,661			2>6
	Assist. Prof.	43	3,443	0,687			3>6
	Research Assist.	164	3,243	0,749			
Neglection of Life	Assoc. Dr. (Ph.D.)	99	3,528	0,772	1,542	0,175	
	Assist. Prof. Dr.	117	3,367	0,811			
	Dr.	80	3,374	0,720			
	Assist. Prof.	43	3,552	0,658			
	Research Assist.	164	3,286	0,790			
Self-Allocation	Assoc. Dr. (Ph.D.)	99	3,806	0,821	7,359	0,000	1>4
	Assist. Prof. Dr.	117	3,677	0,779			2>4
	Dr.	80	3,396	0,858			3>4
	Assist. Prof.	43	3,579	0,788			1>6
	Research Assist.	164	3,302	0,832			2>6
Work-Oriented Life	Assoc. Dr. (Ph.D.)	99	3,610	0,793	0,874	0,499	3>6
	Assist. Prof. Dr.	117	3,528	0,851			
	Dr.	80	3,564	0,800			
	Assist. Prof.	43	3,729	0,640			
	Research Assist.	164	3,552	0,810			

	Groups	N	Avg.	Ss	F	p	Difference
General Work-Life Balance	Assoc. Dr. (Ph.D.)	99	3,621	0,611	3,377	0,005	
	Assist. Prof. Dr.	117	3,483	0,666			2>4
	Dr.	80	3,389	0,613			1>6
	Assist. Prof.	43	3,560	0,524			2>6
	Research Assist.	164	3,329	0,650			3>6

Note. One-way analysis of variance (ANOVA)

According to the results of the one-way variance analysis in Table 5 to determine the difference between the work-life balance of academicians and the rank variable, the general work-life balance score differs significantly by rank variable ($F_{(5, 497)}=3,377$; $p=0,005<0.05$). LSD test, one of the subsidiary Post-Hoc analyzes, was conducted to determine the sources of differences. The work-life balance scores of associate professors ($\bar{x} = 3,621$) are higher than the work-life balance scores of doctors ($\bar{x} = 3,389$). The work-life balance scores of associate professors ($\bar{x} = 3,621$) are higher than the work-life balance scores of research assistants ($\bar{x} = 3,329$). The work-life balance scores of assistant professors ($\bar{x} = 3,483$) are higher than the work-life balance scores of research assistants ($\bar{x} = 3,329$).

The "work-life cohesion" score differs significantly by rank variable ($F_{(5, 497)}=3,613$; $p=0,003<0.05$). The work-life cohesion scores of associate professors ($\bar{x}=3,597$) are higher than the work-life cohesion scores of doctors ($\bar{x}=3,283$). The work-life cohesion scores of associate professors ($\bar{x}=3,597$) are higher than the work-life cohesion scores of research assistants ($\bar{x}=3,243$). The work-life cohesion scores of assistant professors ($\bar{x}=3,439$) are higher than the work-life cohesion scores of research assistants ($\bar{x}=3,243$).

The "self-allocation" score of academicians differs significantly by rank variable ($F_{(5, 497)}=7,359$; $p=0,000<0.05$). The self-allocation scores of associate professors ($\bar{x}=3,806$) are higher than the self-allocation scores of doctors ($\bar{x}=3,396$). The self-allocation scores of assistant professors ($\bar{x}=3,677$) are higher than the self-allocation scores of doctors ($\bar{x}=3,396$). The self-allocation scores of associate professors ($\bar{x}=3,806$) are higher than the self-allocation scores of research assistants ($\bar{x}=3,302$). The self-allocation scores of assistant professors ($\bar{x}=3,677$) are higher than the self-allocation scores of research assistants ($\bar{x}=3,302$).

The scores of academicians in the dimensions of "neglection of life" and "work-oriented life" do not differ significantly by the rank variable ($p> 0.05$).

Table 7

Differentiation of Work-Life Balance Scores by Tenure

	Groups	N	Avg.	Ss	F	p	Difference
Work-Life Cohesion	Early Career	104	3,329	0,737	3,986	0,003	
	Beginning Middle Career	126	3,255	0,727			5>1
	Mid Career	95	3,480	0,761			3>2
	Late Middle Career	98	3,508	0,689			4>2
	Advanced Career	80	3,593	0,636			5>2
Neglection of Life	Early Career	104	3,299	0,779	3,092	0,016	
	Beginning Middle Career	126	3,273	0,771			4>1
	Mid Career	95	3,487	0,776			3>2
	Late Middle Career	98	3,562	0,713			4>2
	Advanced Career	80	3,512	0,825			5>2

	Groups	N	Avg.	Ss	F	p	Difference
Self-Allocation	Early Career	104	3,434	0,781	4,833	0,001	
	Beginning Middle Career	126	3,447	0,849			4>1 5>1
	Mid Career	95	3,546	0,878			4>2 5>2
	Late Middle Career	98	3,781	0,881			5>3
	Advanced Career	80	3,833	0,703			
Work-Oriented Life	Early Career	104	3,540	0,795	1,725	0,143	
	Beginning Middle Career	126	3,469	0,834			
	Mid Career	95	3,715	0,814			
	Late Middle Career	98	3,650	0,813			
	Advanced Career	80	3,618	0,770			
General Work-Life Balance	Early Career	104	3,383	0,630	4,461	0,001	
	Beginning Middle Career	126	3,342	0,645			4>1 5>1
	Mid Career	95	3,542	0,661			3>2 4>2
	Late Middle Career	98	3,607	0,622			5>2
	Advanced Career	80	3,622	0,596			

Note. One-way analysis of variance (ANOVA)

According to the results of the one-way variance analysis in Table 6 to determine the difference between the work-life balance of the faculty members and the tenure variable, the general work-life balance score differs significantly by tenure variable ($F_{(4, 497)} = 4,461$; $p = 0,001 < 0,05$). LSD test, one of the subsidiary Post-Hoc analyzes, was conducted to determine the sources of differences. The work-life balance scores of the faculty members with the late middle career of experience ($\bar{x} = 3,607$) are higher than the work-life balance scores of the faculty members with the early career of experience ($\bar{x} = 3,383$). The work-life balance scores of the faculty members with the advanced career of experience ($\bar{x} = 3,622$) are higher than the work-life balance scores of the faculty members with the early career of experience ($\bar{x} = 3,383$). The work-life balance scores of the faculty members with the mid career of experience ($\bar{x} = 3,542$) are higher than the work-life balance scores of the faculty members with the beginning middle career of experience ($\bar{x} = 3,342$). The work-life balance scores of the faculty members with the late middle career of experience ($\bar{x} = 3,607$) are higher than the work-life balance scores of the faculty members with the beginning middle career of experience ($\bar{x} = 3,342$). The work-life balance scores of the faculty members with the advanced career of experience ($\bar{x} = 3,622$) are higher than the work-life balance scores of the faculty members with the beginning middle career of experience ($\bar{x} = 3,342$).

The "work-life cohesion" score differs significantly by tenure variable ($F_{(4, 497)} = 3,986$; $p = 0,003 < 0,05$). The work-life cohesion scores of the academicians with the advanced career of experience ($\bar{x} = 3,593$) are higher than the work-life cohesion scores of academicians with the early career of experience ($\bar{x} = 3,329$). The work-life cohesion scores of the academicians with the mid career of experience ($\bar{x} = 3,480$) are higher than the work-life cohesion scores of academicians with the beginning middle career of experience ($\bar{x} = 3,255$). The work-life cohesion scores of the academicians with the late middle career of experience ($\bar{x} = 3,508$) are higher than the work-life cohesion scores of academicians with the beginning middle career of experience ($\bar{x} = 3,255$). The work-life cohesion scores of the academicians with the advanced career of experience ($\bar{x} = 3,593$) are higher than the work-life cohesion scores of academicians with the beginning middle career of experience ($\bar{x} = 3,255$).

The "neglect of life" score of academicians differs significantly by tenure variable ($F_{(4, 497)} = 3,092$; $p = 0,016 < 0,05$). The neglect of life scores of the academicians with the late middle career of experience

($\bar{x} = 3,562$) are higher than the neglect of life scores of academicians with the early career of experience ($\bar{x} = 3,299$). The neglect of life scores of the academicians with the mid career of experience ($\bar{x} = 3,487$) are higher than the neglect of life scores of academicians with the beginning middle career of experience ($\bar{x} = 3,273$). The neglect of life scores of the academicians with the late middle career of experience ($\bar{x} = 3,562$) are higher than the neglect of life scores of academicians with the beginning middle career of experience ($\bar{x} = 3,273$). The neglect of life scores of the academicians with the advanced career of experience ($\bar{x} = 3,512$) are higher than the neglect of life scores of academicians with the beginning middle career of experience ($\bar{x} = 3,273$).

The "self-allocation" score of academicians differs significantly by tenure variable ($F_{(4, 497)} = 4,833$; $p = 0,001 < 0,05$). The self-allocation scores of the academicians with the late middle career of experience ($\bar{x} = 3,781$) are higher than the self-allocation scores of academicians with the early career of experience ($\bar{x} = 3,434$). The self-allocation scores of the academicians with the advanced career of experience ($\bar{x} = 3,833$) are higher than the self-allocation scores of academicians with the early career of experience ($\bar{x} = 3,434$). The self-allocation scores of the academicians with the late middle career of experience ($\bar{x} = 3,781$) are higher than the self-allocation scores of academicians with the beginning middle career of experience ($\bar{x} = 3,447$). The self-allocation scores of the academicians with the advanced career of experience ($\bar{x} = 3,833$) are higher than the self-allocation scores of academicians with the beginning middle career of experience ($\bar{x} = 3,447$). The self-allocation scores of the academicians with the advanced career of experience ($\bar{x} = 3,833$) are higher than the self-allocation scores of academicians with the mid career of experience ($\bar{x} = 3,546$).

Table 8

Differentiation of Work-Life Balance Scores by Administrative Function

	Groups	N	Avg.	Ss	t	df	p
Work-Life Cohesion	Yes	189	3,435	0,726	0,912	501	0,362
	No	314	3,372	0,729			
Neglection of Life	Yes	189	3,320	0,882	-1,140	501	0,294
	No	314	3,405	0,741			
Self-Allocation	Yes	189	3,713	0,805	2,775	501	0,006
	No	314	3,492	0,837			
Work-Oriented Life	Yes	189	3,534	0,859	-0,666	501	0,506
	No	314	3,586	0,794			
General Work-Life Balance	Yes	189	3,476	0,691	0,442	501	0,659
	No	314	3,449	0,625			

Note. Independent group t-test

According to the results of the independent groups t test in Table 7 to determine the difference between the work-life balance of the faculty members and the administrative function variable, the general work-life balance score does not differ significantly by the administrative function variable ($p > 0,05$). The general work-life balance score of the faculty members does not differ significantly by the administrative function from the dimensions of "work-life cohesion", "neglection of life", and "work-oriented life" ($p > 0,05$). The "self-allocation" score of academicians differs significantly by administrative function variable ($t(501) = 2,775$; $p = 0,006 < 0,05$). The self-allocation scores of the faculty members with administrative duties ($\bar{x} = 3,713$) were found higher than the scores of the faculty members who did not have an administrative duty ($\bar{x} = 3,492$).

Discussion

The study's findings describe the current work-life balance levels of teacher educators working in faculties of education and provide descriptive insights into variations in this balance across institutional contexts, role expectations, and career stages within teacher education settings. Accordingly, work-life

balance should be conceptualized not only as an individual well-being construct, but also as a component of pedagogical and institutional sustainability in faculties of education, given its indirect impact on the quality of teacher training processes. The results show that the work-life balance levels of teacher educators in higher education are relatively high. This finding is consistent with previous research. For example, Helvacı et al. (2017) similarly reported that teacher educators were able to maintain work-life balance. This situation can be explained by certain characteristics of higher education institutions, such as relatively flexible work arrangements and organizational cultures that partially support balance. It has been noted that such conditions contribute to the harmony between professional and personal life (Noor, 2011), and also emphasize the role of institutional support and flexible structures in maintaining role balance (Mazerolle & Barrett, 2018). In the specific context of faculties of education, these institutional conditions have additional pedagogical consequences. Teacher educators who experience a manageable work-life balance may demonstrate greater emotional accessibility, sustainable engagement in teaching, and increased sensitivity to the needs of prospective teachers. Given the central role of teacher educators in teacher education as both instructors and role models, these qualities are likely to influence not only teaching effectiveness but also the professional identity formation of future teachers. Conversely, imbalances in work-life dynamics can indirectly affect the quality of teaching processes and the nature of academic-student interactions. A faculty where teacher educators can balance professional and personal demands increases the likelihood of creating a supportive, collaborative, and pedagogically sensitive learning environment. In this sense, integrating work-life balance considerations into institutional evaluation processes can contribute to a more holistic understanding of educational quality in teacher education contexts. According to Paudel et al. (2024), individuals who have work-life balance have a higher status in their professions, are emotionally stable and therefore happier and more productive. Within the context of higher education, this may also translate into more effective teaching practices and more sustainable academic engagement. This finding may appear paradoxical at first glance, particularly when considering the invisible dimensions of academic labor (e.g., publication pressure, performance metrics, and academic competition). However, it suggests that teacher educators may have developed coping strategies over time that normalize these demands. Indeed, the literature emphasizes that teacher educators tend to perceive flexible working arrangements as a balancing factor despite high job demands (Kinman & Jones, 2008).

Studies in the literature indicate that high levels of perceived job threat stress increase work-life conflict, which in turn reduces work-life balance and overall well-being, while also restricting the time individuals can devote to their personal lives and families. life balance and well-being, and that individuals can only allocate limited time to their own lives and families (Adebayo, 2016; Bell, Rajendran, & Theiler, 2012; Fatima & Sahibzada, 2012; Kinman & Jones, 2008; Noor, 2011; Toffoletti & Starr, 2016). It can be said that the difference in these situations is closely related to the type of organizations and the effectiveness of the work-life balance policies they implement. In fact, a study conducted in 2024 identified several reasons why work-life balance policies become ineffective and difficult to implement for employees. These include a superficial and externally defined understanding of the concept of 'family', inadequate policy implementation, neglect of disadvantaged employees, managerial attitudes, and the presence of non-institutional organizational cultures (Casper, Hyde, Smith, Amirkamali, & Wayne, 2024). Although the study design is not a correlation model, when synthesized with the view that 'academic well-being is the basis of a quality life' (Adebayo, 2016; Toffoletti & Starr, 2016), which is advocated by the current findings, it is considered that work-life balance is a fundamental prerequisite for fostering the training of qualified teachers and student engagement processes. Accordingly, it can be said that a learning ecosystem sustains itself not only with physical resources but also with the psychological capital and life satisfaction of the actors who create it.

At the same time, the contradictory findings reported in the literature indicate that work-life balance is not a universal experience but rather a contextual phenomenon. Particularly in academic systems characterized by high performance pressure and widespread precarious employment arrangements, work-life balance appears to become more fragile (Toffoletti & Starr, 2016). Work-life imbalance among teacher educators may function as an implicit pedagogical and organizational message that normalizes overwork, thereby shaping not only professional identity formation among pre-service teachers but also broader perceptions of work ethics among students and educational administrators within the higher education

ecosystem. An academic experiencing work-life imbalance may unknowingly transmit the message to their students (especially future teachers) that professional burnout is the price of success. This weakens the quality of education not only at the technical level, but also at ethical and emotional levels. At this point, as emphasized by Casper et al. (2024), it is not only the existence of work-life balance policies that matters, but also how these policies are perceived and implemented. Therefore, the gap between policy and practice can be considered one of the fundamental structural problems that weakens teacher educators' perceptions of balance. In the context of higher education, this indicates that organizational policy alone is insufficient unless it is supported by an academic culture that values sustainable teaching practices and recognizes the importance of balancing multiple academic roles. Therefore, the gap between policy and practice can be considered one of the fundamental structural issues that weakens teacher educators' perceptions of balance and may indirectly affect the sustainability of teaching and learning processes.

Regarding the findings that spousal support at home and colleague support at work positively contribute to work-life balance, whereas factors such as child care challenges, elderly dependency, and unfair criticism in the workplace have detrimental effects, it becomes essential for higher education institutions seeking a competitive advantage to adopt a more responsive and inclusive approach to addressing the work-life balance needs of their teacher educators (Fatima & Sahibzada, 2012). Building on this, Bello et al. (2024) emphasize that by embracing flexibility, leveraging technology, prioritizing employee well-being, and adapting to evolving demographic trends, organizations can cultivate environments that not only attract top talent but also enhance overall productivity and satisfaction. Moreover, the integration of continuous feedback mechanisms and data analytics serves to further optimize and adapt these strategies, ensuring they remain aligned with the dynamic needs of the workforce.

In addition to these strategies, encouraging autonomy or maintaining appropriate control over tasks is critical for teacher educators as they fulfill their diverse roles in teaching, research, and management. Providing teacher educators with greater control is vital because the profession requires multiple commitments across multiple domains. Therefore, flexibility is seen as a vital tool to help teacher educators transition between their professional responsibilities and personal commitments (Badri, 2023). In particular, academic autonomy may enable teacher educators to regulate job demands in ways that are more compatible with their personal lives. This suggests that work-life balance may be related to cultural differences as well as mentality differences and work-life balance policies implemented by higher education institutions where the studies are conducted. In this context, considering that university structures differ internationally in terms of elements such as teacher educators' working disciplines and professional journey opportunities, it is important to apply a global perspective to understand the meaning of the concept of "faculty" and the effects of differences in educational systems (Daumiller, Stupnisky, & Janke, 2020). The definition of a "good academic" may vary from one country to another, directly influencing how work-life balance is perceived. Building on this, higher education institutions that implement flexible working arrangements are more likely to support their teacher educators in balancing personal and professional demands. Such flexibility can enable senior teacher educators, for example, to manage family responsibilities without neglecting their institutional duties. Furthermore, regular faculty members may also benefit from these flexible policies, provided that there is sufficient oversight to ensure the continued quality and integrity of their teaching and academic outputs. In this context, enhanced supervisory mechanisms are essential to safeguard academic standards while also supporting individual well-being (Fauzi, Rahamaddulla, Lee, Ali, & Alias, 2024).

According to the results obtained from the study, teacher educators' general work-life balance does not show a significant difference in terms of factors such as neglecting life, work-focused life, and gender. However, significant differences emerged in the dimensions of work-life harmony and self-allocation, with male teacher educators reporting higher scores than their female counterparts. Men's work-life harmony and self-detachment scores are higher than those of women. The research findings show that female teacher educators have significantly lower work-life balance levels compared to their male colleagues. This result is in complete agreement with the Gender Roles Theory (Littlejohn & Foss, 2009), which is addressed within the theoretical framework of the study. Women's 'caregiver' roles outside academia conflict with academic performance expectations (the ideal worker norm), confirming the 'double burden' phenomenon highlighted

by Toffoletti and Starr (2016). Within faculties of education, female teacher educators often perform not only conventional academic duties but also extensive mentoring, supervision, and professional guidance responsibilities for prospective teachers. These relational and emotionally demanding aspects of teacher education may further intensify the challenges of balancing professional and personal responsibilities, particularly when combined with caregiving roles outside the workplace. Within the context of faculties of education, these findings may have implications that extend beyond individual well-being. Given the central role of teacher educators in teacher education, reduced work–life balance among female teacher educators may influence their availability for pedagogical engagement, mentoring practices, and sustained interaction with pre-service teachers. In this sense, teacher educators function not only as knowledge transmitters but also as role models whose professional practices contribute to the formation of students' professional perspectives. From this perspective, gender-based disparities in work–life balance may be reflected indirectly in the learning environment and may shape students' perceptions of academic and professional roles. Rather than constituting a direct causal relationship, this can be understood as a contextual influence operating through the implicit norms and expectations embedded in academic culture. Accordingly, such patterns may contribute to the reproduction of gendered expectations within the broader pedagogical context.

According to Burke (2002), both women and men prefer to work in organizations that support work-life balance. However, since men spend less time with their families, they can spend more time on themselves and thus achieve the expected work-life harmony more easily. This situation can be explained by the satisfaction and comfort men feel when they are successful at work. A study conducted in higher education institutions in the Sultanate of Oman revealed that despite the increase in female labor force participation, achieving a satisfactory work-life balance remains a significant challenge. The findings highlight both strengths and areas in need of improvement in institutional support systems, workload management practices, and family-friendly policies. Additionally, cultural factors have a substantial impact on work-life dynamics, emphasizing the need for culturally sensitive interventions (Rajagopal et al., 2024). Another noteworthy finding of the study is that married teacher educators have significantly higher levels of work-oriented life compared to their single colleagues. This can be explained, within the context of Boundary Theory (Ashforth et al., 2000), by the fact that as family responsibilities increase, the boundaries between work and private life become more 'permeable'. Since the home is not only a place of rest for married individuals but also a space where family roles are fulfilled, bringing academic work home triggers 'role conflict' and the perception of work-life interference. Consistent with the literature, the increase in responsibilities within the family structure causes the cognitive and physical energy that an individual dedicates to work to be taken away from other areas of life, making the perception of a work-oriented life dominant.

According to the results of the research conducted by Groysberg & Abrahams (2014), which is partially similar to the result that there is a significant difference in favor of male teacher educators in terms of work-life harmony and self-allocation dimensions, gender creates significant differences in work-life balance. The results show that while men see themselves as the source of the household to provide financial gain, according to the perceptions of women, the idea of being a role model for their children is generally at the forefront. While directors for both genders think that the tension between work and family is primarily a women's issue, most respondents argue that it is not possible to compete in the global market while living a balanced life. Similarly, Toffoletti & Starr (2016) reveal that the way women teacher educators talk about work-life balance is aimed at sexist attitudes and that women respond that they see work-life balance as an impossible ideal and this imbalance can damage their careers. In addition to these studies, research on work-life balance reveals ways to create a campus culture with established norms that supports gender inequalities, lack of policy use, and work-life balance. Studies generally suggest the necessity of institutional cultural change to support policy use and reduce problems arising from work-life imbalances (Lester, 2015). More recent research has shown that despite the numerical dominance of women in higher education institutions, they remain significantly underrepresented in academic and leadership positions, reflecting persistent structural gender disparities. In this context, and consistent with the mediating framework proposed by Sobral et al. (2025), work–life balance culture may function as an indirect organizational mechanism shaping gendered experiences of inequality through its influence on work–family conflict. Rather

than directly reproducing inequality, WLBC appears to shape how gendered role expectations and conflicts are negotiated and experienced within academic institutions.

As can be seen, there are studies that show similarities and differences between the results obtained from this study and the results from the literature. In other words, it is difficult to generalize about the differences in motivation of men and women regarding work and how they establish the balance at this point (Hughes, 2006). However, when looking at the findings of the study, there is no significant difference between women and men on the overall score of work-life balance. The fact that business and personal life no longer create a discriminatory pressure on a single gender with the effect of the double-earning family model, being able to carry out these two areas can be interpreted as a necessity for both genders today. However, the fact that the dimensions of work-life cohesion and self-allocation are in favor of male teacher educators suggests that women have less comfort than men in some areas. It can be said that the findings differ in the results obtained from the studies conducted in the literature due to the fact that different occupational groups and therefore different institutions are involved. In this sense, it is thought that conducting more researches in higher education institutions will contribute to the evaluation of the results.

According to the findings of this study, the general work-life balance of teacher educators does not differ significantly by marital status in terms of the dimensions of work-life cohesion, life neglect, and self-allocation. However, married teacher educators exhibit significantly higher levels in the work-oriented life dimension compared to their single counterparts. This result suggests that married teacher educators experience greater difficulty than single ones in sparing time for personal activities and private life, primarily because work-related responsibilities occupy a larger share of their lives. Educational processes inherently demand a high level of cognitive and emotional presence. In this context, the observed increase in the "work-focused life" dimension can be theoretically interpreted as a critical factor that directly erodes the "quality time" teacher educators can allocate to their students.

"Quality time" here does not merely refer to scheduled class hours; it also encompasses mentoring relationships, the timeliness and depth of feedback, and the continuity of empathic communication with students. When workloads and work-centered lifestyles become dominant, a significant portion of teacher educators' cognitive attention and emotional energy is redirected toward administrative and academic processes. This redirection, in turn, depletes the "emotional reserves" available for meaningful student interaction. Within this framework, teacher educators with a higher level of work-life balance can be expected to be more effective in student-centered learning approaches. This is because they are able to maintain a more sustainable engagement with students, not only in terms of time allocation but also regarding emotional and cognitive availability. Therefore, although work-life balance may not directly determine pedagogical performance, it functions as an indirect "regulator of emotional and temporal capacity" that shapes the overall quality of the teaching and learning process. Furthermore, this tendency of married teacher educators to lead more work-focused lives is closely linked to the increased boundary permeability between home and work, a phenomenon significantly accelerated by digitalization. For married individuals, the home environment is no longer merely a sanctuary for rest; rather, it functions as an integrated system where complex domestic and family roles must be simultaneously fulfilled. Consequently, bringing academic work into the domestic sphere triggers role conflict and forces individuals to concentrate their mental energy predominantly on professional duties, ultimately leading them to perceive their lives as heavily "work-oriented." When integrating these findings into the broader literature, nuanced perspectives emerge. For instance, Padmasiri and Mahalekamge (2016) argue that demographic factors such as gender and marital status exert a significant impact on work-life balance, concluding that single academicians generally establish a better balance. Similarly, Roshani and Bagrecha (2017) demonstrated that married professionals encounter more obstacles in maintaining this equilibrium than their unmarried counterparts. These studies partially align with the current finding that married teacher educators experience higher levels of a work-oriented lifestyle. Conversely, Çobanoğlu et al. (2019) found no significant relationship between marital status and the work-life balance of educational administrators and teachers. This perspective supports the present study's conclusion that general work-life balance, work-life cohesion, life neglect, and self-allocation dimensions do not vary significantly based on marital status. In tandem, Panisoara and Serban (2013) also reported that marital status was not a standalone predictor of work-life balance. Taken together,

these contrasting results indicate that marital status alone is not a definitive variable; rather, it gains meaning only when interpreted within a broader contextual framework encompassing workload, caregiving responsibilities, and career stages. As suggested by Krefting (2003) and Toker (2012), marriage does not inherently diminish professional productivity, nor is it significantly related to the overall life satisfaction of academicians. Therefore, the lack of a significant difference in general work-life balance scores among teacher educators implies that macro-level factors—such as the institutional working structure of higher education or individual psychological traits—may be more influential than marital status alone. Nevertheless, since marriage inevitably introduces additional relational and domestic responsibilities, the balance may still lean partially in favor of single individuals when navigating a work-oriented life.

According to the findings obtained from the study, no significant relationship was found between the general work-life balance score of academicians, work-life cohesion, neglect of life violation, work-oriented life and administrative function. The self-allocation scores of the academicians differ significantly by the administrative function variable. The scores of academicians who have administrative duties were found to be higher than the scores of the academicians who did not have an administrative duty. The significantly higher self-allocation scores observed among academicians with administrative roles may be attributed to the development of advanced time-management competencies necessitated by their dual responsibilities. Furthermore, it can be argued that the relative flexibility inherent in certain administrative positions allows these individuals to orchestrate their personal and professional schedules more effectively. According to the findings of Hacifazlıoğlu (2010), female teacher educators in managerial and leadership positions in Türkiye and the United States identified maintaining work-life balance as one of the major challenges during their adaptation to leadership roles. The study emphasized that balancing academic responsibilities with administrative duties represents a demanding and prolonged career process requiring diverse competencies. To cope with these challenges, participants reported relying on mentoring, experience-sharing communities, and leadership development programs. These findings point to the critical role of institutional strategies in supporting work-life balance in higher education settings. Similarly, evidence from the tertiary education sector highlights the organizational relevance of work-life balance. For instance, Boakye et al., 2022 found that work-life balance dimensions significantly predicted job satisfaction, and that workplace support played a critical role in reducing work-personal life interference. Together, these findings reinforce the importance of institutional support mechanisms in shaping how work-life balance is experienced within higher education institutions. However, it is also very important to apply some individual tactics for the work-life balance of the person. As a matter of fact, a study by Ezzedeen and Zikic (2017) revealed the importance of integration and boundary management strategies in order to establish work-life balance. This situation reveals the necessity of applying individual strategies that exist or have developed by the individuals to establish the work-life balance. As a matter of fact, the fact that the academicians with administrative function participating in the research having self-allocation scores can be interpreted as academicians with administrative duties are applying strategies related to time management personally. It turns out that more research is needed to evaluate the assumptions about this situation more clearly. The fact that teacher educators holding administrative positions exhibit higher levels of self-investment suggests that this group may use time management and boundary-setting strategies more effectively. Recent qualitative research further suggests that work-life balance in academia cannot be explained solely by demographic or structural factors. For example, Anthony Quinn and Lucy Hartland-Grant (2024) highlighted the importance of personality traits and personal beliefs, identifying factors such as the ability to “say no,” anxiousness, and compulsivity as shaping teacher educators experiences of work-life balance. These findings indicate that, alongside institutional structures, individual-level characteristics may also influence how balance is negotiated in higher education contexts.

One of the notable findings of the present study is that work-life balance perceptions differ across academic ranks. Teacher educators holding higher academic titles reported relatively higher levels of work-life balance compared to those in earlier career stages. This finding may be associated with the structural characteristics of academic careers. Early-career teacher educators often face intense pressures related to publishing, career advancement, and job security, which may increase the difficulty of maintaining a balance between professional responsibilities and personal life. In contrast, teacher educators at more advanced career stages may experience relatively greater autonomy in organizing their work and may have already

established more stable academic routines. These conditions may contribute to a stronger sense of balance between work and private life. A study conducted by Apaydin (2011) supports this finding, reporting that professors are more likely to establish work–life balance compared to associate professors and assistant professors. Similarly, findings from studies conducted among teacher educators in Turkish universities indicate that professors tend to report higher levels of life satisfaction compared to associate professors, assistant professors, and research assistants (Toker, 2012). Although life satisfaction and work–life balance are distinct constructs, higher levels of overall well-being among senior teacher educators may reflect more stable career conditions and greater control over work responsibilities. In another study, Punia and Kamboj (2013) found that associate professors reported higher levels of quality of work life among teacher educators. Such variations across academic ranks suggest that work–life balance in academia is not a static condition but rather a dynamic process that evolves across different stages of an academic career. The findings indicate that work–life balance tends to increase with academic rank. In this context, research assistants—who reported the lowest levels of balance—are often at the early stages of their academic careers and may face uncertain job descriptions, high promotion expectations, and competitive performance pressures. In addition to pursuing their own academic development, they frequently undertake various institutional tasks, which may extend beyond regular working hours. This situation may limit their ability to maintain a sustainable balance between professional and private life. Similar concerns have been reported in the literature. For example, teacher educators working in Malaysian public universities indicated that overtime and weekend work had negative consequences for their well-being (Khairunneezam et al., 2017). Consistent with the broader higher education literature Eshun and Segbenya (2024) found that work–life balance significantly mediated the relationship between work arrangements and employee performance, underscoring its strategic importance in academic settings. Although their study focused on administrative staff, the present findings likewise highlight the importance of interpreting work–life balance within broader institutional structures in higher education.

The findings of the study reveal that teacher educators’ work–life balance varies significantly across career stages. In particular, the imbalance experienced during the early years of an academic career represents not only an individual-level issue such as burnout, but also a structural risk for the sustainability of teacher education systems. This finding is consistent with Polat (2019), who reported that individuals with more advanced career experience are better able to achieve work–life balance. Teacher educators working in faculties of education are not merely transmitters of knowledge; they also serve as primary role models for pre-service teachers in terms of professional identity formation and work discipline. In this context, structural challenges such as intense publication pressure and job insecurity faced by early-career teacher educators may lead to a loss of educational motivation and a decline in the quality of pedagogical engagement. When teacher educators themselves struggle to maintain a sustainable work–life balance, their capacity to provide professional guidance and motivation to future teachers may also be weakened. As emphasized by Hacifazlıoğlu (2010), the development of “synergistic approaches” and adaptive balancing strategies through experience is of critical importance for sustaining human resources within faculties of education.

From a broader perspective, the sustainability of higher education as a transformative learning ecosystem depends on the recognition of teacher educators as holistic individuals at a systemic level. When universities—particularly faculties of education—adopt policies that support role balance and flexibility, they not only enhance individual well-being but also invest in the quality of pedagogical interactions, the authenticity of professional role modelling, and the long-term development of future educators. In this sense, work–life balance in faculties of education should be considered not merely as an individual achievement, but as an institutional strategy that underpins the mission of preparing qualified teachers and sustaining the future success of the education system.

Accordingly, the following recommendations are proposed based on the findings of the present study.

1. In addition to existing practices aimed at strengthening work–life balance among teacher educators, it is recommended that faculties of education and university administrations develop support mechanisms to strengthen work–life balance for female teacher educators.

2. It is recommended that university administrations design institutional support programs to mitigate the intensity of work-oriented life for married teacher educators.
3. Faculties of education should implement mentoring initiatives led by senior teacher educators to support colleagues with lower professional tenure in adapting to academic life.
4. Considering that academic workload and expectations vary across academic ranks, faculty administrators should develop differentiated support strategies for teacher educators across academic ranks.
5. University administrations should monitor teacher educators' work-life balance as an important indicator of staff well-being and use the findings to inform institutional support policies.

Conclusion

Overall, the findings indicate that teacher educators generally experience relatively high levels of work-life balance, yet this balance is not uniform across all subgroups and is shaped by gender, marital status, administrative responsibilities, and academic rank. While institutional flexibility and supportive environments appear to contribute positively to balance, gendered role expectations and early-career academic pressures emerge as key factors that weaken it for certain groups, particularly female and early-career academics. In the context of faculties of education, these patterns suggest that teacher educators' work-life balance is closely intertwined with the structural and cultural conditions of teacher training institutions. The results also indicate that work-life balance is not solely an individual outcome but is shaped by organizational structures, workload distribution, and career stage dynamics within higher education. Taken together, these findings highlight the need for universities to adopt context-sensitive policies that address structural inequalities and career-stage vulnerabilities while strengthening institutional support mechanisms that sustain both academic productivity and educator well-being.

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The author declares that there are no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Ethics Approval and Consent to Participate

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Declaration of AI Usage Statement

In this study, the AI tool (16/03/2026/; ChatGPT-4) was used. The artificial intelligence tool was used solely to assist with formatting and spelling corrections in the reference list. All content generated or suggested by AI has been reviewed for accuracy and originality by the author, who takes full responsibility. The scientific content, accuracy, originality, and ethical responsibility of the work belong entirely to the author.

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Creative Drama and Peer Relations: A Case of Migration

Yaratıcı Drama ve Akran İlişkileri: Göç Örneği

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Keywords	Abstract
Creative drama	Friendship is one of the strongest social bonds fostering students' sense of school belonging. However, developing positive peer relationships can be challenging in complex contexts shaped by migration and increasing ethnic diversity. Existing literature tends to focus on students with migrant backgrounds in terms of academic underachievement, language deficiencies, or behavioral issues, while largely overlooking the role of peer relations—particularly cross-ethnic friendships—in their integration into educational systems. This study aims to examine the potential of a creative drama-based intervention to enhance peer relationships in a classroom setting where there are students of immigrant families. This quasi-experimental quantitative research was conducted in a public school located in Zeytinburnu, Istanbul, an area characterized by a high migrant population. The study group consisted of a class of 20 students (n = 20), including 13 students whose families had migrated from Syria, Afghanistan, and the Uyghur region. Sociometrics was employed as the primary data collection tool, and peer relationships among students from different ethnic backgrounds were analyzed before and after the implementation of the creative drama program. The data were analyzed using the sociometrics status classification framework developed by Coie, Dodge and Coppotelli. The findings indicate that creative drama activities increased social interaction among students, reduced patterns of exclusion, and contributed to the development of positive relational networks, particularly among students from diverse backgrounds. Overall, the results highlight the importance of pedagogical approaches that support social integration in multicultural classroom environments and provide evidence that creative drama can serve as an effective tool within inclusive education contexts.
Peer relations	
Migration	
Race	
Sociometrics	
Anahtar Sözcükler	Öz
Yaratıcı drama	Arkadaşlık ilişkileri, öğrencilerin okula aidiyet duygusunu güçlendiren temel sosyal bağlardan biridir. Bununla birlikte, göç ve artan etnik çeşitlilik gibi karmaşık bağlamlarda olumlu akran ilişkileri geliştirmek her zaman kolay değildir. Mevcut literatür, göçmen kökenli öğrencileri çoğunlukla akademik başarısızlık, dil yetersizliği ve davranış sorunları üzerinden ele alırken, akran ilişkileri ve özellikle ırklar arası arkadaşlıkların eğitim sistemine uyum sürecindeki rolü görece ihmal edilmektedir. Bu çalışma, yaratıcı drama temelli bir müdahale programının göç etmiş ailelerin çocuklarının olduğu bir sınıf ortamında akran ilişkilerini geliştirme potansiyelini incelemeyi amaçlamaktadır. Araştırma, İstanbul Zeytinburnu'nda göçmen nüfusun yoğun olduğu bir bölgede yer alan bir devlet okulunda yürütülmüştür. Çalışma grubunu, aileleri Suriye, Afganistan ve Uygur bölgesinden göç etmiş öğrencilerin de bulunduğu toplam 20 kişilik bir sınıf oluşturmaktadır (n=20; göçmen kökenli öğrenci sayısı=13). Araştırmada veri toplama aracı olarak sosyometri kullanılmış; farklı etnik kökenlere sahip öğrenciler arasındaki akran ilişkileri, yaratıcı drama uygulaması öncesi ve sonrasında analiz edilmiştir. Verilerin analizinde Coie, Dodge ve Coppotelli tarafından geliştirilen sosyometrik statü sınıflandırma çerçevesinden yararlanılmıştır. Bulgular, yaratıcı drama etkinliklerinin öğrenciler arası sosyal etkileşimi artırdığını, dışlanma örüntülerini azalttığını ve özellikle farklı kökenlerden öğrenciler arasında olumlu ilişki ağlarının gelişmesine katkı sağladığını göstermektedir. Sonuç olarak, çalışma çok kültürlü sınıf ortamlarında sosyal bütünleşmeyi destekleyen pedagojik yaklaşımların önemine işaret etmekte ve yaratıcı drama uygulamalarının kapsayıcı eğitim bağlamında etkili bir araç olabileceğini ortaya koymaktadır.
Akran ilişkileri	
Göç	
İrk	
Sosyometri	

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Introduction

Children of displaced families must spend most of their days in a new school, in a new classroom, in an unfamiliar educational system, with unfamiliar teachers and students. Their unfamiliar language, culture, educational system, and socialization styles make it difficult for them to adapt. With the massive wave of migration from Syria since 2011, the social adaptation and integration of children of displaced families has become a significant issue for schools and education.

According to 2025 statistics, approximately 900,000 children under temporary protection status in Türkiye (Presidency of Migration Management [PMM], 2025) face these challenges in schools. Children of displaced families were admitted to schools affiliated with the Ministry of National Education under the "Law on Foreigners and International Protection" (6458) and its "Temporary Protection Regulation", ensuring their participation in education. However, the "Documentation of the Educational Response for Syrian Children Under Temporary Protection in Türkiye" (UNICEF, 2022) report indicates that serious problems remain regarding educational participation and integration. The fact that 35% of children of Syrian origin are not enrolled in education, their poor Turkish language skills, the lack of inclusive schools and curricula, and the lack of teacher training are among the primary educational challenges faced by children of migrant families.

Research on children of migrant families in Türkiye has focused on language and social adaptation (Çolak & İşeri, 2022; Takır & Özerem, 2019; Yüksel & Yüksel, 2022) issues. It appears that these two fundamental needs for communication and integration are not met at the desired level, and intervention and support programs are inadequate. When examining the educational equality of children of migrant families, research conducted in Türkiye is quite limited. First and foremost, referring to these students as "Syrian" and "refugee" makes them the subjects of the migration process and labels them. However, these children are not the decision-makers of the migration process; they are the objects. Therefore, in line with international literature, the term "children of migrant families" is used in this study.

While many studies have been conducted on the language problems (Çolak & İşeri, 2022; Takır & Özerem, 2019), integration problems (Danış & Dikmen, 2022; Dumancı & Gür, 2022; Şahin, 2020), and the effectiveness of projects designed for these children (Sağın & Güllü, 2020; Nizamoğlu, 2022), studies on friendships are quite difficult to find. Friendships are an informal and effective process that supports students' integration into school. Children from immigrant families encounter bullying and exclusion at school (Fox & Stallworth, 2005), which negatively impacts the adaptation process. Creative drama is a type of dramatization frequently used in education and psychology because it increases self-awareness and contributes to social skills. This dramatization, which allows individuals to experience different aspects of social interaction and situations and circumstances different from their daily lives by assuming different roles, also strengthens social relationships. This study designed and implemented a creative drama program to support friendships.

The creative drama program designed for this study targeted interpersonal skills of students to boost friendship and social bonds among students. It was designed as a 6-week program and followed these themes respectively: interaction, communication, connection, feelings, problem solving, and sharing. The program was developed by the researchers (one of whom is an expert of curriculum design) and a creative drama tutor. It was implemented face to face at the drama room of the school, face to face with by the researchers and creative drama tutor.

The research employed a method different from the mostly descriptive studies in the literature. Designed with an experimental design, this study focused on friendships, which are crucial for the school process, and implemented creative drama activities that could support the adaptation of children from immigrant families. Another innovative aspect of the study is its use of sociometrics, a rarely used measurement tool in educational research. Sociometrics is a measurement tool that allows for the examination of friendships and social acceptance. The study examined the effects of creative drama on friendships in a middle school classroom with children from immigrant families using sociometrics. The research is based on the following questions:

- Is race an influential factor in middle school students' friendships?

- Can creative drama activities foster interracial friendships among students with immigrant families and those with native-born families?

Literature Review

Migration, Education and Social Relations

The civil unrest that began in Syria in 2011 led to the displacement of the local population (approximately 5.6 million people). Türkiye, geographically and culturally close to Syria and politically suitable for residence, is a leading destination for Syrians (UNICEF, 2022). As of 2025, there were 2.5 million Syrian citizens under temporary protection status in Türkiye (PMM, 2025). 238,000 individuals of Syrian origin became citizens of the Republic of Türkiye (General Directorate of Population and Citizenship Affairs, 2024). This intense wave of migration has a significant impact on educational settings, as well as various economic, political, and social impacts.

Participation in education is one of the first requirements for children of migrant families to adapt to the local culture, improve their living conditions, and complete their cultural, social, and economic integration. Globally, the primary school enrollment rate for children of refugee families is 92%, and the secondary school enrollment rate is 84% (UNICEF, 2022). In Türkiye, these rates are 61% for primary school and 23% for secondary school. While the "Law on Foreigners and International Protection" (Law No. 6458) provides the political basis for the participation of children from migrant families in education, cultural attitudes such as frequent family relocation, the obligation for children to work, and the protection of girls constitute obstacles to participation in education.

Children of Syrian origin who have overcome these barriers to participation in education also face various disadvantages in schools and classrooms. A fundamental factor among these disadvantages is the language barrier. The difficulty children whose native language is not Turkish experience in understanding teachers and peers leads to problems with achievement and social adaptation (Babayiğit & Karsantik, 2024). Children who use Arabic educational materials, whose home language is not Turkish, and whose families do not speak Turkish experience isolation in school. The Project for Supporting Inclusive Education for Children in the Turkish Education System (PIKTES), implemented in collaboration with the Ministry of National Education and the European Union, aims to improve access to education and social integration for children from migrant families. The project aims to increase access to education and participation through financial scholarships, Turkish language support courses, and school subject support courses. The PIKTES project has been shown to contribute to Turkish language learning (Tiryaki & Oğraş, 2020) and their desire to attend school (Ulukuş & Tümtaş, 2023). However, it has been stated that more inclusive activities are needed to support children's social adaptation and integration (Turan & Solak, 2023; Ulukuş & Tümtaş, 2023).

Friends are an important factor that plays a role in the school adaptation and sense of belonging for all students, especially children of immigrant families (Copeland & Kamis, 2022). Children who can establish positive friendships are also observed to have higher levels of school adaptation, sense of belonging, and psychological well-being. For children from immigrant families, friends also play a key role in school adaptation and integration. Kurnaz and Kesten's (2024) study demonstrates the positive impact of friends on children from immigrant families learning Turkish and adapting to school. When Syrian children experienced difficulties with language or communication with teachers, their Turkish friends helped them, contributing to their adaptation and success. Considering that families' Turkish language proficiency is limited, their communication with teachers and other families is quite limited, and they are unable to support their children's integration into school (Yurdakul & Tok, 2018), the impact of friends supporting integration becomes even more significant.

The friendships formed between children from immigrant families and local children are referred to in international literature as cross-race friendship. Cross-race friendships contribute to the integration and psychological well being of minority-race children and the self-esteem of majority-race children (Anderson, 1999; Carson & Esbensen, 2013). Students with friends from different races are more liked by their peers and are perceived as more intelligent, athletic, better listeners, and leaders (Lease & Blake, 2005). While there is

no difference in grade level, the tendency to form cross-race friendships increases with age (Lease & Blake, 2005).

While race influences friendship selection, classroom organization is another factor that influences this selection (Epstein, 1983; Hallinan, 1980; Lease & Blake, 2005; Schmuck, 1963). Dispersed classroom organizations that emphasize teacher-centered socialization, create inclusive interaction opportunities, or prioritize the majority encourage students to form friendships of the same race or different races (Epstein, 1983). Teaching methods, architecture, seating arrangements, school location, and student selection criteria determine students' potential friends. Hallinan and Teixeira (1987) note that interracial friendships are negatively impacted in classrooms where segregation is based on standardized tests, basic skills, or mastery of the curriculum. In classrooms where academic achievement is the primary basis of discrimination, advantaged groups avoid friendships with disadvantaged groups. The classroom environment, including factors such as teaching, seating arrangements, structure, attitudes, and socialization, shapes the friendships of children from immigrant families.

Creative Drama and Social Relations

Drama is a holistic activity that encompasses the individual's inner and outer worlds, the environment, the mind, the individual and the community, the current situation, and future possibilities (Burton, 1981). Creative drama, on the other hand, is the improvisational form of drama. In creative drama, children experience the joy of improvisational drama while working and playing, and are also encouraged to express themselves (Siks, 1958). Creative drama activities develop children's executive functions such as memory, shyness, problem solving, and cognitive flexibility (Çiftçi & Aykaç, 2020). They also enrich their perspectives by experiencing different roles and different sides (Tosun, 2018). Creative drama helps deepen the understanding of difficult concepts such as religion and culture (Tosun, 2018). Migration is also a complex and multifaceted concept that is difficult to grasp at first glance. The reasons for migration, the migration and integration process, the attitudes of the local population, and the impact on migrant groups are difficult to grasp at a glance. Schools and clinics use creative drama for therapeutic and educational purposes in such challenging situations (Courtney, 1981). Creative drama helps students develop a deeper understanding of this concept by experiencing different perspectives.

Repeated creative drama sessions help individuals overcome negative self-perceptions and build healthier self-awareness by accepting themselves, their resources, and the internal and external influences of life (Freeman et al., 2003; Way, 1967). Individuals who develop a positive self-image establish healthier social relationships. Creative drama is widely used because it enhances social skills (Courtney, 1995). Through dramatization, role reversal, and discussion, students gain different perspectives (Siks, 1958), learning different perspectives and the realities of life through different roles (Way, 1967).

Rather than being a transformative program, creative drama is a process that improves self-awareness and social and emotional skills. A study by Freeman, Sullivan, and Fulton (2003) found that an eight-week creative drama session did not have a transformative effect on students' self-concept, problem behaviors, or social skills. However, creative drama combined with music and poetry therapies produced promising effects on general, social, and academic skills (Yücesan & Şendurur, 2017). Creative drama is particularly effective when combined with time-consuming interventions.

Creative drama is a promising method for improving the language and adaptation skills of children from immigrant families. It has been shown to reduce language anxiety (Galante, 2018; Sağlamel & Kayaoğlu, 2013) and improve writing (Anderson, 2012) and speaking (Korkut & Çelik, 2018) skills. In this study, creative drama was used to develop communication, adaptation, and problem-solving skills in a classroom with a large number of children from immigrant families. The primary purpose of the study was to understand the impact of creative drama on students' friendships.

Method

Study Design

The research was designed as a quasi-experimental quantitative study. Experimental studies aim to measure the effect of an independent variable on another variable (Creswell, 2007). In this study, friendship relationships were selected as the dependent variable, and the creative drama program was selected as the independent variable. Because random sampling was not possible, the impact of the creative drama program on friendships was measured using a quasi-experimental study.

In the first phase of the study, a creative program was developed to contribute to friendships in a classroom with immigrant students. The 6-hour creative drama program, developed under the guidance of creative drama instructor Pinar Zenderlioğlu, included activities on communication, harmony and trust, problem-solving, cooperation, solidarity, and home sharing. The creative drama program was implemented with 7th-grade middle school students in a drama room located at the school during school hours. A sociometrics scale was used as a pre- and post-test before and after the application. Every phase of the research is carried out in alignment with the ethical principles, granted permission by Yildiz Technical University Ethics Committee dated 27.12.2022 and numbered 2022/12.

Sample

The research aimed to understand the effect of creative drama on students' friendships in a class where there are children of immigrant families. To reach this aim, the study employed two phase sampling. In the first phase, teachers were interviewed to determine the sample of the study. In the second phase, students of Class 7-B were implemented create drama program. Both phases are explained as:

Participants for Needs Analysis

There are two groups of sampling adopted in the research. The first group is the voluntary teachers of the public middle school in Zeytinburnu, Istanbul. The teachers were visited at the school and invited to participate in the study with explanations of the aim and methods. 5 teachers (3 male, Turkish, Social Studies, Mathematics; 2 female, Science, English) accepted to participate in the study and preliminary interviews were made with them. The preliminary interviews with teachers about the classroom in question revealed low academic achievement and the presence of cliques and exclusions within the classroom. This classroom, lacking unity among students, was deemed suitable for investigating interracial friendships.

Sample Group to the Creative Drama Implementation

The study sample was created using the criterion sampling method. Criterion sampling involves selecting a sample group based on a specific characteristic or criterion that serves the research purpose (Cresswell, 2007). The sampling criterion determined for this study was the presence of children from families who had migrated within the classroom. To reach the best sample group, the school district, school and classroom were deliberately selected to reach a classroom where there are children of immigrant families and friendship ties needed improvement. Zeytinburnu was selected as the district of study due to the high concentration of migrant families. The school was selected as a state Imam Hatip (Religious) middle school due to the high number of children from migrant families. The classroom, on the other hand, was selected after needs analysis interviews with teachers.

In the middle school with a high number of migrant students, the classroom with the highest number of migrant families was selected. The classroom in question contained 20 students, 7 of whom were Turkish and 13 of whom were children of migrant families. The information of race is obtained through Personal Information Form handed to the students. All of the students were female.

Table 1

Race of students' families

	Turkish	Syrian	Afghan	Uyghur
P1		*		
P2	*			
K3			*	
P4		*		
P5	*			

P6		*	
P7			*
P8			*
P9		*	
P10	*		
P11		*	
P12	*		
P13		*	
P14		*	
P15	*		
P16			*
P17		*	
P18	*		
P19	*		
P20		*	

Implementation Process

The implementation process consisted of two phases: The needs analysis and the intervention program. The needs analysis phase started with the interviews with teachers. Interviews were conducted at a state Imam-Hatip (religious) middle school located in this district. They took 17-32 minutes, done face-to-face by the researchers at the school to select the class, determine the socialization needs of students and the design the creative drama program. To ensure that the Drama Intervention is designed in a realistic and functional way suitable for the target audience, the needs analysis was conducted before the implementation. This analysis aimed to thoroughly determine the group's general friendship relationships and classroom dynamics. This way, sampling was aimed to fit the research aims in the best way.

The implementation process of the study was designed by the researchers and a professional creative drama tutor. The sessions and activities were planned to improve the friendly relationship among students as well as self and environment awareness as a critical step to improve interpersonal skills. The creative drama program was designed as displayed in Table 2. The program was reviewed by one curriculum and instruction (Assist. Prof. Dr.) and one creative drama expert (Instructor).

Table 2

Creative drama design

Session Number	Focus	Objective
1	Meet your friend	To know group members, introduce oneself, communicate with peers
2	Communication	To search for ways of effective communication, to realize the significance of focusing in communication, to realize the significance of listening
3	Connecting and trust	To discuss the concept of harmony and connecting, to realize the effect of connect on groups, to show interest to be in tune with group, to behave according to joint goals with the group, to discuss the concept of trust in group
4	Senses and feelings	To communicate through senses and feelings
5	Problem solving	To search for functional and constructive attitudes, to experience harmony and solution-oriented with group friends
6	Helping, solidarity, and sharing	To experience helping behaviour and its significance, to experience helping, asking for help and being helped

Creative drama sessions were implemented with the school administrators and teachers' consent, planned in a way not to cause delays or shortages in curriculum. They were mostly implemented in social studies course, as the teacher expresses they were ahead of the curriculum plan. Also, lunch breaks and some recess time was utilized with the full consent and enthusiasm of the students to continue the activities.

Data Collection Tools

The study used one fundamental and two supplementary data collection tools. The fundamental data collection tool of the study was a sociometrics instrument, a quantitative data collection tool, as a pretest and posttest. Sociometrics is a quantitative social interaction measure (Avramidis & Wilde, 2009) and is frequently used to measure the social relationships of students with learning disabilities or differences (Child & Nind, 2013). In this study, sociometrics was used to understand friendships among racially diverse students and the impact of a creative drama program on these relationships. The sociometrics instrument, used before and after the 6-week creative drama program, serves to quantitatively scan social relationships and understand relationship networks. The sociometrics instrument used in this study asked students to list their three best friends in class and at school, respectively. This measure measured intra-racial and interracial friendships within the classroom, social acceptance, and mutual friendship. The sociometrics scale asked students to write their best three students as:

Table 3

Sociometrics scale

No	Best friends in classroom ^a	Best friends at school
1	_____	_____
2	_____	_____
3	_____	_____

Note. The explanation above the form was explained as: "Please write the first and last names of your three classmates that you enjoy spending time with the most or feel closest to, in order of importance (1st, 2nd, and 3rd), in the space below."

The supplementary data collection tool was a semi-structured teacher interview form and personal information form handed to students. Classroom sociology (Tombak İlhan & Gündüz, 2023) is a complex and difficult concept to understand, thus the interview questions were prepared by the researchers. The interview form included questions about the classroom sociology, relationships among students, inter-racial relationships, groups in the classroom and the communication style of the students. The first draft was composed of 17 questions, 10 of which were the main questions on interracial friendships, friendship groups, interracial interactions and the climate of the classroom. 7 questions were the probe questions that focused on 'how' students interacted within and inter-races. The form was tested for reliability and validity by two experts, one in the department of Curriculum and Instruction (Assist. Prof. Dr.), and one in Educational Sciences (Prof. Dr.). To reach consistency between experts, the revised form was sent back to them and both experts confirmed the revised version of the form that consisted of 14 questions (9 main, 5 probing). The interview was not included in data analysis process, was only utilized to confirm the class selection and understand the needs of the students for creative drama intervention design. Thus, a pilot interview was not preceded in this study, but tested in a pre-test form with a non-participant student in the same school. Qualitative data obtained from preliminary interviews with participants during the needs analysis process were subjected to descriptive analysis. This analysis process formed the basis for identifying the key problem areas that the intervention program would focus on and shaping the content accordingly. This interview process was not included in the main experimental data analysis (hypothesis testing) process of the research; it was only used as a preliminary assessment to validate participant selection and understand the contextual needs of the participants regarding the intervention design.

The Personal Information Form also prepared by the researchers included nationality, family members number, parent occupation and education levels questions. The form was developed by the researchers and two experts reviewed the form.

Data Analysis

The pre- and post-test sociometrics scales were analyzed by calculating the Liked Most (LM) and Liked Least (LL) scores, in accordance with the sociometrics analysis used by Coie, Dodge, and Coppotelli (1982). Additionally, the Social Impact (SI) score (the sum of the LM and LL scores) and the Social Preference (SP) score (the subtraction of the LM score from the LL score) were calculated and standardized for each student.

Since the research sample did not exceed 30, nonparametric tests were used to analyze the effects of students' nationality and creative drama training on LM, LL, SI, and SP scores. Analyses were conducted using the SPSS 22.0 software package.

In addition to the most liked and least liked scores, students' friend preferences were visualized using the Canva Web 2.0 tool to understand the friendship network within the classroom. During the visualization, a separate relationship network was created for each student before and after the creative drama program, based on their initial friend preference.

The interview and the personal information form as the two supplementary data collection tools were analyzed descriptively within data analysis process. The interviews were transcribed, coded and descriptively analyzed to determine the sampling in the best way to reach the research objectives. The codings were not themed as the analysis results were not included in the hypothesis testing process. The personal information form, on the other hand, was descriptively analyzed to understand the races, family backgrounds of the sample. The race was descriptively included in hypothesis testing to understand the inter-racial friendships.

Results

The results of the study are grouped under two headings. The first section examines the impact of family profiles on friendships using a sociometrics scale. The second section examines the impact of the creative drama program on friendships using sociometrics scales administered before and after the program.

Preliminary Interviews and the Context of the Class

The analysis of the preliminary interviews with teachers outlined the general context of the classroom. The teachers outlined that there were multiple different races in the classroom, as in *"Afghan, Syrian, Turkish and Uyghur. Students are from different races and it affects the classroom climate"* (Turkish teacher, male). As the English teacher (female) pointed, *"there are only two groups, I guess. The other just are in the classroom. I don't even think that they know each other well"*. Students were mostly socializing in their groups, which were formed *"according to races, unfortunately. Especially, Syrians. They are only hanging out with each other."* (Social studies teacher, male). Teacher interviews outlined that the Class 7-B *"has the most differentiation and groupings among the others"* (Mathematics teacher, male). Students formed groups of friendships, talking in their mother language with each other. Moreover, there are conflicts among groups and they did not socialize with each other. Class 7-B did not have unity and positive relations among students, as the teachers emphasized.

Peer Relations and Race

A sociometrics scale was administered to a classroom in Zeytinburnu, Istanbul, where a large number of children from immigrant families were enrolled, using scores for being liked very much, being liked less, social influence, and social preference. The study class included 13 children from immigrant families and 7 from Turkish families. The Kruskal-Wallis test was used to examine whether friendships in this classroom, where immigrant families predominated, varied according to family profile. Because the study sample size did not exceed 30 and the distribution was not normal, the Kruskal-Wallis test (Büyüköztürk, 2013), a nonparametric test that allows for the examination of continuous dependent variables, was used. The test results are presented in Table 4.

Table 4

Kruskal-Wallis Test Results of Race and Friendship

Race		Turkish	Syrian	Afghan	Uyghur	sd	χ^2	p
Liked Most	Mean Rank	10.71	10.72	12.33	1.5	3	2.77	.428
Liked Least	Mean Rank	11.57	10.11	11.33	4	3	1.66	.645
Social Impact	Mean Rank	12.21	9.5	12.67	1	3	4.03	.257

lower interracial friendships. In other words, when students choose friends of their race in the first place, it is less likely that they build interracial friendships. The comfort in within-race friendships may keep students away from trying new relationships. The preliminary sociometrics distribution of friendships indicates that interracial friendships and mutual friendship preferences are common. Friendships with first-choice reciprocity, such as P18 and P1, P9 and P19, and P17 and P8, demonstrate that race is not the sole criterion for friendship preferences. It seems that they also regarded other features than race in their friendship preferences, which reflects the complex structure of friendship preference and building process. Students understandably do not only consider race while making friends. However, it is still a significant criterion, as could be understood from Figure 1.

Creative Drama and Social Relations

Creative drama contributes to social skills by increasing self-awareness. The creative drama program designed for this study focused on communication, harmony and trust, problem solving, cooperation, and solidarity. The impact of the creative drama program on classroom friendships was measured with a sociometrics scale administered as a pre- and post-test.

Students' LM, LL, SI, and SP scores before and after the creative drama program were compared using the Wilcoxon Signed Rank Test. The test results are presented in Table 3. The creative drama intervention produced a statistically significant difference in the students' scores for Liked Most ($z=-3.924$, $p=.00$), Liked Least ($z=-3.928$, $p=.00$), Social Impact ($z=-3.923$, $p=.00$), and Social Preference ($z=-3.922$, $p=.00$). This significant difference, which occurred before and after the creative drama program, was observed to be negative for Liked Least Liked and Social Impact. In other words, students started to decrease the magnitude of least liking each other. The preferences are broadened and more students are accepted into friend zones. Since all Less Liked and Social Impact scores were negative, this difference is understandable. Creative drama intervention was an intervention that positively affected social relationships for all students.

Table 5

Wilcoxon Signed Ranks Test Results Before and After Creative Drama

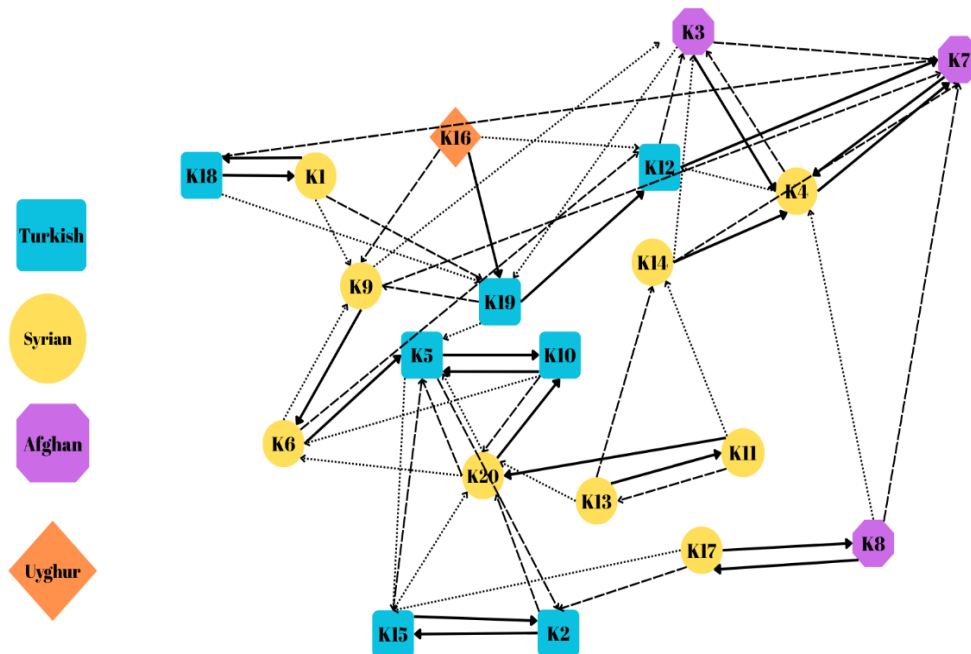
Post test-Pre test		n	Mean Ranks	Sum of Ranks	z	p
LM	Pozitive ranks	20	10.5	210		
	Negative ranks	0	.00	.0	-3.924	.00
	Ties	0	0			
LL	Pozitive ranks	0	.00	.0		
	Negative ranks	20	10.5	210	-3.928	.00
	Ties	0	0			
SI	Pozitive ranks	0	.00	.0		
	Negative ranks	20	10.5	210	-3.923	.00
	Ties	0	0			
SP	Pozitive ranks	20	10.5	210		
	Negative ranks	0	.00	.0	-3.922	.00
	Ties	0	0			

When the effect of the creative drama program was examined by students' family profiles, no significant difference was observed ($p_{LM}=.065$, $p_{LL}=.54$, $p_{SI}=.11$, $p_{SP}=.866$). The fact that students' nationality did not create a statistically significant difference in the impact of creative drama may be attributed to the comprehensiveness of the creative drama activities. Students' friendships were positively affected by the creative drama intervention, regardless of their nationality.

The distribution of students' friendships after the creative drama intervention was visualized using Canva (Figure 2). The students' positions in the figure were not changed during the visualization to facilitate comparisons before and after creative drama. This is expected to make the difference in the distribution of relationships among students more easily observable.

Figure 2.

Friendship Circles after Creative Drama Program



The distribution of friendships following the implementation of the creative drama program appears to have become more complex, encompassing more reciprocal relationships. While students did not completely change their friendship preferences, they did include different peers in their relationship groups. P1, P3, P6, and P9 added new interracial friends to their lists, which they had not included in their top three preferences during the pre-sociometrics. P7, P3, P4, P19, P18, P5, and P9 were preferred more than they were during the pre-sociometrics. For example, P7 was highly preferred by peers from different races. Similarly, P3 received more preferences from people from different races. P3 and P7 were in a group with intense reciprocal relationships with P12 and P4 before the creative drama program. This interracial friendship group appeared to be more popular after the creative drama program. The relationship network of P8, who had only one-way relationships with this group, remained unchanged after the creative drama program. It is noteworthy that the network of P12, P4, P3, and P7 expanded after the creative drama program, while P8 did not. Similarly, P1, P13, P16, P17, and P18 did not expand their network. These students maintained strong bilateral reciprocal friendships before and after the creative drama program. Their second and third friend preferences were not reciprocated. The network of students who did not engage in reciprocal preferences remained unchanged after the creative drama program. P20, who was popular among interracial students, maintained this popularity.

The creative drama program did not directly transform students' interracial friendships. For example, P5, who included P20 and P6, who were of a different race, in her top three friend preferences before the creative drama program, chose P15 and P2, who were of her own race, over P20 and P6 after the creative drama program. P5, who had changed her preferences to her own race, still preferred people of a different race after the creative drama program, expanding her network. In other words, even though individual preferences shifted to racial groups, her interracial networks expanded.

Discussion

Türkiye has faced a big migration movement from Syria since 2011. Almost 2.5 million Syrians migrated to Türkiye, and 900 thousand children aged between 5-17 study at schools. The existing literature depicts

language and social adaptation issues (Çolak & İşeri, 2022; Kiremit et al., 2018; Takır & Özerem, 2019; Yüksel & Yüksel, 2022), indicating that integration is not completed actively at schools. Although a number of studies focused on language barriers and inclusion (Çolak & İşeri, 2022; Daniş & Dikmen, 2022; Dumancı & Gür, 2022; Şahin, 2020; Takır & Özerem, 2019), few studies targeted friendship relations of students whose families migrated. Social exclusion by peers makes the integration of these students more difficult (Aşkın, 2025; Karataştan & Akcan, 2023). Studies reveal that students whose families migrated or racially minority students are more likely to have more negative peer relations, less friends, experiences of exclusion and bullying, but they are integrated with inclusive methods of teaching (Alpaydın & Aktaş, 2021). To tackle with integration difficulties, this study creative drama as an intervention program to improve peer relations among students.

The study was conducted in a classroom in Istanbul, Zeytinburnu where the immigrant population is high. The classroom is at a religious state school and has 20 female students, 13 of whose families migrated and 7 of them are Turkish. The classroom was composed of multi-variety of ethnic backgrounds, depicted in Table 1. Although this enabled to analyze a social environment where the number of students whose families migrated, the distribution of each ethnicity was not similar, as a limitation of the study. For further studies, it is recommended to include similar numbers of students from different ethnic backgrounds. However, in this study, the existing distribution is not intervened to understand the natural situation of migration in education and the effect of creative drama on natural classroom settings.

Friendship choices of both immigrant and local students were complicated. The pre-test sociometrics revealed students preferred both in-race and cross-race friendships. Race did not have a significant effect on students' LM ($\chi^2=2.77$, $p=.42>.05$), LL ($\chi^2=1.66$, $p=.64>.05$), SI effect ($\chi^2=4.03$, $p=.25>.05$), and SP ($\chi^2=.14$, $p=.98>.05$). The reciprocal friendships created small circles, which are linked to only one or two peers who nominated the members of these circles. When students had reciprocal nomination of the first choice, less peers were linked to them. Strong friendship relations, generally between two peers, were less likely to connect others. These strong reciprocal friendships were both in-race and cross-race, which indicated a positive climate for cross-race friendships.

Students who preferred cross-race friendships and who indicated at least 2 friends on sociometrics were more likely to be liked by the others. Although Graham and Cohen (1997) found that cross-race friendship nomination is less likely to be reciprocal, students who preferred cross-race friendship were more likely to be nominated as close friends by their peers. They were more popular and nominated by more peers than most of their friends. Cross-race friendship is helpful to reduce delinquent behavior (Anderson, 1999; Carson & Esbensen, 2013). Students who have cross-race friends are reported to have better social skills, which increase their likelihood of nomination.

Classroom activities, organization, attitude towards students and socialization patterns are effective in student socialization (Epstein, 1983; Kuzu Jafari et al., 2018). The instructional methods, the architecture, seating arrangement, the location of the school and student selection criterion are effective in determining potential friends. Hallinan and Teixeira (1987) found in classrooms where there is a segregation focus on standardized tests, grades, basic skills and mastery of the curriculum, white students do not prefer blacks as their best friends although blacks accept whites. As such, repeated creative drama sessions help individuals to overcome the negative perceptions of self-consciousness and build a healthy self-consciousness through accepting the self, realizing one's resources, internal and external influences on life (Freeman, et al., 2003; Way, 1967). In the study, the creative drama program has been successful in improving students' social relations. The LM ($z=-3.924$, $p=.00$), and SP ($z=-3.922$, $p=.00$) scores of students increased significantly while LL ($z=-3.928$, $p=.00$) and SI ($z=-3.923$, $p=.00$) decreased after the creative drama implementation. The increase in LM and SP means students started to like each other more, and preferred each other as friends more, respectively. The decrease in LL and SI means that liking the least someone is less dense, and students are less salient in their groups. Actually, this is an interesting pattern as if LM increases and LL decreases by similar amounts, SI (LM + LL) might stay stable. The fact that SI decreased suggests that the reduction in negative nominations was larger than any increase in positive nominations. The creative drama program positively affected students peer relations, regardless of their races. The effect of creative drama sessions were inclusive of Turkish, Syrian, Afghan and Uyghur students non-discriminatively. This result outlines the inclusive nature of creative drama (Yoder, 1986), and the probability of using it in diverse settings.

Conclusion

Studies reveal the requirement of interpersonal skills be improved for integration in multi-race classrooms (Bulut et al., 2018; Kuzu Jafari et al., 2018). Children of displaced families experience difficulties in communication and relationship building (Levent & Çayak, 2017). Yet, there are very limited number of studies focusing on friendships of children of displaced families and interracial friendships. Thus, this study was designed to integrate sociometrics and creative drama as an innovative method of research and implementation, respectively. The 6-week implementation program of creative drama focused deliberately on communication skills, inclusion and trust, emotions and feelings, problem solving, cooperation, solidarity and sharing. After the implementation program, students indicated more various selections of friends (Figure 2). They expanded their friendship circles and were nominated by more peers as friends.

Students who had reciprocal strong friendship ties did not change their preferences much. They were the least affected ones in both nominating different and/or cross-race friends and being nominated by more and/or cross-race peers. The fact that early adolescents remain in a small balloon of choices (Creswell, 2007) was apparent in the analysis. They had reciprocal nomination as the first choice both with their in-race and cross-race peers. This strong tie was not broken after the creative drama program, which cannot be understood as a weakness. It is likely that they benefited from the program, although this benefit cannot be understood through the research methods employed in this study.

The development of friendship circles after the creative drama implementation is a promising result of the study, especially for classrooms and schools with diverse backgrounds. Creative drama is not a transformative program, but a process for self-awareness, social and emotional skills. Although it was found ineffective on students' self-concept, social skills and problem behavior in some studies (Freeman, et al., 2003), the results of this study demonstrate the positive impact of creative drama on peer relations from different backgrounds. The disadvantages of migration and minority can be improved through creative drama programs.

Author's Note

An earlier version of this study was presented as an abstract at the TURKCESS 2024 Conference (Prizren Ukshin Hoti University, July 11–13, 2024) and published in the conference abstract book. This manuscript has been significantly expanded and revised for journal publication.

CRedit authorship contribution statement

B. Tombak İlhan: Conceptualization, Methodology, Formal analysis, Implementation, Writing original draft, Review & editing.

Z. R. Yıldız: Conceptualization, Methodology, Formal analysis, Implementation, Writing original draft, Review & editing.

Declaration of Conflicting Interests

Authors declare no conflicting interest to declare regarding this manuscript.

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Ethics Approval and Consent to Participate

All stages of the research were carried out in accordance with ethical principles. At the meeting of the Yildiz Technical University Ethics Committee dated 27.12.2022 and numbered 2022/12, it was decided that this study complies with the ethical rules. The authors declare that they have no conflict of interest.

Declaration of AI Usage Statement

No AI is used for any purpose in the processes of research design, data analysis or manuscript preparation.

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Views of Teachers Teaching Turkish as a Foreign Language on Developmental Classroom Observation

Yabancı Dil Olarak Türkçe Öğreticilerinin Gelişimsel Ders Gözlemine İlişkin Görüşleri

Sinem Doğan¹, Mustafa Durmuş²

Keywords	Abstract
Classroom observation Observation for development Professional development Teaching Turkish as a foreign language	The professional development in foreign/second language teaching is gradually evolving from a top-down to a bottom-up approach where the process is initiated by the teachers themselves. This approach has also influenced classroom observation as one of the professional development opportunities, and developmental classroom observations have become one of the most frequently used professional development practices, particularly in the context of English language teaching. However, the literature indicates that studies on classroom observation in English language teaching are rather limited. No relevant studies were identified in the field of teaching Turkish as a foreign language. In this regard, the present study was carried out with 7 (seven) teachers working at TÖMER in a state university in Türkiye and aimed to explore the views of teachers of Turkish as a foreign language concerning classroom observation before the observation process and after its implementation. This study used a basic qualitative research approach to examine participants' views on classroom observation. The data collection process involved semi-structured interviews, and the data were analyzed through content analysis. The findings of the study showed that most participants experienced an unsystematic observation process and had never previously experienced a developmental classroom observation. Furthermore, the findings revealed that although classroom observation led to negative emotions such as tension and anxiety among participants, most participants had a positive attitude towards the process and valued the contributions of classroom observation more. Finally, the findings indicated that developmental classroom observation contributed to fostering reflective thinking and learning, improving classroom practices, and alleviating negative emotions, and that a large majority of participants wanted to use developmental classroom observation in their future professional development. The study concludes with recommendations for future research as well as for the institution where the study was conducted and for other institutions in similar contexts.
Anahtar Sözcükler	Öz
Ders gözlemi Gelişim amaçlı ders gözlemi Mesleki gelişim Yabancı dil olarak Türkçe öğretimi	Yabancı/ikinci dil öğretimi mesleki gelişim anlayışı dışarıdan dayatılan yukarıdan aşağıya yaklaşımından sürecin artık öğretmenler tarafından başlatıldığı aşağıdan yukarıya doğru yaklaşımına doğru bir geçiş süreci içerisinde. Bu anlayış mesleki gelişim fırsatlarından biri olan ders gözlemini de etkilemiş ve gelişim amaçlı yapılan ders gözlemleri özellikle İngilizce öğretimi bağlamında sıklıkla başvurulmuş mesleki gelişim fırsatlarından biri haline gelmiştir. Fakat alanyazına bakıldığında İngilizce öğretmenliği alanında ders gözlemi üzerine yapılan çalışmaların da çok kısıtlı olduğu görülmektedir. Yabancı dil olarak Türkçe öğretimi bağlamında ise bu konu üzerine yapılan bir çalışmaya rastlanmamıştır. Bu hususta, mevcut araştırma, Türkiye’de bir devlet üniversitesine bağlı TÖMER’de görev yapan 7 (yedi) öğretici ile yürütülmüştür ve öğretmenlerin gelişimsel ders gözlemi uygulaması öncesi ve sonrası görüşlerini belirlemeyi amaçlamıştır. Temel nitel araştırma desenini benimseyen mevcut çalışmada veriler yarı yapılandırılmış görüşmeler aracılığıyla toplanmıştır. Verilerin analizi ise içerik analizi yoluyla gerçekleştirilmiştir. Çalışmanın sonuçları katılımcıların çoğunlukla sistematik olmayan bir gözlem süreci deneyimlediklerini ve daha önce hiç gelişimsel ders gözlemi sürecini yaşamadıklarını göstermiştir. Ayrıca, bulgular ders gözleminin katılımcılarda gerginlik ve kaygı gibi olumsuz duygulara yol açtığını, fakat katılımcıların çoğunun sürece dair olumlu yaklaşıtlarını ve ders gözleminin katkılarını daha çok önemstediklerini ortaya çıkarmıştır. Son olarak, bulgular gelişimsel ders gözlemi uygulamasının yansıtıcı düşünmeyi ve öğrenmeyi sağlamada, sınıf içi uygulamaları geliştirmede ve olumsuz duyguları gidermede katkısının olduğunu ve katılımcıların büyük bir çoğunluğunun gelişimsel ders gözlemi uygulamasını gelecekte kendi mesleki gelişimleri için kullanmak istediklerini göstermiştir. Çalışmanın sonunda hem gelecekte yapılacak araştırmalar hem de araştırmanın yürütüldüğü kurum ve benzer bağlamdaki kurumlar için öneriler sunulmuştur.

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Introduction

Classroom observation has served as a significant tool in both pre-service and in-service teacher education for more than three decades (O'Leary, 2014). In simple terms, classroom observation refers to visiting a classroom to observe different aspects of a lesson (Richards & Lockhart, 1996). For more comprehensive definitions, classroom observation is defined by Gebhard (1999, p. 35) as "a nonjudgmental description of classroom events that can be analyzed and interpreted," while Reed and Bergemann (2001, p. 6) describe it as "the bridge between the worlds of theory and practice." Also, classroom observation has been an important tool to gather evidence about what is happening in classrooms (O'Leary, 2014; Wilcox, 2000). This evidence contributes to the development of concepts that can be used to describe and analyze the nature of classroom events (Day, 1990; O'Leary, 2014; Richards, 1998), understanding the social and psychological processes of a classroom (Wright, 1990), measuring and evaluating the effectiveness of educational practices and planning quality improvement initiatives (Barrogo, 2020; Malderez, 2003; O'Leary, 2014).

Every classroom observation, irrespective of its type, has the potential to provide useful learning (Scrivener, 2011). According to Iakovou (2020), language teaching is a complex process that cannot be easily separated into isolated skills. The author also argues that although pre-service teachers in graduate or postgraduate teacher education programmes may become competent in learning theories and teaching techniques, they may still be unaware of how this knowledge can be applied in real language classroom settings. In this regard, Iakovou (2020) notes that being familiar with classroom-based research methods such as classroom observation helps teachers connect theoretical knowledge with classroom practice while interpreting research findings in relation to their teaching practices. Similarly, Richards (1991) suggests that through classroom observation, teachers can reflect on their teaching and become more aware of how they teach. Therefore, classroom observation provides teachers with opportunities to test their personal theories (Farrell, 2018; Foster, 1996), supports continuous professional development (Schön, 1983), and creates a rich learning environment that encourages reflective thinking and practice (O'Leary, 2014). In light of this information, a brief overview of the historical development of classroom observation is necessary to understand the current practices of classroom observation. The traditional approach towards classroom observation involves a familiar scenario where teachers try to demonstrate the correct performance in their lessons, while observers sit in the back and check items on a checklist to decide what constitutes good and bad teaching. Teachers read the reports about their performance prepared by observers/instructors and strive to do better in their next teaching practices. Such observations are typically grounded in the assumption that teachers should put their knowledge into practice and the observer's role is to decide whether what has been taught is being applied correctly (Williams, 1989). According to Richards (1998), in classroom observations conducted based on this approach, the process of acquiring skills and learning how to do things is prioritized, and it is assumed that all these processes can be observed in the lessons of good and effective teachers through mastering specific types of behavior. However, today classroom observation may be conducted in many different settings and be used for various purposes. The purpose of the observation varies depending on who observes and how often, who the participants are, who benefits from the information collected, the nature of the learning, the scope and focus of the observation, where the observations take place, and what happens before and after the observation (Malderez, 2003). In this respect, the literature identifies several types of classroom observation. Among these, in observations for training purposes, teachers are observed and evaluated as part of a program or curriculum to help determine their current skill levels and needs and to achieve a specific set of objectives (Scrivener, 2011). According to Malderez (2003), in this type of observation, decisions about what must be learned are typically made by people other than the teachers and there is a pre-determined focus area for observation. The author also states that this type of observation is mostly used in pre-service education but can also be used in in-service teacher education based on the needs and post-observation sessions are conducted with feedback provided by the trainer, who is considered an expert.

In addition to observations for training purposes, classroom observations may also be conducted for assessment purposes. These observations are used in pre-service teacher education programs, recruitment processes, post-employment probationary periods (Wajnryb, 1992), personnel evaluation systems, strategic

personnel development planning (Malderez, 2003), the evaluation process of a course, and internal or external evaluation processes for a school's national recognition (Scrivener, 2011). Malderez (2003) states that this type of observation involves the observer forming a judgment and making an evaluation. The author also points out that the primary learner is the observer, and observations are typically multi-focused and utilize mixed checklists or programmes. In this respect, (Wajnryb, 1992) argues that this type of observation is "value-based, directive, externally imposed" (p.2), and shaped by factors unrelated to learning, but which receives a great deal of attention. Also, if any, pre-observation sessions are related to the program and procedures to be used and in post-observation sessions, the results of the assessment are shared with the observed teacher individually or in a written report (Malderez, 2003).

On the other hand, unlike other types of observation, in observations for research purposes, as Malderez (2003) notes, the primary purpose is theory building, and the researcher is the primary learner. Data are collected through carefully designed observation programs. Before observation, researchers obtain permission from the teacher before the classroom observation and then provide general information about the process. The findings of the observation are published and made accessible. Furthermore, according to Scrivener (2011), such observations are generally conducted in the context of quantitative studies as they investigate the frequency, ratio and comparison.

Finally, observations for developmental purposes differ from the previously discussed observation types in terms of both the focus of the process and the way it is structured. According to Malderez (2003), in such observations, teachers make their own decisions about how to benefit from the observer, and no judgmental evaluation is made regarding the course. Classroom observation usually follows a three-phase structure consisting of a pre-observation stage, an observation stage, and a post-observation stage (Richards & Lockhart, 1996). The pre-observation stage involves a meeting between the observer and the teacher to discuss key aspects of the lesson, including the content, teaching approach, student characteristics, interaction patterns, and potential challenges (Richards & Farrell, 2011). During the observation phase, as Bailey (2006) states, the observer visits the classroom of the teacher being observed and performs the observation by following the procedures determined during the pre-observation stage. After the classroom observation, the observer and the teacher meet as soon as possible for a post-observation session. In this session, the observer provides feedback based on the collected information and discusses it with the observed teacher. As Malderez (2003) points out, this session is guided by the observed teacher, and the observer only provides information when invited. The observed teacher is the one who decides whether to share the information or knowledge gained from experience, and the observer respects the right.

A review of the relevant literature indicates that the existing studies, although limited, have mainly been conducted in the context of English language teaching. In a study with English teachers working in the Middle East, Howard (2010) found that teachers behaved in a more controlled manner due to the presence of an observer. Similarly, Shah and Al Harthi (2014), in their study with English teachers in Saudi Arabia, reported that classroom observation was perceived as a control mechanism and generated psychological pressure, as well as feelings of threat and insecurity among teachers. In parallel, Alshehri (2019) reported that classroom observation and post-observation feedback had a positive impact on teaching practices. The author also found that classroom observation could lead to negative feelings in teachers and may not accurately reflect typical classroom practices. On the other hand, Lasagabaster and Sierra (2011), in their study with Spanish English teachers, found that the vast majority of participants had a positive view of classroom observation and valued its contributions more than its disadvantages. The authors also reported that participants with negative attitudes towards classroom observation felt uncomfortable and insecure during the observation and experienced anxiety due to the presence of an observer in the classroom. Similarly, Merç (2015), in a study with Turkish English teachers, found that most teachers had a positive attitude towards classroom observation and valued the benefits of classroom observation more than its drawbacks despite having limited experience with classroom observation. The underlying reasons for the negative attitude were identified as anxiety and insufficient time due to heavy workload. Finally, in a study conducted in the context of Vietnam, Thi Man (2024) revealed that teachers generally had a positive attitude towards classroom observation and considered this process important for their professional development. In the field of teaching Turkish as a foreign language, no relevant studies on lesson observation were found in the literature. Therefore, the present study addresses this gap in the existing literature and aims to

determine the views of foreign language Turkish teachers on classroom observation. The research questions of the study are as follows:

1. What are the teachers' initial views on classroom observation?
2. What are the teachers' opinions after the implementation of developmental classroom observation?

Method

Research Design

The current study presents a part of a case study examining the instructional practices of teachers teaching Turkish as a foreign language through developmental lesson observations. The case study investigated participants' views before and after the classroom observation process, the strengths and areas for improvement in their classroom practices, and their perceptions of their own strengths and areas for improvement. Building on this study, the present study focuses exclusively on participants' views before and after the classroom observation process. In this regard, the current study was conducted using a basic qualitative research design. Studies based on a basic qualitative research design focus on understanding how individuals interpret their experiences and construct their worlds based on the experiences. Therefore, in basic qualitative studies, "the overall purpose is to understand how people make sense of their lives and their experiences" (Merriam & Tisdell, 2016, p.24). Grounded in a constructivist perspective, these studies are one of the most frequently used qualitative research methods in education, and data are gathered through interviews, observations, or document analysis (Merriam & Tisdell, 2016). The research context in which the data for the present study were collected is described below.

Research Context

As described above, the present study draws on data from a case study examining the developmental classroom observation process in teaching Turkish as a foreign language. Prior to the data collection process of the case study, an online briefing meeting was held with the participants on February 29, 2024. The meeting lasted approximately one hour. During the meeting, participants were informed about how the study would be conducted and the observation tools to be used. The observation tools used throughout the study included the observation form, the Criteria for Effective Teaching (Kurtoğlu Eken,2000), and the lesson plan that participants were expected to complete for each observed lesson. These documents were shared with the participants. The observation form is presented in Appendix A, the Criteria for Effective Teaching (Kurtoğlu Eken,2000) in Appendix B, and the lesson plan template in Appendix C. Following the briefing meeting, the data collection process began, and a total of 28 classroom observations were conducted between March 7 and May 20, 2024, over a period of approximately 2.5 months, with seven participants working at the same institution, each of whom was observed four times. Four participants were observed on March 7, March 28, April 18, and May 16, 2024, while three participants were observed on March 18, April 1, April 22, and May 20, 2024. Despite the variations due to public holidays, the observations were conducted at relatively frequent intervals, with no interval exceeding one month. All observations were conducted by the first author of the present study. The researcher holds bachelor's and master's degrees in English Language Teaching and has been teaching English in higher education institutions in Türkiye for 16 years. In addition, the researcher holds a CELTA (Certificate in English Language Teaching to Adults) qualification and has completed the SLTEP (Sabancı University School of Languages Trainer Education Program), a programme designed to develop knowledge and skills in teacher training and development. In addition to this, before the lesson observations began, participants informed their students about the process. The researcher also introduced herself to each class and explained that she was visiting classrooms to conduct observations. During the classroom observations, the researcher adopted a non-interventionist role and refrained from providing any guidance regarding the flow of the lessons (Adler & Adler, 1994; Cohen et al., 2018; Cooper & Schindler, 2001).

Furthermore, each classroom observation was structured in three phases: Pre-observation, during observation, and post-observation. Before each lesson observation, meetings were held with the participants regarding the lesson to be observed through platforms preferred by the participants. During the observation,

data were collected through an observation form completed by the researcher by hand, and no audio or video recordings were taken. This semi-structured form consists of columns for time, teacher actions, student actions and comments. In addition, the form includes a section for general comments on the teachers' strengths and areas for improvement. The columns for time, teacher actions, and student actions were completed by the researcher during the lesson observations. The comments column and the general comments section were completed either on the same day as the lesson observation or the following day, using the Criteria for Effective Teaching (Kurtoğlu Eken, 2000) as a reference. Following the observation, the observation form prepared by the researcher was shared with the participants to evaluate the lesson, and meetings were held on platforms preferred by the participants. These post-observation discussions were conducted within a maximum of three days following the lessons to provide both the participants and the researcher with an opportunity to reflect on the lesson. As the purpose of the case study was to examine the classroom observation stage, the pre-observation and post-observation phases were not included in the analysis. Details regarding the level and type of the courses in which each lesson observation was conducted are presented in the table below.

Table 1*Lesson Types and Student Levels of Observed Classes*

Participant Codes	Observation 1	Observation 2	Observation 3	Observation 4
	Lesson type/Level	Lesson type/Level	Lesson type/Level	Lesson type/Level
P1	Reading/B2	Listening/B2	Listening/ B2	Listening/B2
P2	Reading/B1	Speaking/B2	Listening/B2	Reading/B2
P3	Listening/C1	Speaking/C1	Writing/C1	Reading/C1
P4	Grammar/A1	Listening/A1	Grammar/A2	Grammar/A2
P5	Reading/C1	Speaking/C1	Writing/C1	Listening/C1
P6	Listening/A1	Grammar/A1	Speaking/A2	Grammar/A2
P7	Grammar/B2	Vocabulary/B2	Grammar/B2	Grammar/B2

According to Table 1, 8 lesson observations focused on grammar and listening skills, while 5 focused on reading and 4 on speaking. In addition, 2 observations were related to writing skills, and 1 to vocabulary teaching. Additionally, 11 lesson observations were conducted at the B2 level, 8 at the C1 level, 4 at the A1 and A2 levels, and 1 at the B1 level.

In addition, each lesson lasted one hour, and a total of 28 hours of classroom observation were conducted. Class sizes ranged from 5 to 11 students. All observed classrooms were equipped with a smart board and a sound system.

Regarding the validity and reliability of the data collection tools used during the lesson observation process, the observation form used in the present study was adapted from the running commentary form used in the SLTEP (Sabancı University School of Languages Trainer Education Program) by the researcher in collaboration with two experts in English language teaching. During the adaptation process, columns for teacher and student actions were added, and the "stage of the lesson" column in the original form was removed. Since this adapted form has been used by the researcher and other observers during classroom observations in English language teaching, a separate pilot study was not considered necessary for the study. For use in the study, the headings in the form were translated into Turkish.

Another data collection tool used in the case study, the Criteria for Effective Teaching (Kurtoğlu Eken, 2000), consists of five areas: Knowledge and Awareness, Planning and Preparation, Rapport and Communication with Learners, Lesson Presentation, and Lesson Management. As the developer of the criteria points out, some overlap among the five areas is natural and desirable due to the complex nature of teaching and learning. Additionally, the author emphasizes that the criteria provide an analytical framework for teaching, serve as a guide for discussion and feedback, and underlines that it is not a checklist. Both verbal and written permission to use the Criteria for Effective Teaching in the present study was obtained from the author. To ensure the validity and reliability of the Criteria for Effective Teaching (Kurtoğlu Eken, 2000), the original text was first translated into Turkish by the researcher. To minimize potential differences between the English and Turkish versions, the translated version was reviewed by both the developer of the criteria

and an expert in English Language Teaching. Based on the feedback received, the final Turkish version of the criteria was prepared. In addition, an expert in teaching Turkish as a foreign language was consulted regarding the relevance of the criteria to the field. Following the expert's feedback, the criteria were considered appropriate for use in the field, and no item was deemed necessary to be removed.

On the other hand, concerning the validity and reliability of data collection processes related to classroom observation, it is essential for the observer to inform teachers about the tools to be used during the classroom observation process in order to obtain valid results (Hyman, 1975; Richards, 1998). In this regard, before the classroom observation process began, a briefing session was held with the participants regarding the process and each classroom observation tool to be used, and the aforementioned documents were shared with the participants. Furthermore, as noted in the literature, due to contextual issues surrounding each teaching setting, no formal observation should be conducted without a prior conference (McGreal, 1983) and an opportunity for the observer to become somewhat accustomed to the teaching environment (Roberson, 1998). According to Cohen et al. (2018), these prior conferences allow the observer to become aware of significant events that have occurred beforehand, preventing misinterpretations about why the observed behaviors occurred and increasing the internal validity of the observation. Accordingly, as previously mentioned, in the present study, pre-observation meetings were held with the participants before each lesson observation, and information about the lesson to be observed was exchanged in these conferences, which focused on the teachers' requests. Furthermore, for evaluations or judgments based on classroom observation to be considered acceptable and valid, they should be supported by evidence and relevant criteria (McGreal, 1983; O'Leary, 2014). In this respect, in order to strengthen the validity of the present study, the comment column and the general comment section of the observation form prepared for each classroom observation were filled out based on the Criteria for Effective Teaching developed by Kurtoğlu Eken (2000). Finally, when the literature on the number of classroom observations to be conducted is examined, according to O'Leary (2014), one-off classroom observations conducted once a year do not provide a reliable and valid representation of teachers' actual performance. Similarly, Cohen et al. (2018, p. 555) suggest that "the greater the number of observations, the greater the reliability of the data might be, enabling emergent categories to be verified." The authors also emphasize that spending sufficient time in the field enhances the validity of classroom observation. By remaining in the research setting over an extended period, researchers can better understand how events unfold over time, as well as the dynamics of the setting, the people involved, their roles, the context, and available resources. In light of this information, to enhance the validity and reliability of the data of the current study, four classroom observations were conducted with each participant over a period of approximately two and a half months, accompanied by pre- and post-observation meetings, while ensuring that the interval between observations did not exceed one month.

Finally, the data obtained from the classroom observation notes were analyzed using the cross-case analysis (or cross-case synthesis) technique proposed by Yin (2014). According to Yin (2014), cross-case analysis is an analytical technique used to identify similarities, differences, and patterns across cases. To apply this technique, each case must first be treated as a separate study and examined individually through within-case analysis. Therefore, the logic of replication underlies cross-case analysis, and patterns should be identified through "argumentative interpretation" rather than "numerical tallies" (Yin, 2014, p. 167). Following this approach, as described above, within-case analysis in the present study was conducted by the researcher as part of the data collection process. This analysis was conducted through content analysis using deductive coding (Creswell & Poth, 2018), based on the Criteria for Effective Teaching (Kurtoğlu Eken, 2000). In the next stage, the researcher prepared a matrix covering all cases, as suggested by Yin (2014). As no teacher trainer specializing in teaching Turkish as a foreign language was available, the matrix and the observation forms were shared with a teacher trainer specializing in English language teaching to conduct the cross-case analysis. The researcher and the expert then reviewed the matrix, referring back to the original observation forms whenever necessary during an online meeting lasting approximately 70 minutes and identified the strengths and areas for improvement in the participants' classroom practices. In this process, in line with Yin's (2014) recommendations, no statistical evaluation was conducted. Instead, strengths and areas for improvement were identified based on recurring patterns across the participants' classroom practices.

Data Collection Instrument

In the present study, semi-structured interviews were used to collect the data. The interviews were conducted on an online platform, and all the interviews were recorded. The interview questions related to the first research question of this study are divided into two sections. The first section focuses on questions concerning the participants' demographic information, and the second section consists of questions that aim to determine the participants' initial opinions on classroom observation. The interview questions are included in Appendix D. The interview questions addressing the second research question of the current study aimed to identify the views of the participants after the implementation of classroom observation. The interview questions are presented in Appendix E.

With respect to the validity and reliability of the data collection instrument in the present study, semi-structured interview questions were designed with reference to the relevant literature (Cohen et al., 2018), aligning with the research questions of the current study (Creswell & Poth, 2018) to increase the content validity. In this regard, two expert opinions in teaching Turkish as a foreign language were sought on the ambiguous or potentially leading questions. Expert feedback focused on the wording, word choice and probing questions to be included, and the questions were revised and finalized based on this feedback (Creswell & Poth, 2018).

Participants

The present study was carried out with 7 (seven) teachers working at TÖMER (Turkish and Foreign Languages Research and Application Centre) in a state university in Türkiye. TÖMER is a university center that provides Turkish language education to international students at different language levels and conducts educational, and research activities focused on teaching Turkish as a foreign language. In the current study, participants were selected through purposive sampling. In purposive sampling, participants are selected for a specific purpose based on research questions, and the aim is not to generalize, but to represent the phenomenon being investigated (Cohen et al., 2018). In this regard, participants in the current study were purposefully selected according to their varying levels of teaching experience and their potential to provide rich data relevant to the research questions. To address ethical considerations and to help ensure the reliability of the study, the institution where the research was conducted and the identities of the participants were kept confidential throughout the study, and each participant was assigned a code (e.g., Participant 1, Participant 2). The educational backgrounds of the participants are presented in Table 2 below.

Table 2

Educational Backgrounds of Participants

Departments	BA		MA		PhD	
	N	%	N	%	N	%
Turkish Language and Literature	7	100	1	14.28	-	-
Teaching Turkish as a Foreign Language	-	-	2	28.57	-	-
Classical Turkish Literature	-	-	1	14.28	-	-
Turkish Folklore	-	-	1	14.28	-	-
Old Turkish Literature	-	-	1	14.28	-	-
Modern Turkish Language	-	-	1	14.28	-	-
Turkish Studies	-	-	-	-	1	14.28
Total	7	-	7	-	1	-

Table 2 shows that all participants hold a bachelor's degree in Turkish Language and Literature and all participants hold a master's degree. Regarding the master's fields, 2 (two) participants completed their MA studies in Teaching Turkish as a Foreign Language, while the other 5 (five) participants had master's degrees in Turkish Language and Literature, Classical Turkish Literature, Turkish Folklore, Old Turkish Literature, and Modern Turkish Language. One participant holds a PhD degree in Turkish Studies.

The participants' total teaching experience in the field is shown in Table 3 below.

Table 3*Total Teaching Experience of Participants*

Teaching Experience	N	%
0-1 year	1	14.28
5-10 years	4	57.14
11-20 years	2	28.57
Total	7	100

Table 3 shows that there is only 1(one) participant with 0-1 year of experience, while there are 4 (four) participants with 5-10 years of experience. 2 (two) participants have a total experience of 11-20 years.

Data Collection Procedures

The current study was conducted with the approval of the Social and Human Sciences Research Ethics Committee of the state university where the study was carried out, dated 20.02.2024 and numbered E-66777842-300-00003397499. After obtaining the Ethics Committee's permission, a research permission form was first sent to the unit where the study would be conducted, and after receiving permission, 7 (seven) people who wanted to participate in the study voluntarily were selected, and informed consent forms were distributed to the participants and signed. In the following process, as previously stated, an online briefing session was held with the participants to explain the study procedures and to provide information about the observation tools used in the study. After this session, the data collection process for the current study began. The data collection process consisted of two phases. The first phase was carried out before the classroom observations began to gather the participants' views on the classroom observation. In the second phase, data were collected after the classroom observation program was completed to collect the participants' opinions on the process. Data were collected through semi-structured interviews in both phases. Table 4 presents the platforms on which the interviews related to the first research question were conducted and the time allocated by each participant.

Table 4*Interview Details Related to the First Research Question*

Participant Codes	Platform	Duration (minutes)
P1	Zoom	36,43
P2	Zoom	22,49
P3	Zoom	07,12
P4	Zoom	24,52
P5	Zoom	31,02
P6	Zoom	11,40
P7	Zoom	18,33

As shown in Table 4, all interviews were conducted with the participants via the Zoom platform. The duration of the interviews ranged from approximately 7 minutes to 36 minutes, with individual interviews lasting around 11, 18, 22, 24, and 31 minutes.

Table 5 presents the platforms on which the interviews related to the second research question were conducted and the time allocated by each participant.

Table 5*Interview Details Related to the Second Research Question*

Participant Codes	Platform	Duration (minutes)
P1	Zoom	14,26
P2	Zoom	14,44
P3	Zoom	19,50
P4	Zoom	15,42
P5	Zoom	22,21
P6	Zoom	10,25
P7	Zoom	35,15

As shown in Table 5, all interviews were conducted with the participants via the Zoom platform. The duration of the interviews ranged from approximately 10 minutes to 35 minutes, with individual interviews lasting around 14, 15, 19, and 22 minutes.

Concerning the validity and reliability of data collection processes, minimizing bias in interviews is one way to increase validity (Cohen et al., 2018). In this regard, as suggested by Maxwell (2005), the researcher in the current study avoided giving leading responses during the interviews and maintained an unbiased stance by clarifying only misunderstandings or interpretations. Therefore, the reliability of the study was strengthened by ensuring that each participant understood the questions in the same way (Silverman, 1993).

Data Analysis Process

The data analysis process of the present study was conducted through content analysis, following the procedures described by Creswell and Poth (2018). Accordingly, the process began with the researcher transcribing the participants' audio recordings. The process of coding, categorizing codes and forming themes from the categories was carried out by both the researcher and an expert in teaching Turkish as a foreign language. Inter-coder agreement was assessed at the coding level using the formula proposed by Miles and Huberman (1994). The agreement rate was found to be 89.3%, which indicates a strong reliability rate. After the coding process, the categories and themes were discussed with the second coder until agreement was reached where necessary. Furthermore, the transferability of the data was increased by directly using participant quotations for each category (Lincoln & Guba, 1985).

Findings

Findings Regarding the First Research Question

The first research question of the current study aimed to reveal the teachers' initial opinions on classroom observation. According to the interview questions, the initial finding is related to the teachers' classroom observation experience. Table 6 shows the codes, categories, and themes generated from the participants' responses, respectively. The frequency (f) value was determined based on how many participants contributed to the relevant category.

Table 6

Participants' Classroom Observation Experience

Theme	Categories	Codes	f
Classroom observation experience	Observation as an institutional program requirement	Observation by certificate participants	4
		Observation as a program component	
		Observation without feedback	
	Observation for assessment	Observation during the certification process	3
		Grading/evaluation/judgment	
		Post-project/workshop observation	
	Observation for research	Administrative/managerial observation	3
		Observation conducted as part of postgraduate research	
	Observation for training	Observer learning	1
		Observation during the pre-service period	
	Observation for individual learning	Observation as a program component	1
		Participants' initiative	
		Participants' request/demand	1

According to Table 6, 4 (four) participants had experienced classroom observation within the scope of institutional program requirements. While 3 (three) participants had experienced classroom observation for

assessment and research purposes. 1 (one) participant had experienced observation for training and individual learning purposes.

Considering the participants' responses for each category, with regard to the category of observation as an institutional program requirement, participants reported that they were observed by certificate program participants as part of an institutionally organized program. For example, one participant expressed this as follows: "This is a part of the XXX University's certificate programs for teaching Turkish to foreigners... and in this program, those participants attend our classes, and they are assigned a specific time for the observation. They observe our lessons" (P4). Another participant stated that there was no feedback mechanism in these observations as follows: "These certificate program students write reports about us... I mean, the reports are not shared with us, but I personally spoke with the student" (P5).

As for the category of observation for assessment, participants reported that the observations were conducted for evaluation and grading purposes. One participant reported being observed for assessment purposes during the certification process, stating that "At XXX University, when I attended the certificate program in teaching Turkish as a foreign language, through a practicum class my lessons were observed to assign a grade" (P1). Another participant described his/her experience of administrative observation, stating that "...in the institution where I worked before, administrative observations were being conducted. That is, officials from the Rectorate would come to observe" (P3). Additionally, another participant reported being evaluated through a post-training assessment, stating that "At XXX University, we attended training sessions while working on their project for two years. There was a workshop, we received training on four skills related to language teaching. Our professors observed us there, gave us a grade, and sent them to our institution (P2).

With respect to the category of observation for training, one participant reported that, during the pre-service period, he/she experienced classroom observation as a component of the program, stating that "Apart from that, during the period when I was receiving my pedagogical formation training, a teacher observed my lessons" (P1).

With regard to observation for research, one participant emphasized that these observations primarily served the observer's learning, stating that "For instance, a graduate student comes to observe my lesson, but in the end, it is not something that contributes to me. Instead, it is something that is supposed to benefit them" (P3). Similarly, another participant reported that these observations were conducted in master's and doctoral programs without any feedback mechanism, stating that "Professors at XXX Institute send graduate students to observe our lessons. For example, students who take Professor XXX's course visit our classes... but they observe the lesson and leave. That's it" (P7).

Finally, for the category of observation for individual learning, one participant reported experiencing the classroom observation process at the request and initiative of others, stating that "Sometimes, undergraduate students visited my class to see the classroom environment because they wanted to work in this field or pursue master's or doctoral studies" (P4).

Another finding related to the first research question concerns the teachers' feelings towards classroom observation. Table 7 shows the codes, categories, and themes generated from the participants' responses, respectively. The frequency (f) value was determined based on how many participants contributed to the relevant category.

Table 7

Participants' Feelings towards Classroom Observation

Theme	Categories	Codes	f
Emotional responses to classroom observation	Emotional comfort	Not evoking a negative feeling Not causing discomfort or unease	1
	Negative emotions	Shame, shyness, fear, anxiety Feeling tense/uneasy Fear of criticism	5

Theme	Categories	Codes	f
		Fear of not being competent enough Discomfort with the presence of an observer	
	Changing mood depending on the purpose of observation	Tension in assessment-based observations Feeling comfortable in non-assessment observations	1

The findings in Table 7 show that participants' feelings towards the lesson observation vary. Accordingly, a considerable number of participants reported that the classroom observation evoked negative feelings in them. One participant stated that he/she was not emotionally disturbed during the class observation, while another participant reported that his/her feelings changed in accordance with the purpose of the observation.

When the participants' responses across categories are examined, concerning the category of emotional comfort, one participant reported that classroom observation did not evoke any negative feelings, stating that "Honestly, I didn't feel any excitement or anxiety, my lessons can be observed by others" (P2).

As for the category of negative emotions, participants reported experiencing negative feelings during classroom observation. For example, one participant described the physical symptoms he/she experienced due to feelings of shame and embarrassment as follows: "First, I feel embarrassed and shy. I also feel hesitant. Sometimes I even stop being myself... sometimes my voice becomes quieter, I start to stutter while speaking" (P4). Another participant stated that the presence of an observer affected the natural flow of the lesson and was disturbing, saying, "It's not a comfortable situation because there's a stranger there, someone we don't know... Our behavior when there's an observer isn't the same as when there isn't, and it can't be. I think we behave in a more controlled manner" (P6). Similarly, another participant stated that the presence of an observer felt like an intrusion into his/her personal space as follows: "However, an initial sense of tension is inevitable because it's like someone's broken into your house. It's a very interesting thing, you know, you hang out in pajamas at home, right? Just then, a stranger comes in. I feel like being watched by that stranger" (P7).

Finally, in relation to the category of changing mood depending on the purpose of the observation, one participant described changes in his/her emotional state during assessment-based and non-assessment observations as follows: "Let me divide it into two. In administrative observations, a control mechanism emerges and I feel a bit tense. But when someone comes to observe my class for research or for experiential purposes, it feels more positive because I enjoy it more" (P3).

Another finding related to the first research question concerns the teachers' perspectives on classroom observation. Table 8 shows the codes, categories, and themes generated from the participants' responses, respectively. The frequency (f) value was determined based on how many participants contributed to the relevant category.

Table 8

Participants' Approach to Classroom Observation

Theme	Categories	Codes	f
Attitudes towards classroom observation	Positive attitude	Professional development opportunity Learning through feedback Reflective thinking Gaining awareness Opportunity for self-evaluation	6
	Negative attitude	Observer effect Feeling tense	1

Table 8 indicates that a large majority of participants have a positive view towards classroom observation and one participant has a negative attitude towards class observation.

An analysis of the participants' responses across categories indicated that, concerning the category of positive attitudes, participants reported that they viewed classroom observation as an opportunity for professional development and self-evaluation. For instance, one participant expressed his/her attitude towards classroom observation, stating: "As I said, I see this as an opportunity for myself. A very important opportunity for self-improvement" (P1). Similarly, another participant noted: "My lessons are open to observation because I believe that is the only way to improve myself. I can't move forward unless I recognize my mistakes" (P2). Another participant emphasized learning through feedback, stating: "Naturally, this has some benefits because you get feedback after the observation. That also happened to me. I mean, I got useful feedback. I noticed my mistakes... I have always been pleased with the feedback" (P7).

With regard to the negative attitude, one participant reported experiencing tension due to the observer effect as follows: "There is nothing positive about this. I don't see any positive side of being observed. It means feeling tense... It is not a comfortable situation, being observed is certainly not comfortable... So, I don't think the observer will see our natural behavior in the classroom; he/she will see controlled behaviors... The teacher will pay attention to what he/she says and how he/she behaves" (P6).

Findings Regarding the Second Research Question

The second research question aimed to reveal the teachers' views after the implementation of developmental classroom observation. According to the interview questions, the first finding concerns the contributions teachers reported with respect to developmental lesson observation. Table 9 shows the codes, categories, and themes generated from the participants' responses, respectively. The frequency (f) value was determined based on how many participants contributed to the relevant category.

Table 9

The Contributions Participants Reported regarding Developmental Classroom Observation

Theme	Categories	Codes	f
Contributions of developmental observation	Reflective thinking and learning	To discuss	6
		To develop a different perspective	
		To gain awareness	
	Development of teaching methods and techniques	Teaching language skills	6
		Teaching vocabulary and grammar	
		Creating a learning-centered environment	
		Interaction between learners (pair-group work)	
	Emotional change	The fading of negative emotions	2

According to Table 9, it is seen that developmental lesson observation leads to reflective thinking and learning and development of teaching methods and techniques among most of the participants. 2 (two) participants reported that their emotions changed after the implementation.

When the participants' responses across categories are examined, for the category of reflective thinking and learning, participants stated that the process offered them opportunities to discuss the lessons, increased their awareness, and helped them develop a different perspective. For example, one participant stated, "So, if I have to say something about this research, it's about exchanging ideas. Yes, I can say that it's about exchanging ideas. What I found most appealing was raising awareness. I can say it really helped create awareness" (P1), while another participant added, "Perhaps it only contributed to me in this sense. There are some things I already know, things I believe to be true. I've never expressed them so much before. I've never expressed so much why I do what I do" (P6). With regard to the development of a different perspective, one participant stated, "I think it has contributed a lot to me. Firstly, it showed me how things could be done from different perspectives. For me, the most valuable thing was to think about how I could have done differently... it offered a different perspective, which was valuable for me... I pondered how I could transform and apply those ideas into my teaching. In that sense, I'm satisfied with the process" (P3).

As for the category of the development of teaching methods and techniques, participants reported that classroom observation contributed to classroom practices in terms of teaching language skills and language systems. For example, one participant expressed this contribution as follows: “It contributed a lot to me in the aspect of methods, teaching techniques, vocabulary teaching, and activities related to each skill...the fact that many skills were covered in observation lessons, as I said, increased my knowledge about each skill” (P1), while another participant stated, “For example, I really liked this... Having students read the text aloud. I was already uncomfortable with that because the students did not understand the text, but it was the usual routine, like taking turns reading a paragraph. I had really stopped doing that. So, when you gave me feedback like that, I felt relieved” (P7).

In addition, within the same category, participants reported that classroom observation contributed to creating a student-centered environment. For example, one participant described this as follows: “I get less tired. I used to find myself talking too much at the board. I was talking around eighty percent of the time. Now I've reduced that... I realized that. I try to talk less now” (P4), while another participant noted, “You made me realize that I was too instructive. For example, I wanted to explain so much... However, during this process, I realized the importance of waiting a little and giving time and opportunity to students” (P5). Participants also indicated that classroom observation contributed to interaction between learners. One participant stated, “For example, I have started to apply the things we talked about in the post-observation session in my classroom, such as having students work in pairs. For instance, I had my students work in pairs in the reading class, not just in the speaking class. It really worked well. I realized that it is more effective. I've started using it now” (P2).

Concerning the category of emotional change, some participants reported that their past negative emotions diminished. For example, one participant described his/her emotional state as follows: “I can say that the current classroom observation process has been extremely enjoyable for me. I had been very hesitant before about being observed by someone. I used to feel uncomfortable. But now felt different. I can say it felt more sincere. I mean, I'm not uncomfortable anymore, I used to be uncomfortable, but I'm not anymore” (P4). Similarly, another participant indicated that his/her emotions changed as follows: “I had some concerns in the past. Back then, my anxiety was excessive. Sometimes it was so intense that it made me forget what I was going to say. But it's not like that now... Rather than feeling anxious, I focused on the constructive side of it... It might also be related to you. I knew that you would guide me with your constructive feedback” (P5).

According to the second research question, another finding is related to teachers' views on their intention to use developmental lesson observation in the future. Table 10 shows the codes, categories, and themes generated from the participants' responses, respectively. The frequency (f) value was determined based on how many participants contributed to the relevant category.

Table 10

Participants' Views on Using Developmental Classroom Observation in the Future

Theme	Categories	Codes	f
Future intention to use developmental lesson observation	Strong intention to use	Professional development opportunity	5
		Learning through feedback Collaborative learning	
	Conditional intention to use	Preference for video recording Observer effect	1
	No intention to use	Not perceiving a need	1
		Learning through experience	

According to Table 10, 5 (five) participants reported their strong intention to use the developmental lesson observation in the future. 1 (one) participant stated that he/she would use the practice under some circumstances. Another participant reported that he/she had no intention of using the practice in the future.

In relation to the category of strong intention to use, participants reported that they viewed developmental lesson observation as a professional development opportunity, a way to learn through feedback, and a practice that promotes collaborative learning. For example, one participant described the professional development opportunity as follows: “I would definitely use it. I think it has contributed a lot to me in terms of identifying my weak points and improving myself. I think teachers, especially novice teachers should encounter these kinds of practices... For me personally, as I said before, it was completely an opportunity. If I had been involved in a training program, I don’t think I would have improved myself to this extent” (P1). Another participant emphasized learning through feedback as follows: “Yes, I would definitely prefer this because I learn many things both theoretically and in practice through feedback. I’m improving myself, and it makes a difference for me. Otherwise, I would always have to do the same things. I learn many different things. I believe this will benefit me in many ways” (P4). Another participant expressed his/her intention to use developmental lesson observation, highlighting its contribution to collaborative learning as follows: “Of course, I would like that. I think it has made a direct contribution to me. I had the opportunity to evaluate myself... In fact, if this process became more widespread, if these kinds of observations and evaluations, positive feedback became more common, and if people got used to it, maybe it could become a part of the institutional culture. In that case, professional collaboration may also increase” (P3).

For the category of conditional use, one participant stated a preference for video recording during classroom observation due to the observer effect as follows: “I wonder if it would be better with a camera. Would it look more natural with a camera? You might forget that the camera is on, which is interesting. It feels different with the camera. You know, it is not like having someone in front of you taking notes” (P7).

Finally, concerning the category of no intention to use, one participant reported not feeling the need for it, indicating that he/she had learned sufficiently from the experience, stating that “As I said, I already try to do many things based on my experience, in a way that suits the context and requirements, and in line with my objectives. Therefore... I don’t feel the need for it” (P6).

Discussion

In this section, the findings are interpreted and discussed in relation to the relevant literature and the research questions. The findings for the first research question, as presented in Table 6, showed that the participants had experienced observations conducted for assessment, training, and research purposes. Observations conducted as a requirement of an institutional program, which were experienced by most of the participants, and observations for individual learning experienced by 1(one) participant, do not align with any type of classroom observation mentioned in the literature as they do not involve any feedback mechanism and the results are not shared on any platform. In this regard, it may be argued that some participants had experienced an unsystematic observation process. Furthermore, the findings indicated that the participants had not previously experienced developmental classroom observation and would experience it for the first time throughout the current study.

When interpreting the findings related to the participants’ feelings towards classroom observation, as presented in Table 7, absence of negative emotions may be interpreted as a positive outcome in terms of the current study’s implementation process. On the other hand, when the literature on the negative feelings reported by most participants towards classroom observation is examined, classroom observation leads to negative emotions such as fear, stress, sadness, anxiety, and reluctance among teachers (Crookes, 2003; Day, 2013; Devos, 2014; King, 2015; Richards & Farrell, 2005; Richards & Lockhart, 1996; Wajnryb, 1992; Wallace, 1991; Williams, 1989). The presence of observers causes excessive tension among teachers, particularly in the observations conducted by administrators or authorized persons for the purpose of teacher evaluation or performance management (Day, 2013; O’Leary, 2014; Richards & Farrell, 2005). According to O’Leary (2014), this can be attributed to the tendency of teachers to associate classroom observation with the evaluation of their professional competence. Accordingly, considering the findings in Table 6, the fact that some participants had been included in observations conducted for assessment and training purposes may explain their negative feelings towards classroom observation. Also, when looking at Table 7, the codes of tension in assessment-based observations, fear of criticism and fear of not being competent enough also support this finding. Finally, when the literature is reviewed regarding the code *discomfort with the presence*

of an observer, O'Leary (2014) refers to this process as reactivity or the Hawthorne effect and emphasizes that observer effect may lead to anxiety among teachers. When it is looked at the similar studies, Howard (2010) also revealed that the teachers behaved in a more controlled manner due to the presence of an observer. Similarly, Alshehri (2019) emphasized that classroom observation could evoke negative emotions, and Shah and Al Harthi (2014) reported that classroom observation was perceived as a control mechanism and generated psychological pressure, as well as feelings of threat and insecurity among teachers.

When the findings concerning participants' approach to classroom observation presented in Table 8 are interpreted, it appears that the codes concerning positive attitudes are consistent with the existing literature. Accordingly, the literature indicates that classroom observation leads to continuous professional development (Schon, 1983), transformative thinking and learning (Dewey, 1933; Zeichner & Liston, 1996), and reflective thinking (Burns, 2010; Maingay, 1988; O'Leary, 2014). Furthermore, it is also emphasized in the literature that teachers can develop greater awareness of how they teach through classroom observation (Richards, 1991) and that classroom observation provides teachers with the opportunity to test their personal theories (Foster, 1996). In this regard, when the findings shown in Table 8 are compared with Table 7, the fact that the majority of the participants hold a positive attitude towards classroom observation despite the negative feelings it evokes may be because they value its contributions more. Similarly, when it is looked at the similar studies, Thi Man (2024) found that teachers generally held positive attitudes toward classroom observation and regarded it as important for their professional development. In addition, Lasagabaster and Sierra (2011) and Merç (2015) revealed that a large majority of participants had a positive attitude towards classroom observation and valued the benefits of classroom observation more than its disadvantages. On the other hand, a review of the literature on negative attitudes indicates that teacher beliefs form the basis of actions and decision-making processes (Crandall & Christison, 2016), and changes in instructional practices are closely linked to changes in teachers' beliefs (Kennedy, 1996). In this regard, this negative attitude toward classroom observation may be interpreted as a potential negative influence on the implementation process of the current study. In addition, it is clearly seen that *the observer effect* and *feeling tense* codes identified under the category of negative attitude are consistent with the codes related to negative emotions presented in Table 7. Therefore, in this respect, it may be argued that negative emotions toward classroom observation may influence one's approach to the observation process. On the other hand, when similar studies are examined, Merç (2015) identified anxiety as one of the underlying reasons for negative attitudes toward classroom observation. Similarly, Lasagabaster and Sierra (2011) reported that participants with negative attitudes toward classroom observation felt uncomfortable and insecure during the observation process and experienced anxiety due to the presence of an observer in the classroom.

Finally, when all the results concerning the first research question are considered together, the positive attitude of most of the participants towards classroom observation may contribute to the implementation process of the current study. On the other hand, it can be argued that the negative feelings and negative attitude towards classroom observation could affect both the research process and the findings of the current study.

When evaluating the findings for the second research question of the current study, the findings indicated that participants reported several contributions of developmental classroom observation. First, it is seen that all participants believe that the process of developmental classroom observation has been beneficial, as indicated by the participant codes in the quotations. This finding is particularly significant when considered together with the data regarding negative attitudes towards classroom observation in Table 8. When looking at the category of reflective thinking and learning, it is seen that this finding is also consistent with the data under the positive attitude category presented in Table 8. In this regard, it may be argued that participants' positive attitude towards the process helped them recognize its contributions. On the other hand, when looking at the category of development of teaching methods and techniques, it could be argued that the implementation of developmental lesson observation contributed to teaching practices. In this regard, Halim et al. (2018) argue that classroom observation contributes to the improvement of instructional practices and helps teachers learn new teaching techniques. Also, when it is looked at the similar studies, Alshehri (2019) reported that classroom observation and post-observation feedback had a positive impact on teaching practices. Finally, the code fading of negative emotions, when considered together with the

findings presented in Table 7, may indicate that the developmental lesson observation may be effective in reducing negative emotions.

When reviewing the literature for the findings concerning participants' views on using developmental classroom observation in the future, according to Williams (1989), the purpose of this type of observation is to enable teachers to form their own judgments about what occurs in their classrooms, to work with the observer to solve classroom problems, and to continue the process independently afterwards. In this regard, when most of the participants' intention to use the practice is considered, it may be argued that the observation process applied in the current study was perceived by the participants as a developmental opportunity, as noted in the literature. On the other hand, when looking at the conditional intention to use, it is stated in the literature that teachers generally tend to have positive perceptions of using video as part of the observation process as it eliminates the effect of the observer's presence (O'Leary, 2014), which aligns with the code observer effect. Finally, when the literature on codes of learning through experience and not perceiving a need is examined, Richards and Nunan (1990, p.201) state that "experience alone is insufficient for professional growth, and that experience coupled with reflection is a much more powerful impetus for development. Similarly, according to Farrell (2006, p. 77), the old cliché "Experience is the greatest teacher" may not be as true as one might think because people learn more from reflecting on their experience.

Recommendations

In light of these findings, since administrators are responsible for creating opportunities for teachers' continuous professional development and promoting their involvement in such activities (Richards & Farrell, 2005), for the institution where the current study was conducted, as well as for institutions in similar contexts, it could first be suggested that a more structured classroom observation process be implemented because the classroom observation process is valuable when it is planned, focused, purposeful, meaningful, and systematic (Hyman, 1975; Roberson, 1998). Furthermore, considering the participants' positive approach towards developmental observation and their intention to use it, as Malderez (2003) also points out, it may be recommended that developmental classroom observation practices such as peer observation, action research, teacher research, and classroom-based research, be incorporated into professional development practices. In addition to this, as some participants in the current study reported being affected by the presence of an observer during the classroom observation process, as previously noted, video recording may be preferred in classroom observation practices when there are no limitations in technological capacity. On the other hand, when the literature is examined concerning the negative attitude reported in the current study, according to Burton (2009), teachers with a reflective approach consistently reassess their beliefs about language teaching practices. Similarly, Bölükbaş (2004) also emphasizes that teachers' reflection on classroom events is the first and most important principle of professional development. In this regard, it could be suggested that more opportunities for professional development be created that lead to reflective thinking and learning. Finally, and most importantly, considering the different lengths of teaching experience and different academic backgrounds of the participants in the current study, it is suggested that a professional development unit be established to ensure that these processes are carried out in a systematic and planned manner. As Ur (2002) points out, for a discipline to be called professional, there must be a learning community within the profession where members interact with each other, exchange experiences and ideas, and feel responsible for training new teachers.

In addition to all these suggestions, a review of the literature reveals that studies on classroom observation are limited in both national and international contexts. In this regard, it is suggested that further studies be conducted within the context of classroom observation to address this gap in literature. It is evident that descriptive studies will make a contribution to existing literature; however, it can be argued that classroom-based research or applied studies may provide richer insights into classroom practice and offer more practical implications for teaching. Furthermore, the current study was conducted with 7(seven) teachers and investigated teachers' perspectives due to its scope. In this regard, to address the limitations of the current study, as a first recommendation, future studies could involve a greater number of participants and different stakeholders, such as students and administrators. Also, future studies may be conducted by gathering information from other sources, such as student work and student achievement rates to create a more comprehensive and accurate picture.

Conclusion

The present study aimed to explore the views of teachers of Turkish as a foreign language prior to and following the implementation of developmental classroom observation. The findings of the study showed that most participants experienced an observation process that was not structured systematically and had never previously experienced a developmental classroom observation. Furthermore, the findings revealed that classroom observation led to negative emotions such as tension and anxiety in participants, but most of the participants had a positive attitude towards the process and valued the contributions of classroom observation more. Finally, the findings indicated that developmental classroom observation contributed to fostering reflective thinking and learning, improving classroom practices, and alleviating negative emotions, and that a large majority of participants wanted to use developmental classroom observation in their future professional development.

Author's Note

This study was derived from the first author's doctoral dissertation conducted under the supervision of Prof. Dr. Mustafa Durmuş.

CRedit authorship contribution statement

S. Doğan: Conceptualization, Methodology, Data collection, Investigation, Data curation, Formal analysis, Writing – original draft.

M. Durmuş: Supervision, Validation, Writing – review & editing.

Declaration of Conflicting Interests

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Ethics Approval and Consent to Participate

The current study was conducted with the approval of the Social and Human Sciences Research Ethics Committee of the state university where the study was carried out, dated 20.02.2024 and numbered E-66777842-300-00003397499. Written informed consent was obtained from all participants before the study began.

Declaration of AI Usage Statement

No artificial intelligence (AI) tools were used in the design, analysis, or writing of this study.

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Appendix A

Observation Form

The following observation form was completed by the researcher during classroom observations to record descriptive field notes on the teaching and learning process.

Instructor:		Level of the students:	
Observer:		Number of students:	
Lesson type:		Time:	
Main aim of the lesson:		Date:	
TIME	WHAT THE TEACHER DOES	WHAT THE STUDENTS DO	COMMENTS
GENERAL COMMENTS:			

Appendix B

Criteria for Effective Teaching

The following criteria were used by the researcher as a reference and guide when completing the observation form after each classroom observation.

Area	Qualities and Skills
Knowledge and awareness	• knowledge of and about the language • knowledge of relevant teaching methods/strategies • understanding of relevant concept/skill/language • knowledge about the class (e.g., level, abilities, interests, needs, class dynamics) • knowledge about individual students (e.g., names, interests, affective needs, cognitive needs, learning styles, study habits) • awareness of students' progress and potential difficulties
Planning and preparation	• general preparation for the lesson • lesson aims and objectives (e.g., relevant to course aims, appropriate to students' needs, clear, realistic) • how the lesson fits in the whole picture with respect to course aims and previous and future lessons/how it relates to previous and future learning • materials and resources (e.g., well-chosen/well-prepared, relevant to lesson/aims, appropriate to the level and students) • choice of techniques/teaching strategies (e.g., appropriate to students' needs and interests, motivating, varied, balanced, principled) • choice of activities/tasks (e.g., appropriate to students' level, motivating, varied, balanced, principled) • incorporation of knowledge about students and class and sensitivity to students' needs/level of language • lesson plan (e.g., clear, organized, consideration of aims, class profile, anticipated problems and strategies, staging, timing, interaction patterns)
Rapport and communication with learners (attitude/ manner & interpersonal skills)	• general attitude/manner (e.g., confident, pleasant, enthusiastic, positive, fair, smiling) • attitude towards students (e.g., understanding, positive, caring, patient, approachable, supportive, interested) • ability to build a good relationship with students (e.g., using students' names, knowledge about students, awareness of how students feel, empathetic) • ability to motivate students to learn (e.g., expressing genuine interest in students, listening actively to students, reacting and responding to students, involving different students in the lesson, valuing students' contributions, using humour) • ability to build trust (e.g., genuine interest in students, sound knowledge of the language, helping students to see the value of learning, being open and receptive) • ability to build individual communication with students (e.g. awareness of students' strengths, needs, interests) • giving praise and encouragement • expressing confidence in students' knowledge and abilities
Lesson presentation	• ability to encourage participation and involve students (e.g., nominating students, using humor, expressing confidence in students, giving students time to think, giving students equal opportunities to participate) • making use of students' existing knowledge, previous learning (e.g. elicitation, prediction work) • giving students time to think

Area	Qualities and Skills
	• encouraging independent learning (e.g., raising students' awareness of and promoting the use of different learning strategies, study skills, encouraging students to use dictionaries, encouraging students to make use of self-access facilities) • providing challenge for students (e.g., encouraging students to think critically, asking students to justify answers) • giving instructions (e.g., clear, staged, checked if necessary) • elicitation/questioning techniques (e.g. varied, challenging, motivating) • accuracy in presentation (e.g., language used, concept presented, explanation given) • use of personalization (e.g. language, topic) • encouraging students to use English as much as possible • encouraging students to interact with each other • use of voice (e.g., ability to project, clarity, audibility, enthusiasm) • body language (e.g., reflects interest, confidence, eye contact with whole class) • catering for a variety of learning styles and abilities • use of teaching aids and materials (e.g., whiteboard, OHP, pictures, realia, task sheets) • using a variety of techniques and strategies • effective exploitation of materials and tasks
Lesson management	• flexibility and ability to adapt lesson to students' needs and interests • lesson development and flow (e.g., clear aims, smooth transitions, coherence between stages) • monitoring of students' work and providing support where necessary (e.g., encouraging students to think, challenging students, probing for right answers, guiding but not doing the work for the students) • involving different students in the activities • error correction techniques (e.g., supportive, encouraging, constructive, unobtrusive, appropriate, principled) • checking of learning and feedback (e.g., systematic, focused, involving different students, varied, giving students time to respond) • staging of activities/tasks • pace (e.g., varied, engaging, snappy) • timing of the activities and the lesson • physical organization of the room (e.g., seating arrangements, lights) • control and handling of discipline

Appendix C

Lesson Plan Template

Name Surname			
Date		Level	
Time		Lesson type	
Main aim of the lesson			
Resources / Materials			
Stages of the Lesson	Lesson Procedure		

The following lesson plan template is to be completed by the participants before each classroom observation and shared with the researcher.

Appendix D

Semi-structured Interview Questions

The following semi-structured interview questions were used before the classroom observation process to explore participants' initial views regarding classroom observation. Additional probing questions were asked when necessary.

First Research Question: Interview Questions

Section One: Demographic Information

1. Which undergraduate program did you graduate from?
2. Do you have a master's or a PhD degree? / If so, in which fields did you complete your MA and PhD degrees?
3. How many years of teaching experience do you have in the field of teaching Turkish as a foreign language?

Section Two: Views on Classroom Observation

1. Have you ever experienced a classroom observation before? / If yes, how were you observed? / How did the observation take place?
2. What comes to your mind when you think of classroom observation? /What are your thoughts and feelings?

Appendix E

Interview Questions

The following semi-structured interview questions were used to explore participants' views after the classroom observation process. Additional probing questions were asked when necessary to clarify or expand participants' responses.

Second Research Question: Interview Questions

1. Do you think developmental lesson observation was beneficial for you? / In what ways do you think it was useful?
2. Would you like to use developmental classroom observation for your future professional development? /What are the underlying reasons behind your opinion?

Examining the Relationship Between Teachers' Artificial Intelligence Literacy and Technostress Levels

Öğretmenlerin Yapay Zekâ Okuryazarlığı ile Teknostres Düzeyleri Arasındaki İlişkinin İncelenmesi

Ali Kaya¹, Yusuf Levent Şahin², Gülçin Elif Turan³, Kadriye Kobak⁴

Keywords	Abstract
Artificial intelligence literacy	This study examined the relationship between lower secondary school teachers' artificial intelligence (AI) literacy and technostress levels within the context of increasing digital transformation in education. The study employed a quantitative correlational research design and was conducted with 311 lower secondary school teachers working in public schools in the central districts of Eskişehir, Türkiye, during the 2023–2024 academic year. Data were collected using the Technostress Scale and the Artificial Intelligence Literacy Scale. Descriptive statistics, independent-samples t tests, one-way ANOVA, Mann–Whitney U tests, Kruskal–Wallis tests, and Spearman correlation analyses were conducted. The findings revealed that teachers experienced moderate levels of technostress, while their mean AI literacy scores were positioned toward the lower end of the possible score range. Technostress levels did not significantly differ according to gender, age, or subject area but differed significantly according to educational attainment, with teachers holding master's degrees reporting lower technostress; AI literacy levels differed significantly according to gender, subject area, and educational attainment. No statistically significant relationship was found between teachers' AI literacy and technostress levels. The findings suggest that AI literacy alone may not be sufficient to explain teachers' technology-related stress experiences and that technostress is likely shaped by a combination of individual competencies, organizational conditions, and contextual factors.
Educational technology	
Technology integration	
Technostress	
Teachers	
Anahtar Sözcükler	Öz
Yapay zekâ okuryazarlığı	Bu çalışma, eğitimde giderek hızlanan dijital dönüşüm süreci bağlamında ortaokul öğretmenlerinin yapay zekâ okuryazarlığı ile teknostres düzeyleri arasındaki ilişkiyi incelemeyi amaçlamaktadır. Araştırma, nicel ilişkisel tarama modeli kullanılarak yürütülmüştür. Araştırmanın çalışma grubunu, 2023–2024 eğitim öğretim yılında Türkiye'nin Eskişehir ili merkez ilçelerinde bulunan devlet ortaokullarında görev yapan 311 öğretmen oluşturmaktadır. Veriler, Teknostres Ölçeği ve Yapay Zekâ Okuryazarlığı Ölçeği kullanılarak toplanmıştır. Verilerin analizinde betimsel istatistikler, bağımsız örneklem t-testi, tek yönlü varyans analizi (ANOVA), Mann–Whitney U testi, Kruskal–Wallis testi ve Spearman korelasyon analizi kullanılmıştır. Araştırma bulguları, öğretmenlerin orta düzeyde teknostres yaşadıklarını ve yapay zekâ okuryazarlığı ortalama puanlarının olası puan aralığının alt bölümünde yer aldığını göstermiştir. Teknostres düzeylerinin cinsiyet, yaş ve branş değişkenlerine göre anlamlı farklılık göstermediği, ancak eğitim durumuna göre anlamlı biçimde farklılaştığı ve yüksek lisans mezunu öğretmenlerin teknostres düzeylerinin daha düşük olduğu belirlenmiştir. Yapay zekâ okuryazarlığı düzeylerinin ise cinsiyet, branş ve eğitim durumu değişkenlerine göre anlamlı farklılık gösterdiği bulunmuştur. Öğretmenlerin yapay zekâ okuryazarlığı ile teknostres düzeyleri arasında istatistiksel olarak anlamlı bir ilişki bulunmamıştır. Araştırma sonuçları, yapay zekâ okuryazarlığının tek başına öğretmenlerin teknoloji kaynaklı stres deneyimlerini açıklamak için yeterli olmayabileceğini ve teknolojiye bağlı stres deneyimlerinin örgütsel ve bağlamsal koşullarla da ilişkili olabileceğini göstermektedir.
Eğitim teknolojisi	
Teknoloji entegrasyonu	
Teknostres	
Öğretmenler	

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Introduction

The rapid development of digital technologies has significantly transformed educational environments, reshaping both teaching practices and teachers' professional responsibilities. In recent years, the integration of technology into education has accelerated considerably, making digital competence not merely an optional qualification but a professional necessity for teachers (Facer & Selwyn, 2021; Johnston, 2021). Alongside this transformation, artificial intelligence (AI) technologies have emerged as one of the most influential innovations affecting educational systems worldwide. AI-supported tools are increasingly being incorporated into teaching and learning processes to personalize instruction, provide adaptive learning opportunities, improve feedback mechanisms, and support students' academic performance (Celik et al., 2022; Humble & Mozelius, 2019; Kaplan-Rakowski et al., 2023).

The growing prevalence of AI technologies in educational settings has also increased expectations regarding teachers' technological competencies. Teachers are now expected not only to use digital tools effectively but also to critically evaluate, adapt, and integrate AI technologies into pedagogical processes. In this context, the concept of artificial intelligence literacy has gained increasing importance. AI literacy generally refers to individuals' ability to understand, evaluate, use, and interact effectively with AI technologies in both professional and daily contexts (Long & Magerko, 2020). For teachers, AI literacy encompasses not only technical understanding but also pedagogical adaptation, ethical awareness, critical evaluation, and practical classroom implementation of AI-supported technologies. Recent studies have emphasized that teachers' AI literacy levels may directly influence how effectively they integrate AI technologies into instructional environments and respond to rapidly changing digital practices (Laupichler et al., 2023; Ng et al., 2021).

Recent educational policies and institutional initiatives have further reinforced the importance of AI literacy among teachers. In Türkiye, the Ministry of National Education (MoNE) has increasingly emphasized AI integration within educational policies and teacher development programs. The 2023 Education Vision highlighted the importance of preparing individuals who can effectively adapt to emerging technologies such as artificial intelligence (MoNE, 2018). Similarly, elective AI-related courses and teacher guidance materials regarding AI applications in education have recently been introduced into the Turkish educational system (MoNE, 2023, 2024). These developments indicate that teachers are expected to continuously update their technological knowledge and adapt to rapidly evolving AI-based educational environments.

Although AI technologies provide numerous opportunities for improving educational processes, they may also create new psychological and professional challenges for teachers. One of the most frequently discussed technology-related challenges in educational settings is technostress. Technostress refers to the stress, anxiety, tension, and psychological discomfort experienced by individuals as a result of intensive technology use and difficulties associated with adapting to technological changes (Brod, 1984; Salanova et al., 2006). In educational contexts, technostress may emerge when teachers experience uncertainty regarding digital technologies, feel pressure to continuously adapt to technological innovations, encounter technical problems, or perceive themselves as insufficient in technology-related competencies (Al-Fudail & Mellar, 2008; Çoklar et al., 2016).

Previous studies have demonstrated that technostress may negatively influence teachers' professional performance, motivation, instructional quality, and psychological well-being (Gökbulut, 2021; Li & Wang, 2021). Researchers have also emphasized that teachers may experience technostress due to institutional expectations, technological workload, lack of support mechanisms, and continuous adaptation demands associated with rapidly evolving technologies (Ayyagari et al., 2011; Tarafdar et al., 2007). In particular, the rapid emergence of generative AI technologies has intensified expectations for teachers to continuously update their technological competencies, learn new digital practices, and adapt instructional processes to changing technological environments.

Theoretical Framework

From a theoretical perspective, the relationship between AI literacy and technostress appears to be multidimensional and potentially complex. One perspective that may help explain this relationship is

technology self-efficacy theory, which suggests that individuals who perceive themselves as competent in using technological systems tend to experience lower levels of technology-related anxiety and greater confidence when adapting to technological change (Bandura, 1997; Compeau & Higgins, 1995). In this regard, AI literacy may function as a personal resource that reduces uncertainty and facilitates teachers' adaptation to AI-supported educational environments.

The Technology Acceptance Model (TAM) provides an additional theoretical explanation for understanding how AI literacy may be associated with technostress. According to TAM, perceived usefulness and perceived ease of use are key determinants of technology adoption and acceptance (Davis, 1989). However, generative AI technologies differ from many traditional educational technologies because they do not simply provide access to information or support routine instructional activities; rather, they generate content, respond to prompts, and require users to continuously evaluate the quality, relevance, and reliability of their outputs. Consequently, teachers are expected not only to operate AI tools but also to formulate effective prompts, interpret AI-generated responses, verify information accuracy, identify potential biases, and determine whether generated content is pedagogically appropriate. These additional responsibilities increase the cognitive demands associated with technology use and may contribute to technology-related stress experiences. Recent studies have shown that AI literacy, trust in AI systems, and perceived competence are important predictors of teachers' willingness to adopt and use AI technologies in educational settings (Al-Abdullatif, 2024; Chiu et al., 2023; Ng et al., 2021). Nevertheless, the cognitive and evaluative demands associated with generative AI may continue to create pressure even among teachers who possess relatively high levels of technological competence.

A complementary explanation can be found within the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006). According to TPACK, effective technology integration requires teachers to combine technological knowledge with pedagogical knowledge and content expertise. In the context of generative AI, this process extends beyond learning how to use AI tools. Teachers are increasingly expected to critically evaluate AI-generated content, align such content with curriculum objectives, adapt outputs to students' learning needs, determine whether AI-generated suggestions are pedagogically appropriate for specific learning objectives and classroom contexts, address ethical concerns, and monitor the accuracy of information presented to learners. Recent research has suggested that AI integration requires teachers to develop AI-related pedagogical competencies that go beyond traditional technology integration skills (Al-Abdullatif, 2024; Aldemir et al., 2025). Consequently, although higher AI literacy may facilitate technology use, it may not necessarily eliminate technostress because teachers remain responsible for managing the pedagogical, ethical, and professional challenges associated with AI-supported instruction. Taken together, these perspectives suggest that AI literacy may function both as a protective factor that enhances confidence and technological adaptation and as a factor associated with increased awareness of the responsibilities accompanying AI integration. Therefore, the relationship between AI literacy and technostress should not be assumed to be linear or straightforward.

Within the present study, TAM and TPACK are treated as complementary rather than competing frameworks. TAM explains technology acceptance through perceived usefulness and perceived ease of use (Davis, 1989), whereas TPACK explains how teachers integrate technological, pedagogical, and content knowledge in classroom practice (Mishra & Koehler, 2006). In the context of the present study, these complementary perspectives are applied to teachers' engagement with and pedagogical use of AI. AI literacy may support both stages by improving teachers' understanding of AI, confidence in interacting with AI systems, and the perceived manageability of AI-supported tasks. This distinction is directly relevant to the research problem because acceptance and pedagogical integration competence do not necessarily eliminate technostress. Teachers may understand and value AI tools while still experiencing strain when they must verify generated information, adapt outputs to curricular and learner needs, address ethical concerns, and meet institutional expectations under limited time, infrastructure, or technical support. The combined TAM–TPACK perspective therefore explains why AI literacy may operate as a personal resource without producing a simple or uniformly negative relationship with technostress.

Viewed as a two-stage explanatory framework, TAM and TPACK identify different points at which AI literacy may matter. At the acceptance stage, AI literacy may reduce AI-related anxiety and enhance perceived ease of use (Schiavo et al., 2024); at the enactment stage, it may support the critical evaluation of

AI-generated outputs (Long & Magerko, 2020; Ng et al., 2021) and their alignment with pedagogical and content goals (Mishra & Koehler, 2006). Technostress, however, may arise from demands that cut across both stages, including continuous adaptation to technological change, increased workload, time pressure, technical difficulties, and insufficient organizational support (Al-Fudail & Mellar, 2008; Ayyagari et al., 2011; Li & Wang, 2021; Tarafdar et al., 2007). In AI-mediated teaching, the additional responsibility of checking, interpreting, and appropriately using AI-generated content may further intensify these demands. This makes the research problem theoretically meaningful: a teacher may be willing to engage with AI and pedagogically prepared to use it yet still experience substantial technology-related strain.

Although research on artificial intelligence in education has expanded rapidly in recent years, the majority of studies have focused on teachers' AI literacy, acceptance of AI technologies, AI-related self-efficacy, trust in AI systems, and intentions to use AI-supported tools (Chiu et al., 2023; Laupichler et al., 2023; Ng et al., 2021). These studies have generally reported that teachers with higher levels of AI literacy demonstrate more positive attitudes toward AI technologies, greater confidence in using AI-supported tools, stronger intentions to integrate AI into instructional practice, and higher levels of readiness for AI adoption in educational settings. At the same time, a separate body of literature has demonstrated that rapid technological change, increased digital workload, and continuous technology adaptation demands may contribute to technostress among teachers (Li & Wang, 2021; Tarafdar et al., 2007).

Individual and professional characteristics may shape teachers' opportunities to develop AI literacy and their responses to technology-related demands. Gender was examined because previous studies have reported inconsistent findings regarding gender differences in technology-related confidence and technostress. While some research indicates that technostress may not differ significantly by gender, other studies suggest that female educators may experience greater technology-related strain in particular instructional contexts (Gökbulut, 2021; Penado Abilleira et al., 2021). These inconsistent findings make it necessary to examine gender empirically rather than assume that female and male teachers experience AI-related competencies and technological demands in the same way.

Age was examined because it may reflect differences in teachers' professional experience, prior exposure to digital technologies, established instructional routines, and adaptation to technological change. Although younger teachers are sometimes assumed to be more familiar with emerging technologies, chronological age alone may not determine technological competence or technostress. Previous research indicates that technological experience, professional requirements, and access to support may be more influential than age itself (Gökbulut, 2021; Longman, 2013). Therefore, age-based comparisons are necessary to determine whether different age groups experience variations in AI literacy or technostress in the present context.

Subject area was examined because teaching disciplines differ in the frequency, purpose, and complexity of technology use. Teachers working in technology-intensive subjects may have more frequent exposure to software, algorithms, computational thinking, and digital systems, which may provide additional opportunities to develop AI-related knowledge and practical competencies. Conversely, teachers in other subject areas may encounter different pedagogical requirements and technology-integration challenges. Previous research has therefore emphasized that disciplinary background may influence teachers' familiarity with educational technologies and their opportunities to integrate AI-supported applications into teaching (Arik & Seferoğlu, 2020; Korucu & Biçer, 2020).

Educational attainment was examined because postgraduate education may provide teachers with greater exposure to research, professional learning, critical evaluation, and current technological developments. Such experiences may contribute to the development of AI literacy by supporting teachers' ability to locate, evaluate, and apply new knowledge. Professional-development and adult-learning literature also indicates that structured and advanced learning experiences may strengthen teachers' engagement with emerging knowledge and their ability to transfer it into practice (Borko, 2004; Knowles et al., 2015). Accordingly, educational attainment was considered a potentially relevant source of variation in teachers' AI literacy and responses to technology-related professional demands.

Taken together, gender, age, subject area, and educational attainment were not treated as deterministic causes of AI literacy or technostress. Instead, they were examined as theoretically and

empirically relevant background characteristics that may reflect differences in technological exposure, professional experience, disciplinary practices, and learning opportunities.

Despite these parallel research streams, relatively little attention has been paid to the direct relationship between AI literacy and technostress. As a result, it remains unclear whether greater AI literacy primarily serves as a protective factor that reduces technology-related stress through increased competence and confidence, or whether it is associated with heightened stress due to increased awareness of technological expectations and professional responsibilities. This gap has become particularly important following the widespread adoption of generative AI technologies, which require teachers not only to use technology but also to evaluate, monitor, and pedagogically adapt AI-generated content. Therefore, examining the relationship between AI literacy and technostress may contribute to a more comprehensive understanding of teachers' adaptation processes in AI-supported educational environments and extend existing literature by connecting two research areas that have largely been examined independently.

The identified gap is therefore conceptual, relational, and contextual. Conceptually, prior studies have commonly examined AI literacy in relation to readiness, trust, acceptance, self-efficacy, or pedagogical competence, whereas technostress studies have emphasized workload, technological complexity, school support, and continuous adaptation demands (Al-Abdullatif, 2024; Laupichler et al., 2023; Li & Wang, 2021; Ng et al., 2021; Syvänen et al., 2016). Relationally, these separate research streams do not establish whether AI-specific literacy is associated with lower, higher, or unchanged technostress. Contextually, much of the emerging AI acceptance and AI-TPACK literature has focused on higher education or preservice-teacher settings, leaving comparatively limited evidence from practicing lower secondary school teachers. The focus on practicing lower secondary school teachers was also grounded in the curricular context of Türkiye. Beginning with the 2023–2024 academic year, the Ministry of National Education introduced the Artificial Intelligence Applications course as a two-hour elective course at the eighth-grade level, making AI-related knowledge and instructional practices directly relevant to lower secondary education (MoNE, 2023). Teachers at this level are therefore positioned at the intersection of an emerging curricular expectation and the practical responsibility of integrating new technologies into teaching. Examining their AI literacy and technostress is particularly important for understanding whether they possess the knowledge and confidence required to respond to this curricular development and whether the associated adaptation demands create technology-related strain. Lower secondary teachers were thus selected not because AI is irrelevant to primary or preschool education, but because lower secondary education had an explicit and newly introduced curricular connection to AI during the period in which the study was conducted.

Recent synthesis further supports the need for this distinction. Chiu et al. (2023) mapped the opportunities and challenges of artificial intelligence in education across learning, teaching, assessment, and administration, drawing attention to pedagogical and implementation concerns; however, that review did not directly examine whether teachers' AI literacy is associated with technostress. Similarly, studies of AI literacy and acceptance typically emphasize competence, trust, readiness, self-efficacy, or intention to use, whereas technostress research emphasizes overload, complexity, support, and continuous adaptation demands. The present study therefore brings together two literature streams that address different sides of the same teacher-adaptation process.

By examining artificial intelligence literacy and technostress within the same empirical framework, the present study contributes to literature in several ways. First, it connects two constructs that have often been investigated separately in previous educational technology research. Second, it provides empirical evidence regarding whether AI literacy functions primarily as a protective factor against technology-related stress or whether it is associated with additional pressures arising from the increasing demands of AI integration. Finally, the study contributes to the emerging body of research on teachers' adaptation to generative AI technologies by examining the intersection of technological competence and technology-related well-being. Accordingly, the present study aims to examine the relationship between lower secondary school teachers' artificial intelligence literacy and technostress levels. More specifically, the study seeks to determine teachers' levels of AI literacy and technostress, investigate whether these variables differ according to demographic characteristics, and explore the relationship between these two constructs. Accordingly, the central research problem is not whether AI literacy is beneficial in general, but whether it is sufficient to reduce teachers' technology-related stress when pedagogical and organizational demands remain present.

The following research questions guided the study:

1. What are the levels of technostress experienced by teachers?
2. Do teachers' technostress levels differ significantly according to gender, age, subject area, and educational background?
3. What are the levels of teachers' artificial intelligence literacy?
4. Do teachers' artificial intelligence literacy levels differ significantly according to gender, age, subject area, and educational background?
5. Is there a significant relationship between teachers' technostress levels and their artificial intelligence literacy?

Method

Research Design

This study employed a quantitative correlational research design to examine the relationship between teachers' artificial intelligence literacy and technostress levels. Correlational research designs are frequently used to investigate the direction and strength of relationships between variables without manipulating the natural research environment (Creswell & Creswell, 2018). Because the primary purpose of the study was to investigate naturally occurring relationships among variables rather than to establish causal effects, a correlational design was considered appropriate. Specifically, the study sought to determine teachers' levels of technostress and artificial intelligence literacy, examine whether these variables differed according to demographic characteristics, and investigate the relationship between the two constructs. The study adopted a cross-sectional survey approach, as the data were collected from participants at a single point in time during the 2023–2024 academic year. This design was considered appropriate because the study aimed to evaluate existing perceptions and experiences regarding artificial intelligence literacy and technostress among teachers working in real educational settings.

Participants

The participants of the study consisted of 311 lower secondary school teachers working in public schools located in the central districts of Eskişehir, Türkiye, during the 2023–2024 academic year. Participants were selected using convenience sampling because access to teachers was based on voluntary participation and institutional permissions obtained within the study context. This sampling method is frequently used in educational research due to its practicality and accessibility. The participant group included teachers from 12 different subject areas as well as diverse age groups, genders, and educational backgrounds, allowing the study to capture a broad range of demographic characteristics and professional experiences. Including teachers from multiple subject areas was considered important because technology integration experiences and artificial intelligence usage practices may vary depending on disciplinary contexts. Table 1 displays the demographic profile of the participants.

Table 1*Demographic Variables of Teachers Participating in the Study*

Demographic Variables		<i>n</i>	%
Gender	Female	196	63.03
	Male	115	36.97
Educational Background	Bachelor's Degree	267	85.8
	Master's Degree	44	14.2
	Physical Education	26	8.3
	Information Technologies	9	2.9
	Religious Culture and Moral Knowledge	16	5.1
Subject Area	Science	46	14.8
	Visual Arts	10	3.2
	English	31	9.9
	Mathematics	62	19.9
	Music	8	2.5
	Guidance and Counseling	14	4.5
	Social Studies	28	9.0
	Technology and Design	10	3.2
	Turkish Language	52	16.7
	20–30 years	18	5.8
Age Group	31–40 years	103	33.1
	41–50 years	144	46.3
	51–60 years	46	14.8
Total		311	100.0

The sample size was considered adequate for the statistical analyses employed in the study. According to Tabachnick and Fidell (2019), samples exceeding 300 participants are generally sufficient for correlational analyses and group comparison procedures commonly used in educational research. Therefore, the sample of 311 teachers was considered adequate to support the objectives of the study.

Ethical approval was obtained before data collection from the Anadolu University Social and Human Sciences Scientific Research and Publication Ethics Committee at its meeting held on May 28, 2024 (Protocol No. 733353). All participants were informed about the purpose and procedures of the study, participation was voluntary, and informed consent was obtained from all participants.

Data Collection Instruments

Two different measurement instruments were used in the study: the Technostress Scale and the Artificial Intelligence Literacy Scale. These instruments were selected in line with the purpose of the study and the characteristics of the variables examined. While the Technostress Scale was used to determine teachers' levels of technology-related stress, the Artificial Intelligence Literacy Scale was employed to evaluate teachers' competencies and awareness regarding artificial intelligence technologies. Both scales have been widely used in educational research and provide valid and reliable measurements for examining technology-related experiences in educational contexts. Permission to use both measurement instruments was obtained from the respective scale developers before data collection.

Technostress Scale

Teachers' technostress levels were measured using the "Teachers' Technostress Level Determination Scale" developed by Çoklar et al. (2017). The scale consists of 28 items and five sub-dimensions: teaching-learning process-related technostress, profession-related technostress, technical issue-related technostress, personal resource-related technostress, and social-related technostress. The items are rated on a 5-point Likert-type scale ranging from 1 ("Strongly Disagree") to 5 ("Strongly Agree").

In the original scale development study, the overall internal consistency coefficient (Cronbach's α) of the scale was reported as .917, while the Spearman-Brown split-half reliability coefficient was calculated as .845. The Cronbach's α coefficients of the sub-dimensions ranged between .712 and .788. In the present study, the internal consistency reliability coefficient (Cronbach's α) for the overall Technostress Scale was .92.

The interpretation of the findings obtained from the Technostress Scale was based on arithmetic mean scores. According to the evaluation criteria proposed by the scale developers, technostress levels were interpreted as low between 1.00–2.33, moderate between 2.34–3.67, and high between 3.68–5.00. Higher scores obtained from the scale indicate higher levels of perceived technostress. The scale was considered appropriate for the present study due to its strong psychometric properties and its direct relevance to teachers' technology integration experiences in educational environments.

Artificial Intelligence Literacy Scale

The Turkish adaptation of the "Scale for the Assessment of Non-Experts' AI Literacy (SNAIL)," originally developed by Laupichler et al. (2023) and adapted into Turkish by Karaoğlu Yılmaz and Yılmaz (2023), was used to measure teachers' artificial intelligence literacy levels. The scale was developed to assess individuals' competencies related to understanding, evaluating, and effectively using artificial intelligence technologies in various contexts. The scale consists of 31 items and three sub-dimensions: technical understanding, critical evaluation, and practical application. In addition to measuring technical knowledge, the scale evaluates individuals' awareness, critical perspectives, and practical competencies regarding artificial intelligence technologies. Higher scores obtained from the scale indicate higher levels of perceived artificial intelligence literacy.

The construct validity of the Turkish version of the scale was supported through confirmatory factor analysis, which demonstrated that the three-factor and 31-item structure showed acceptable fit with the observed data. In addition, the findings indicated that the scale possessed high reliability and strong item discrimination characteristics. The reliability coefficients of the Turkish adaptation ranged between .97 and .98 for the sub-dimensions, while the overall reliability coefficient of the scale was reported as .99. During the adaptation process, participants were divided into upper and lower 27% groups based on their total scale scores, and independent-samples *t* tests were conducted to evaluate item discrimination levels. Furthermore, Cronbach's α coefficients were calculated for both the overall scale and the sub-dimensions to assess reliability. Pearson product-moment correlation analyses were also conducted to examine the relationships among the factor scores.

The scale uses a 7-point Likert-type response format ranging from 1 ("Strongly Disagree") to 7 ("Strongly Agree"). The scale does not prescribe categorical cutoff scores; therefore, scores were interpreted continuously, with higher values indicating higher levels of perceived artificial intelligence literacy. In the present study, the internal consistency reliability coefficient (Cronbach's α) for the overall Artificial Intelligence Literacy Scale was .89. The use of this scale was considered appropriate because the present study focused on teachers' awareness, competencies, and adaptation processes related to artificial intelligence technologies within educational environments.

Data Collection Process

Prior to the data collection process, the necessary ethical approval and institutional permissions were obtained from the relevant authorities. After the approval procedures were completed, the data collection instruments were administered to teachers working in public lower secondary schools located in the central districts of Eskişehir during the 2023–2024 academic year. Participation in the study was entirely voluntary. Before completing the questionnaires, participants were informed about the purpose and scope of the research, confidentiality principles, and the voluntary nature of participation. Teachers were also informed that the collected data would be used solely for scientific research purposes and that no personally identifiable information would be collected during the process.

Following the required ethical and institutional permissions, potential participants were contacted at their schools, and printed questionnaire forms were distributed to teachers who voluntarily agreed to participate. The teachers completed the scales individually in a quiet room or area within the school where interruptions were minimized. Sufficient time was provided for them to complete the questionnaires without time pressure. After the completion of the data collection process, the obtained data were reviewed, coded, and transferred into a digital dataset for statistical analysis. Incomplete or incorrectly completed forms were excluded from the analysis process to ensure data reliability and accuracy.

Data Analysis

The data obtained from the study were analyzed using IBM SPSS Statistics software. Prior to the main analyses, preliminary assumption tests were conducted to determine the suitability of the data for parametric analyses. First, descriptive statistical analyses were performed to determine teachers' technostress and artificial intelligence literacy levels. In addition, independent-samples *t* tests, Mann–Whitney *U* tests, one-way ANOVA, and Kruskal–Wallis analyses were conducted to examine whether the dependent variables differed according to demographic variables.

Normality was evaluated by considering skewness and kurtosis coefficients together with the sample size ($N = 311$) and visual inspection of the distributions; decisions were therefore not based on a single cutoff value. Values within approximately -1 to $+1$ were treated as indicating limited departure from normality (Huck, 2012). The findings demonstrated that the Technostress Scale and all of its sub-dimensions satisfied normality assumptions, as the skewness and kurtosis values ranged between -1 and $+1$. For example, the overall Technostress Scale yielded skewness and kurtosis values of $-.172$ and $-.137$, respectively.

However, the Artificial Intelligence Literacy Scale did not fully satisfy normality assumptions. In particular, the "Technical Understanding" sub-dimension exceeded the acceptable skewness and kurtosis range, with a skewness value of 1.066 . In addition, histogram examinations indicated a positively skewed distribution. Therefore, non-parametric statistical techniques were preferred for analyses involving artificial intelligence literacy scores. Given the large sample, the decision to use non-parametric procedures was based on the combined evidence from the distributional coefficients and the visible positive skew rather than on the skewness cutoff alone.

Following the examination of normality assumptions, Mahalanobis distance values and boxplot graphs were analyzed to identify potential outliers in the dataset. Since no values exceeding the critical Mahalanobis distance value of 13.82 were identified for the two dependent variables and no problematic outliers were observed in the boxplot graphs, no data were removed from the dataset. In addition, homogeneity of variance assumptions for parametric analyses were evaluated using Levene's test. The selection of statistical procedures was based on the distributional characteristics of the data and the measurement properties of the variables. Parametric tests were preferred when normality and homogeneity assumptions were satisfied because they provide greater statistical power. Conversely, non-parametric alternatives were employed when these assumptions were violated, thereby ensuring the robustness and appropriateness of the analyses conducted. Based on the normality and homogeneity findings, both parametric and non-parametric statistical analyses were employed depending on the distribution characteristics of the variables. Independent-samples *t* tests were conducted to examine whether teachers' technostress levels differed according to gender and educational attainment variables. One-way ANOVA analyses were used to investigate differences according to age and subject area variables because these variables included more than two categories and satisfied parametric assumptions. Since the Artificial Intelligence Literacy Scale did not fully meet normality assumptions, Mann–Whitney *U* tests were conducted for two-group comparisons, whereas Kruskal–Wallis tests were used for comparisons involving more than two groups. Spearman rank-order correlation analysis was performed to examine the relationship between teachers' technostress levels and artificial intelligence literacy scores. Statistical significance was evaluated at the $.05$ significance level for all analyses.

Findings

Teachers' Levels of Technostress

Determining teachers' technostress levels provides a general picture of how teachers experience technology-related stress in the context of educational digitalization. In addition, examining the sub-dimensions of technostress helps identify whether this stress is more strongly associated with instructional processes, technical issues, professional responsibilities, personal resources, or social factors. This distinction is important because technostress may not emerge from a single source; rather, it may be shaped by different

aspects of teachers' professional and technological experiences. The descriptive statistics regarding teachers' technostress levels are presented in Table 2.

Table 2

Descriptive Statistics on Teachers' Technostress Levels

Score Type	Minimum	Maximum	<i>M</i>	<i>SD</i>
Technostress Levels	28	140	72.57	18.73
Teaching–Learning Process-Related	7	35	19.79	5.60
Profession-Related	6	30	13.05	4.27
Technical Issue-Related	6	30	16.57	4.93
Personal Resource-Related	5	25	12.01	4.13
Social-Related	4	20	11.13	3.56

As shown in Table 2, the mean technostress score of the participating teachers was 72.57, indicating a moderate level of technostress overall based on the evaluation criteria proposed by the scale developers. Among the sub-dimensions, the highest mean score was observed in the teaching–learning process-related dimension, followed by technical issue-related technostress. The lowest mean score was found in the social-related dimension.

These findings may suggest that teachers primarily experience stress during the instructional integration of technology rather than within their social interactions. The relatively high scores in the teaching–learning process dimension may reflect the increasing expectations placed on teachers to integrate digital technologies into classroom practices. Similarly, technical issue-related stress may stem from the rapid evolution of educational technologies and the necessity for teachers to continuously adapt to new digital systems. Overall, the findings indicate that teachers continue to experience moderate levels of stress associated with technology integration and adaptation processes in educational environments.

Gender-Based Differences in Teachers' Technostress Levels

Examining technostress levels according to gender is important for understanding whether technology-related stress experiences differ across demographic groups. Gender-based analyses may provide insights into whether professional technology-related challenges and adaptation processes are experienced similarly among male and female teachers. An independent-samples *t* test was conducted to determine whether teachers' technostress levels differed according to gender. The results are presented in Table 3.

Table 3

*Independent- Samples *t* Test Results for Teachers' Technostress Levels by Gender*

Gender	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Male	115	71.08	19.67	–1.05	309	.284
Female	196	73.44	18.15			

According to the analysis results, no statistically significant difference was found between male and female teachers regarding technostress levels ($t(309) = -1.05, p = .284$). This finding suggests that gender does not appear to be a determining factor in teachers' experiences of technology-related stress within the context of this study. One possible explanation for this finding is that digital technologies have become an integral component of educational environments for both male and female teachers. As technology integration has become increasingly widespread in schools, teachers may be exposed to similar technological expectations, professional responsibilities, and adaptation demands regardless of gender. Therefore, technology-related stress experiences may emerge in relatively similar ways among teachers independent of gender differences.

Age-Based Differences in Teachers' Technostress Levels

Examining technostress levels according to age groups may provide important insights into whether technology-related stress experiences vary across different stages of professional experience and technological adaptation. Since teachers from different age groups may have varying experiences with technology integration processes, age-based comparisons may contribute to a better understanding of the factors associated with technostress in educational settings. A one-way ANOVA was conducted to examine whether teachers' technostress levels differed significantly according to age groups. The findings are presented in Table 4.

Table 4

ANOVA Results for Age-Based Differences in Teachers' Technostress Levels

Source of Variance	Sum of Squares	df	Mean Square	F	p
Between Groups	2462.470	3	820.823	2.37	.071
Within Groups	106351.505	307	346.422		
Total	108813.974	310			

The analysis revealed no statistically significant differences in technostress levels across age groups ($F(3, 307) = 2.37, p = .071$). This finding indicates that technostress does not appear to differ significantly according to teachers' age groups within the context of this study. One possible explanation for this finding is that digital technologies and technology integration processes have become common components of educational environments across different generations of teachers. Although younger teachers are often assumed to possess greater familiarity with digital technologies, the continuously evolving nature of educational technologies may require ongoing adaptation from teachers of all age groups. Therefore, technology-related stress experiences may emerge similarly among teachers regardless of age differences.

Subject Area-Based Differences in Teachers' Technostress Levels

Examining technostress levels according to subject area may help reveal whether technology-related stress experiences differ across teaching disciplines with varying instructional practices and technology integration demands. Since some subject areas may require more intensive use of digital tools and technology-supported instructional methods, subject-based comparisons may contribute to a better understanding of how professional contexts are associated with teachers' technostress experiences. To investigate whether teachers' technostress levels varied according to subject area, a one-way ANOVA was conducted. The results are presented in Table 5.

Table 5

ANOVA Results for Subject Area Differences in Teachers' Technostress Levels

Source of Variance	Sum of Squares	df	Mean Square	F	p
Between Groups	5613.693	11	510.336	1.48	.138
Within Groups	103200.281	299	345.151		
Total	108813.974	310			

The findings demonstrated that technostress levels did not significantly differ according to teachers' subject areas ($F(11, 299) = 1.48, p = .138$). This finding suggests that technology-related stress may be experienced similarly across different teaching disciplines within the context of this study. One possible explanation for this finding is that digital technologies have become increasingly integrated into educational practices across various subject areas. Regardless of disciplinary background, teachers may encounter similar expectations related to technology use, digital platforms, and technology-supported instructional processes. Therefore, technology-related stress experiences may emerge in comparable ways among teachers from different subject areas.

Educational Attainment-Based Differences in Teachers' Technostress Levels

Examining technostress levels according to educational attainment may provide insights into whether advanced academic experiences influence teachers' abilities to cope with technology-related challenges and adaptation processes. Since postgraduate education may contribute to greater professional awareness, research engagement, and exposure to technological developments, educational attainment-based comparisons may help better understand the factors associated with technostress among teachers. An independent-samples *t* test was conducted to determine whether technostress levels differed according to educational attainment. The findings are presented in Table 6.

Table 6

*Independent-Samples *t* Test Results for Educational Attainment Differences in Teachers' Technostress Levels*

Educational Attainment	n	M	SD	t	df	p
Bachelor's Degree	267	73.57	18.70	2.33	309	.020
Master's Degree	44	66.52	17.98			

The analysis revealed a statistically significant difference between teachers holding bachelor's degrees and those with master's degrees regarding technostress levels ($t(309) = 2.33, p = .020$). Teachers with master's degrees demonstrated lower technostress levels compared to teachers holding bachelor's degrees. This finding may suggest that advanced academic experiences are associated with greater professional adaptability and increased familiarity with research-oriented and technology-supported educational practices. Teachers pursuing postgraduate education may encounter more opportunities for professional development, academic engagement, and exposure to contemporary educational technologies, which may contribute to lower levels of technology-related stress. However, these findings should be interpreted within the context of the study sample and should not be generalized beyond the scope of the present research.

Artificial Intelligence Literacy Levels of Teachers

Artificial intelligence literacy refers to teachers' competencies related to understanding and using artificial intelligence technologies. Examining teachers' AI literacy levels is important for evaluating their preparedness for technology integration processes in education. The descriptive statistics regarding teachers' artificial intelligence literacy levels are presented in Table 7.

Table 7

Descriptive Statistics on Teachers' Artificial Intelligence Literacy Levels

Score Type	Minimum	Maximum	M	SD
AI Literacy	27	189	70.97	36.43
Technical Understanding	14	98	31.09	18.07
Critical Evaluation	10	70	29.95	16.31
Practical Application	3	21	9.92	5.38

The mean total artificial intelligence literacy score was 70.97 ($SD = 36.43$), placing the observed mean toward the lower end of the reported score range. Among the sub-dimensions, teachers obtained the highest scores in technical understanding, followed by critical evaluation and practical application. These findings may suggest that teachers possess a certain level of conceptual awareness regarding artificial intelligence technologies; however, they may experience difficulties in transferring this knowledge into practical educational use. The relatively low scores in the practical application dimension may indicate limited opportunities for hands-on experience with AI-supported technologies within instructional processes. In addition, the relatively high standard deviation values suggest considerable variability among teachers regarding artificial intelligence literacy competencies. This variation may be associated with differences in individual technological experiences, professional interests, prior exposure to AI-related technologies, and access to professional development opportunities related to artificial intelligence.

Gender-Based Differences in Teachers' Artificial Intelligence Literacy Levels

Gender differences in artificial intelligence literacy may provide important insights into teachers' levels of engagement with emerging technologies and their adaptation to digital transformation processes in education. Examining these differences may also contribute to a better understanding of how technological competencies vary across demographic groups. The Mann–Whitney U test was conducted to examine whether teachers' artificial intelligence literacy levels differed according to gender. The findings are presented in Table 8.

Table 8

Mann–Whitney U Test Results for Teachers' Artificial Intelligence Literacy Levels by Gender

Gender	n	Mean Rank	Rank Sum	Mann–Whitney U	z	p
Male	115	174.88	20,111.50	9,098.50	–2.84	.004
Female	196	144.92	28,404.50			
Total	311					

The analysis demonstrated a statistically significant difference in teachers' artificial intelligence literacy levels according to gender ($U = 9,098.50$, $z = -2.84$, $p = .004$). Male teachers exhibited higher artificial intelligence literacy levels compared to female teachers. This finding may suggest that differences in prior technology-related experiences, self-confidence regarding emerging technologies, or levels of engagement with digital tools may be associated with teachers' artificial intelligence literacy levels. However, this finding should be interpreted cautiously, as artificial intelligence literacy is a rapidly evolving competency area that may also be influenced by factors such as institutional opportunities, access to technology-related training, professional experiences, and individual interest rather than gender alone.

Age-Based Differences in Teachers' Artificial Intelligence Literacy Levels

Age-related differences in artificial intelligence literacy may help reveal whether familiarity with emerging technologies varies across different stages of professional experience. Examining artificial intelligence literacy according to age groups may also provide insights into teachers' adaptation processes to rapidly evolving digital technologies. The Kruskal–Wallis test was conducted to determine whether teachers' artificial intelligence literacy levels differed according to age groups. The results are presented in Table 9.

Table 9

Kruskal–Wallis Test Results for Teachers' Artificial Intelligence Literacy Levels by Age

Age Group	n	Mean Rank	χ^2	df	p
20–30	18	158.33	0.69	3	.875
31–40	103	161.06			
41–50	144	151.64			
51–60+	46	157.41			
Total	311				

The findings revealed no statistically significant differences in teachers' artificial intelligence literacy levels across age groups ($\chi^2(3, N = 311) = 0.69$, $p = .875$). This finding suggests that artificial intelligence literacy competencies do not appear to differ significantly according to teachers' age groups within the context of this study. One possible explanation for this finding is that artificial intelligence technologies are relatively recent developments for teachers across different generations. Regardless of age differences, teachers may currently be experiencing similar levels of exposure, familiarity, and adaptation challenges regarding artificial intelligence technologies. Therefore, artificial intelligence literacy competencies may develop in relatively similar ways across different age groups.

Subject Area-Based Differences in Teachers' Artificial Intelligence Literacy Levels

Differences in artificial intelligence literacy across subject areas may reflect variations in teachers' technological exposure, professional needs, and opportunities for technology integration within their disciplines. Examining subject area differences may therefore provide a better understanding of how AI-related competencies vary among teachers from different educational fields. To examine whether teachers' artificial intelligence literacy levels differed according to subject area, the Kruskal–Wallis test was conducted. The findings are presented in Table 10.

Table 10

Kruskal–Wallis Test Results for Teachers' Artificial Intelligence Literacy Levels by Subject Area

Subject Area	n	Mean Rank	χ^2	df	p
(1) Physical Education	26	178.15	28.35	11	.003
(2) Information Technology	9	269.50			
(3) Religious Culture and Moral Education	16	136.22			
(4) Science	46	168.04			
(5) Visual Arts	10	126.35			
(6) English	31	135.85			
(7) Mathematics	62	167.20			
(8) Music	8	115.06			
(9) Guidance	14	126.89			
(10) Social Studies	28	135.46			
(11) Technology and Design	10	191.15			
(12) Turkish Language	52	143.25			
Total	311				

The findings indicated a statistically significant difference in teachers' artificial intelligence literacy levels according to subject area ($\chi^2(11, N = 311) = 28.35, p = .003$). Since the Kruskal–Wallis analysis revealed a significant difference, pairwise comparisons were conducted using the Mann–Whitney U test to identify the source of the difference. The results demonstrated that Information Technology teachers had significantly higher artificial intelligence literacy levels compared to teachers from several other subject areas.

This finding may be associated with the professional characteristics of Information Technology teachers, whose instructional practices are generally more closely related to digital systems, computational thinking, and technology-oriented applications. Their professional experiences may provide greater familiarity with emerging technologies, including artificial intelligence-related tools and concepts. In contrast, teachers from other subject areas may encounter fewer opportunities for direct interaction with artificial intelligence technologies during routine instructional processes. However, these findings should be interpreted cautiously, particularly because the number of participants in some subject-area groups was relatively limited. Therefore, the results should be evaluated within the context of the present study sample.

Educational Attainment-Based Differences in Teachers' Artificial Intelligence Literacy Levels

Educational attainment may play an important role in shaping teachers' awareness of emerging technologies and their opportunities for professional development related to artificial intelligence. Examining differences according to educational attainment may therefore provide insights into how advanced academic experiences are associated with teachers' artificial intelligence literacy levels. The Mann–Whitney U test was conducted to determine whether teachers' artificial intelligence literacy levels differed according to educational attainment. The findings are presented in Table 11.

Table 11*Mann–Whitney U Test Results for Teachers’ Artificial Intelligence Literacy Levels by Educational Attainment*

Educational Attainment	<i>n</i>	Mean Rank	Rank Sum	<i>U</i>	<i>z</i>	<i>p</i>
Bachelor’s Degree	267	149.41	39,893.00	4,115.00	–3.19	.001
Master’s Degree	44	195.98	8,623.00			
Total	311					

The analysis revealed a statistically significant difference in artificial intelligence literacy levels in favor of teachers holding master’s degrees ($z = -3.19$, $p = .001$). Teachers with master’s degrees demonstrated higher artificial intelligence literacy levels compared to teachers holding bachelor’s degrees. This finding may suggest that postgraduate education is associated with increased awareness and understanding of emerging technologies. Teachers engaged in postgraduate education may encounter more research-oriented learning environments, academic discussions, and technology-supported educational practices, which may contribute to greater familiarity with artificial intelligence concepts and applications. However, this finding should be interpreted cautiously because the number of teachers holding master’s degrees was considerably lower than the number of teachers with bachelor’s degrees. Therefore, the group size imbalance may have influenced the comparison results, and the findings should be evaluated within the context of the present study sample.

The Relationship Between Teachers’ Technostress Levels and Artificial Intelligence Literacy

Examining the relationship between technostress and artificial intelligence literacy is important for understanding whether teachers’ competencies related to emerging technologies are associated with technology-related stress experiences. Analyzing this relationship may also provide insights into the interaction between technological competence and adaptation processes in educational environments. Spearman rank-order correlation analysis was conducted to examine the relationship between teachers’ technostress levels and artificial intelligence literacy scores. The findings are presented in Table 12.

Table 12*Spearman Correlation Results for the Relationship Between Teachers’ Technostress Levels and Artificial Intelligence Literacy*

	Technostress Level	Artificial Intelligence Literacy Level
Technostress Level	1	–.003
Artificial Intelligence Literacy Level	–.003	1

Note. Spearman’s rho coefficients are reported. $N = 311$. The technostress–AI literacy correlation was not statistically significant ($p = .958$).

The analysis revealed no statistically significant relationship between teachers’ technostress levels and artificial intelligence literacy scores ($r_s = -.003$, $p = .958$). This finding suggests that artificial intelligence literacy alone may not be sufficient to explain teachers’ experiences of technostress within the context of this study. One possible explanation for this finding is that technology-related stress may be influenced by multiple organizational, professional, and contextual factors beyond individual technological competence. Although technological knowledge and awareness may contribute to increased confidence in some situations, continuously evolving digital technologies, adaptation demands, and technology integration processes may simultaneously create stress experiences for teachers. Therefore, the relationship between artificial intelligence literacy and technostress may be more complex and multidimensional than a simple linear association.

Discussion

The present study examined the relationship between teachers’ artificial intelligence literacy and technostress levels. The findings revealed that teachers experienced moderate levels of technostress, while their mean artificial intelligence literacy scores were positioned toward the lower end of the possible score range. In addition, technostress levels did not significantly differ according to gender, age, or subject area but differed significantly according to educational attainment, with teachers holding master’s degrees

reporting lower technostress. Artificial intelligence literacy showed significant differences according to gender, subject area, and educational attainment. Most importantly, no statistically significant relationship was found between teachers' artificial intelligence literacy and technostress levels.

One of the primary findings of the study was that teachers experienced moderate levels of technostress. This finding suggests that although digital technologies have become increasingly integrated into educational environments, teachers continue to experience stress associated with technological adaptation and instructional demands. Recent studies similarly indicate that teachers' technostress is influenced by factors such as workload, continuous technological change, institutional expectations, and technology integration requirements (Li & Wang, 2021; Syvänen et al., 2016). In this respect, the moderate level of technostress observed in the present study may reflect the ongoing adaptation pressure created by rapidly evolving digital educational environments.

The relatively higher scores observed in the teaching–learning process-related and technical issue-related dimensions may indicate that teachers experience stress particularly when technology use directly affects instructional planning, classroom implementation, and technical problem solving. This finding is consistent with previous research emphasizing that technostress in educational settings is often associated with instructional adaptation processes rather than merely general technology use (Çoklar et al., 2017). As educational technologies continue to evolve, teachers may experience increasing pressure to integrate digital tools effectively into pedagogical practices.

The findings further demonstrated that technostress levels did not significantly differ according to gender, age, or subject area. These results may indicate that technology-related stress has become a relatively common professional experience among teachers regardless of demographic characteristics. Similar findings have been reported in recent studies suggesting that digital transformation processes affect teachers across different demographic groups in relatively similar ways (Tarafdar et al., 2019). In contemporary educational environments, teachers from different age groups, genders, and disciplines are increasingly expected to use digital technologies and adapt to changing technological systems. Therefore, technostress may not be limited to specific demographic groups but may instead reflect broader professional expectations associated with digital transformation in education.

Educational attainment constituted an exception to the otherwise nonsignificant demographic pattern. Teachers with master's degrees reported lower technostress than teachers with bachelor's degrees. Postgraduate study may provide greater exposure to research, structured problem solving, and technology-supported learning environments, which may strengthen resources for coping with technological change. This explanation remains tentative because the master's-degree group was smaller and the study did not directly measure the mechanisms underlying the difference. Importantly, this finding does not contradict the nonsignificant AI literacy–technostress correlation, because educational attainment may reflect broader academic and professional resources rather than AI-specific competence alone.

Another important finding was that the mean artificial intelligence literacy score was positioned toward the lower end of the possible score range. This finding is meaningful given that artificial intelligence technologies, especially generative AI tools, have recently become more visible in educational settings. However, visibility does not necessarily mean that teachers have developed sufficient pedagogical, ethical, and practical competencies for using these tools effectively. Recent studies emphasize that artificial intelligence literacy should be considered a multidimensional competency involving technical understanding, critical evaluation, ethical awareness, and practical application skills (Laupichler et al., 2023; Long & Magerko, 2020).

The relatively low scores in the practical application dimension may suggest that teachers possess limited experience in directly integrating AI technologies into instructional practices. This finding is consistent with recent research indicating that teachers often possess conceptual awareness regarding artificial intelligence while lacking sufficient opportunities for practical classroom integration and structured AI-related professional development (Chiu et al., 2023; Kong et al., 2021). Since the integration of generative artificial intelligence technologies into educational environments is still relatively recent, many teachers may continue to experience uncertainty regarding how these technologies should be used effectively within instructional contexts.

The results also revealed significant differences in artificial intelligence literacy according to gender, subject area, and educational attainment. Male teachers demonstrated higher levels of AI literacy compared to female teachers, while Information Technology teachers exhibited significantly higher AI literacy levels than teachers from several other disciplines. In addition, teachers with master's degrees demonstrated higher AI literacy levels compared to teachers holding bachelor's degrees. These findings may be associated with differences in prior technology exposure, professional roles, academic experiences, and opportunities for technology-oriented professional development.

The higher artificial intelligence literacy levels observed among Information Technology teachers may be understandable considering that these teachers are more likely to engage with digital systems, computational thinking practices, and technology-oriented instructional activities as part of their professional responsibilities. Similar findings have been reported in studies suggesting that professional exposure to digital technologies contributes positively to teachers' technological competence and AI-related awareness (Ng et al., 2021). However, these findings should be interpreted cautiously because the participant numbers across subject areas were not evenly distributed.

The most noteworthy finding of the present study was the absence of a statistically significant relationship between teachers' artificial intelligence literacy and technostress levels. This finding suggests that artificial intelligence literacy alone may not be sufficient to explain teachers' experiences of technology-related stress. Although technological competence may reduce uncertainty and improve self-confidence in some contexts, rapidly evolving AI technologies may simultaneously increase cognitive load, adaptation pressure, and professional expectations for teachers.

From a theoretical perspective, this finding can be interpreted through both the Technology Acceptance Model (TAM) and the Technological Pedagogical Content Knowledge (TPACK) framework. According to TAM, higher levels of AI literacy may contribute to teachers' perceptions of usefulness and ease of use when interacting with AI technologies, thereby facilitating technology adoption (Davis, 1989). However, generative AI tools differ from many traditional educational technologies because they require teachers not only to use technological systems but also to evaluate the reliability, relevance, and pedagogical appropriateness of AI-generated outputs. Consequently, even teachers with relatively high levels of AI literacy may continue to experience technology-related stress due to the cognitive demands associated with verifying information, interpreting AI-generated content, and adapting such content to instructional contexts.

Similarly, the TPACK framework suggests that successful technology integration requires more than technological knowledge alone (Mishra & Koehler, 2006). In the context of generative AI, teachers are increasingly expected to align AI-generated content with curricular goals, evaluate its suitability for learners, address ethical concerns, and make pedagogically informed decisions regarding its use. Therefore, AI literacy may support teachers' technological competence without necessarily reducing the professional responsibilities associated with AI-supported instruction. This perspective may help explain why no direct relationship was observed between AI literacy and technostress in the present study.

Taken together, TAM and TPACK clarify why the nonsignificant correlation should not be interpreted as evidence that AI literacy is irrelevant to teachers' AI experiences. AI literacy may support perceived ease of use, informed acceptance, and pedagogical decision making, while technostress may arise from partly independent conditions such as workload, time pressure, technical infrastructure, administrative expectations, and the obligation to verify and adapt AI-generated content. The result therefore suggests that acceptance-related perceptions and pedagogical integration competence do not translate automatically into lower technology-related strain. Because perceived usefulness, perceived ease of use, and TPACK components were not measured directly, this explanation should be regarded as a theoretically grounded interpretation rather than a direct empirical test of either framework. Taken together, the null association may reflect countervailing processes: AI literacy may reduce uncertainty, while verification demands, ethical responsibility, workload, infrastructure, and institutional expectations may independently increase technostress. Because these mechanisms were not measured directly, this interpretation remains tentative.

Overall, the findings of this study suggest that the relationship between artificial intelligence literacy and technostress is more complex and multidimensional than a simple linear association. While artificial

intelligence literacy may contribute positively to teachers' technological adaptation processes, it may not automatically eliminate the stress associated with rapidly changing digital environments. In this regard, the findings highlight the importance of considering both individual competencies and contextual conditions when evaluating teachers' experiences with technology integration and artificial intelligence in education.

Limitations

Several limitations of the present study should be acknowledged when interpreting the findings. First, the study was conducted with lower secondary school teachers working in public schools located in the central districts of Eskişehir, Türkiye. Therefore, the findings may not be generalizable to teachers working in different geographical regions, educational levels, or institutional contexts. Second, the study relied on self-reported data collection instruments. Since the findings were based on participants' personal perceptions and evaluations, the responses may have been influenced by subjective interpretations and individual response tendencies. Third, the study employed a cross-sectional research design in which the data were collected at a single point in time. Therefore, causal interpretations regarding the relationship between artificial intelligence literacy and technostress cannot be made. The findings only reflect the relationships identified within the context of the present study. In addition, the study focused primarily on demographic variables and did not directly examine organizational and contextual factors such as institutional support, technological infrastructure, workload, or administrative expectations. Since these variables may also influence teachers' technostress experiences, future studies may benefit from investigating these factors in greater detail. Finally, the study was conducted using a quantitative research design. Future research may benefit from qualitative or mixed-method approaches in order to obtain deeper insights into teachers' experiences related to artificial intelligence technologies and technostress. Longitudinal studies may also contribute to understanding how teachers' artificial intelligence literacy and technostress levels change over time in response to ongoing technological developments. Finally, TAM and TPACK were used as interpretive frameworks, but their core constructs were not measured directly; consequently, the theoretical explanations offered in the Discussion should not be interpreted as tests of either model.

Recommendations

The findings of the present study suggest that teachers may benefit from professional development opportunities related to artificial intelligence technologies and technology integration processes. Since teachers' artificial intelligence literacy levels were found to be relatively low, future professional development programs may focus not only on technical AI knowledge but also on pedagogical integration, ethical awareness, critical evaluation, and practical classroom applications of artificial intelligence technologies. To reflect the complementary roles of TAM and TPACK, such programs should make the usefulness and practical manageability of AI tools explicit while providing structured opportunities to align AI use with curriculum goals, pedagogy, and students' learning needs.

In addition, the findings indicate that improving technological competence alone may not necessarily eliminate teachers' technology-related stress experiences. Therefore, educational institutions may also consider providing supportive conditions that facilitate healthy technology integration processes, such as accessible technological support, manageable adaptation expectations, and opportunities for continuous professional learning. However, since organizational and institutional variables were not directly examined in the present study, these suggestions should be interpreted cautiously.

Future studies may benefit from conducting research with larger and more diverse samples from different educational levels and geographical regions. In addition, qualitative and mixed-method research designs may provide deeper insights into teachers' experiences related to artificial intelligence technologies and technostress. Longitudinal studies may also contribute to understanding how teachers' artificial intelligence literacy and technostress levels change over time in response to ongoing technological developments and educational transformation processes.

Conclusion

This study examined the relationship between teachers' artificial intelligence literacy and technostress levels within the context of rapidly evolving digital transformation processes in education. The findings revealed that teachers experienced moderate levels of technostress, while their mean artificial intelligence literacy scores were positioned toward the lower end of the possible score range. In addition, technostress levels did not significantly differ according to gender, age, or subject area but differed significantly according to educational attainment, with lower technostress among teachers holding master's degrees. Artificial intelligence literacy demonstrated significant differences according to gender, subject area, and educational attainment. Most importantly, no statistically significant relationship was identified between teachers' artificial intelligence literacy and technostress levels.

One of the main conclusions of this study is that artificial intelligence literacy alone may not be sufficient to explain or reduce teachers' technology-related stress experiences. Although technological competence may contribute to reducing uncertainty and increasing self-confidence in some contexts, rapidly evolving technological systems, adaptation demands, workload, and continuous professional updating requirements may simultaneously contribute to technostress among teachers. Therefore, the relationship between artificial intelligence literacy and technostress appears to be more multidimensional and context-dependent than a simple linear relationship. Accordingly, improving teachers' AI literacy should be viewed as a necessary but not sufficient condition for reducing technostress, as teachers must also be supported in managing the pedagogical, evaluative, and ethical responsibilities associated with the use of generative AI technologies.

In line with the integrated TAM–TPACK perspective, the findings indicate that AI acceptance, pedagogical integration competence, and freedom from technostress should not be treated as equivalent outcomes. Strengthening AI literacy may facilitate informed adoption and pedagogical use, but reducing technostress also requires institutional support, realistic workload expectations, technical assistance, and opportunities to evaluate and adapt AI-generated content. This dual implication follows directly from the study's central result: competence may support adoption and instructional integration, while contextual resources remain necessary to prevent AI use from becoming an additional source of strain.

Consequently, the contribution of the study is not to suggest that AI literacy lacks value, but to show that its value should be interpreted within a broader ecology of technology integration. Teacher-development efforts should combine AI literacy with opportunities to build AI-related TPACK, while school-level policies should reduce avoidable stressors through clear expectations, technical support, adequate time, and guidance on ethical and pedagogical use. This conclusion directly aligns the research problem, theoretical framing, and empirical findings.

The findings further suggest that teachers' experiences with technology integration should not be evaluated solely through individual competence frameworks. Technology-related stress experiences may also be associated with broader organizational and contextual conditions, including institutional support, technological infrastructure, professional development opportunities, and workload-related factors. However, since these variables were not directly measured in the present study, such interpretations should be considered cautiously. Overall, the study contributes to the growing literature on artificial intelligence literacy and technostress by emphasizing the complex nature of teachers' adaptation processes to emerging digital technologies in educational environments. In addition, the findings highlight the importance of considering both individual competencies and contextual conditions when evaluating teachers' experiences related to technology integration and artificial intelligence use in education.

Author's Note

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CRedit authorship contribution statement

A. Kaya: Conceptualization, Methodology, Data collection, Analysis, Writing – Original draft.

Y. L. Şahin: Conceptualization, Methodology, Supervision, Validation, Writing – review & editing.

G. E. Turan: Data Curation, Analysis, Validation, Writing – review & editing.

K. Kobak: Literature review, Project administration, Writing – review & editing.

Declaration of Conflicting Interests

The authors declare that there is no conflict of interest regarding the publication of this article.

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Ethics Approval and Consent to Participate

Ethical approval was obtained before data collection from the Anadolu University Social and Human Sciences Scientific Research and Publication Ethics Committee at its meeting held on May 28, 2024 (Protocol No. 733353). All participants were informed about the purpose and procedures of the study, participation was voluntary, and informed consent was obtained from all participants.

Declaration of AI Usage Statement

The authors declare that no artificial intelligence (AI) tools were used in the preparation of this manuscript.

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