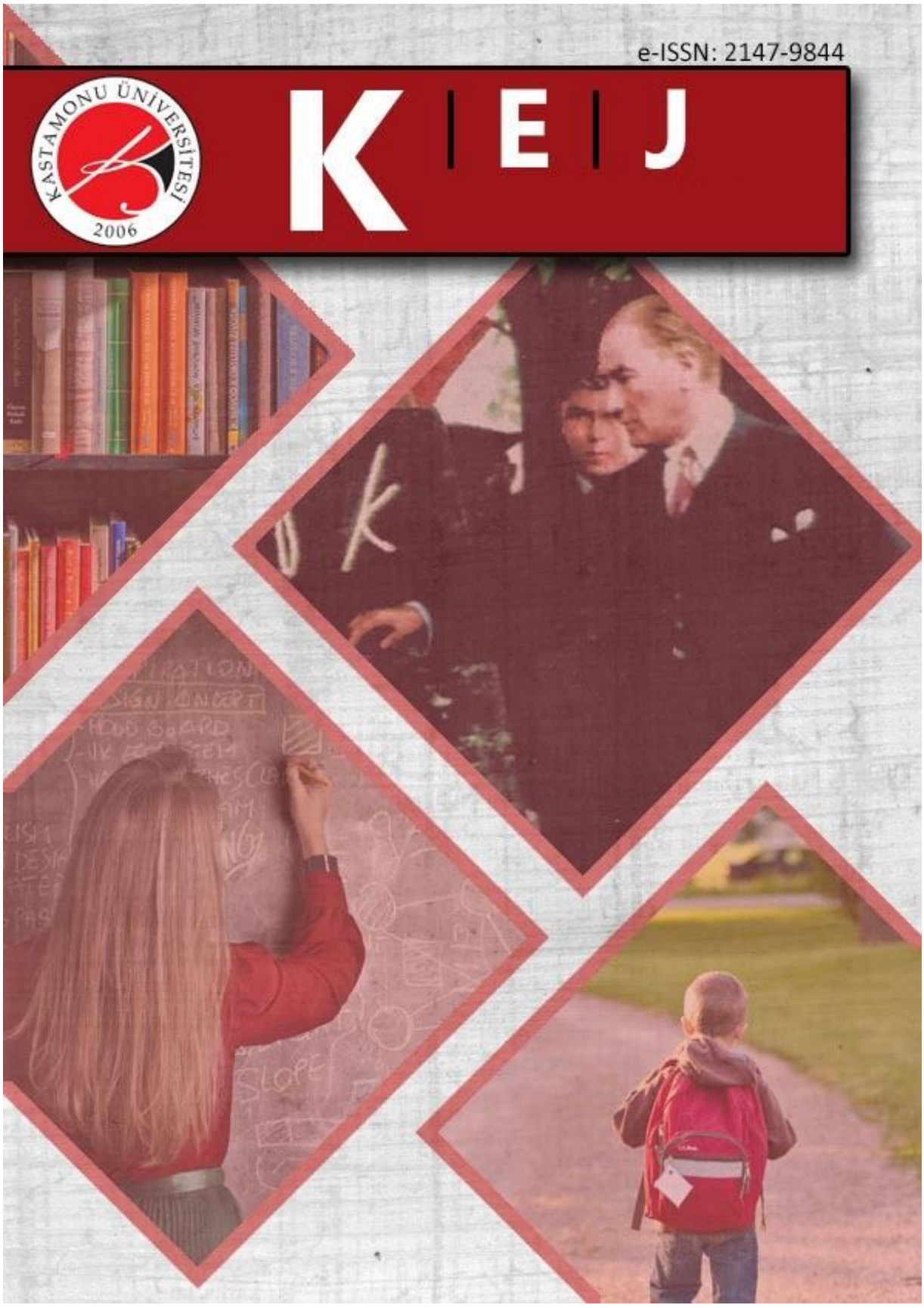


e-ISSN: 2147-9844

Kastamonu Eğitim Dergisi

Yıl:2024 Cilt:32 No:1

Kastamonu Education Journal

Year: 2024 Volume: 32 Issue:1

Kastamonu Eğitim Dergisi Uluslararası Bilimsel Hakemli Dergidir.

Ocak-Nisan-Temmuz-Ekim Aylarında yılda 4 defa çevrimiçi olarak yayınlanır.

Taranmakta olduğumuz dizinler:

TR Dizin ULAKBİM		CrossRef	
H.W. Wilson Education Full Text		Google Scholar	
EBSCO Education Source		Index Copernicus	
Education Research Complete		ERIH PLUS	
SOBIAD		Cite Factor	
Türk Eğitim İndeksi		EBSCO- The Belt and Road Initiative Reference Source	

Kastamonu Üniversitesi
Kastamonu Eğitim Dergisi

Teknik Sorumlular Technical Assistants

Dr. Adem YILMAZ Dr. Adem YILMAZ

http://dergipark.gov.tr/kefdergi
https://kefdergi.kastamonu.edu.tr

29 Ocak 2024

e-posta: kefdergi@kastamonu.edu.tr; dergiksef@gmail.com

Bu dergi yılda dört defa yayınlanır. This journal is published four times a year.

(Ocak-Nisan-Temmuz-Ekim) (January-April-July-October)

Kastamonu Üniversitesi, Eğitim Fakültesi Dekanlığı, 37200 KASTAMONU

Kastamonu Eğitim Dergisi

Kastamonu Education Journal

Sahibi **Owner**

Dr. Ahmet Hamdi TOPAL (Rektör)

Dr. Ahmet Hamdi TOPAL (Rector)

Genel Yayın Yönetmeni **General Publishing Manager**

Dr. Ahmet KAÇAR (Dekan)

Dr. Ahmet KACAR (Dean)

Editörler **Editor-in-Chef**

Dr. Muammer ERGÜN
Dr. Adem YILMAZ
Dr. Sinem ŞENFERAH

Dr. Muammer ERGÜN
Dr. Adem YILMAZ
Dr. Sinem ŞENFERAH

Dil Editörleri **Language Editor**

Dr. Ersin ARSLAN
Dr. Rabia KARATOPRAK ERŞEN

Dr. Ersin ARSLAN
Dr. Rabia KARATOPRAK ERŞEN

Yardımcı Editörler **Co- Editors**

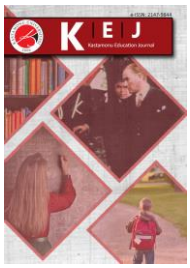
Dr. Abdullah Çağrı BİBER
Dr. Berat AHİ
Dr. Emine KARASU AVCI
Dr. Erkan KÜLEKÇİ
Dr. Erkan YANARATEŞ
Dr. Ezgi MOR
Dr. Gökhan KAYA
Dr. İbrahim AKAR
Dr. İbrahim KEPÇEOĞLU
Dr. İlhan ÖZGÜL
Dr. İsmail YILDIZ
Dr. Mehmet Koray SERİN
Dr. Melike FAİZ
Dr. Murat KONUK
Dr. Mustafa Öztürk AKCAOĞLU
Dr. Sema KARA
Dr. Sevcan CANDAN HELVACI

Dr. Abdullah Çağrı BİBER
Dr. Berat AHİ
Dr. Emine KARASU AVCI
Dr. Erkan KÜLEKÇİ
Dr. Erkan YANARATEŞ
Dr. Ezgi MOR
Dr. Gökhan KAYA
Dr. İbrahim AKAR
Dr. İbrahim KEPÇEOĞLU
Dr. İlhan ÖZGÜL
Dr. İsmail YILDIZ
Dr. Mehmet Koray SERİN
Dr. Melike FAİZ
Dr. Murat KONUK
Dr. Mustafa Öztürk AKCAOĞLU
Dr. Sema KARA
Dr. Sevcan CANDAN HELVACI

Kastamonu Eğitim Dergisi

Kastamonu Education Journal

Kastamonu Education Journal, 2024, Vol. 32, No:1, 1-13
doi: 10.24106/kefdergi.1426407



| Research Article / Araştırma Makalesi |

Investigating the Relationship between Teachers' Emotional Labor Behaviors and Effective School Perceptions

Öğretmenlerin Duygusal Emek Davranışları ile Etkili Okul Algıları Arasındaki İlişkinin İncelenmesi[1]

Zeynep Dağ[2], Canan Albez[3]

Keywords

1. Emotional labor
2. Effectiveness
3. Effective school
4. Teacher

Anahtar Kelimeler

1.Duygusal emek
2.Verimlilik
3.Etkili okul
4.Öğretmen

Received/Başvuru Tarihi
14.03.2022

Accepted / Kabul Tarihi
10.10.2023

Abstract

Purpose: This research aims to investigate the relationship between teachers' emotional labor behaviors and their perceptions of effective school.

Design/Methodology/Approach: In this study, the applied quantitative research method is relational survey model. The population of the research consists of 1924 secondary school teachers working in the central of Erzurum province in the 2020-2021 academic year. The sample of the study consists of 658 teachers determined by simple random sampling method. The data of the study were collected using the 'Emotional Labor Scale' and the 'Perceived School Effectiveness Scale'.

Findings: According to the analysis, it was determined that the emotional labor of the teachers was at a moderate level and their perception of effective school was at a high level. The emotional labor significantly differs depending on gender, educational status, and professional seniority. Teachers' perceptions of effective school does not differ according to gender, educational status, professional seniority. In the study, it was concluded that emotional labor sub-dimensions predicted effective school perception positively and significantly.

Highlights: It is seen that teachers' emotional labor has a share in the perception of schools as effective. Based on the results, the research highlights the need to pay attention to teachers' emotional labor behaviors when examining the effectiveness of schools.

Öz

Çalışmanın amacı: Bu araştırma, öğretmenlerin duygusal emek davranışları ile etkili okula yönelik algıları arasındaki ilişkiyi incelemeyi amaçlamaktadır.

Materyal ve Yöntem: Bu çalışmada uygulanan nicel araştırma yöntemi ilişkisel tarama modelidir. Araştırmanın evrenini 2020-2021 eğitim öğretim yılında Erzurum ili merkezinde görev yapan 1924 ortaokul öğretmeni oluşturmaktadır. Araştırmanın örneklemini basit tesadüfi örnekleme yöntemiyle belirlenen 658 öğretmen oluşturmaktadır. Araştırmanın verileri 'Duygusal Emek Ölçeği' ve 'Algılanan Okul Etkinliği Ölçeği' kullanılarak toplanmıştır.

Bulgular: Analizlere göre öğretmenlerin duygusal emeklerinin orta düzeyde, etkili okul algılarının ise yüksek düzeyde olduğu tespit edilmiştir. Duygusal emek, cinsiyete, eğitim durumuna ve mesleki kıdeme göre farklılık göstermektedir. Öğretmenlerin etkili okul algıları cinsiyet, eğitim durumu ve mesleki kıdeme göre farklılaşmamaktadır. Araştırmada duygusal emek alt boyutlarının etkili okul algısını olumlu ve anlamlı şekilde yordadığı sonucuna ulaşılmıştır.

Önemli Vurgular: Okulların etkili olarak algılanmasında öğretmenlerin duygusal emeklerinin bir payı olduğu görülmektedir. Sonuçlara dayanarak, araştırma, okulların etkililiğini incelerken öğretmenlerin duygusal emek davranışlarına dikkat edilmesi gerektiğini vurgular.

[1] This study is based on the master dissertation accepted by the Atatürk University Institute of Educational Sciences in July 2021.

[2] Assistant Principal, MoNE Yahya Kemal Kindergarten, Erzurum, TURKEY, zynpdg@gmail.com, https://orcid.org/0000-0001-6173-1307
[3] Corresponded Author, Asst. Prof. Dr., Atatürk University, Erzurum, TURKEY, cananalbez@atauni.edu.tr, https://orcid.org/0000-0001-5676-1827

Citation/Alıntı: Dağ, Z., & Albez, C. (2024). Investigating the Relationship between Teachers' Emotional Labor Behaviors and Effective School Perceptions. *Kastamonu Education Journal, 32*(1), 1-13. doi: 10.24106/kefdergi.1426407

INTRODUCTION

Human is a social being by nature and needs communication with other people in daily life, family, school and social life. Business life has also taken its share from the need for communication and interaction. According to Tozkoparan and Özgün (2015, p. 58), especially the service sector is a sector where individuals interact and communicate more intensely than other sectors. In the service sector, interpersonal communication and interaction is a very important part of the service offered. The interaction between institutional personnel and service recipients (customers, consumers, patients, passengers, students, etc.) affects the existence of businesses in this sector (Afacan-Fındıklı & Erkuş, 2015, p. 124). For this reason, organizations expect their employees to regulate their emotions toward customers and act appropriately (Tozkoparan & Özgün, 2015, p. 58). This expectation introduces us to the concept of emotional labor (EL).

EL is the process of employees regulating their emotions in line with the expectations of the organization and reflecting this to the other party in a way that can be observed from the outside (Hochschild, 1983). According to Isenbarger and Zembylas (2006), EL is the process of regulating the emotions of employees so that they can exhibit appropriate behaviors in the workplace. On the other hand, Savaş (2012, p. 43) defined EL as employees displaying some emotions and not displaying some emotions for the same reasons, as long as they are consistent with workplace expectations.

EL is an important and common component of many professions in the service field (Beğenirbaş & Can-Yalçın, 2012). However, since teachers are in constant interaction with stakeholders (students, parents, administrators, other employees, school environment), they spend more EL than other members of the profession (Truta, 2014). Intense interaction and communication with stakeholders, as well as the school's goals, school management's expectations, professional norms, environmental and cultural expectations, necessitate EL in the teaching profession (Winograd, 2003). On the other hand, research on teacher emotions reveals that emotions are an integral part of teachers' lives (Yin et al., 2013; Zembylas, 2004).

Moreover, globalization has brought about change and development in the field of education as well as in many other fields (Yörük & Şahin, 2012, p. 354). With the changing world, educational processes and the competencies and roles that school organizations expect from teachers have changed (Akan, 2007). Actually, efforts to achieve the quality in education or to increase the existing quality have increased in this process. This situation revealed the concept of effective school (ES) and led researchers to focus on the issue of ES (Balcı, 2013). Because organizations survive and continue their existence as long as they are effective (Bursalıoğlu, 2012). On the other hand, another reason for ES research is the fact that some schools are more successful than others (Helvacı & Aydoğan, 2011, p. 42; Vatanartıran & Eren, 2014, p. 450).

The effectiveness of the education system is related to the degree of achieving the goals of the schools in the system and the effectiveness of the school is related to the learning level of the student. Because the main purpose of the school is to reach the goals of the program and to bring about a behavioral change in the student. In this sense, an ES is a school that supports students' cognitive, affective, social and motor development and creates a suitable learning environment to achieve this (Özdemir, 2013, p. 36). Effectiveness is measured by the degree to which the school achieves its goals (Başaran & Çınkır, 2011). An ES is also a school that makes a difference. It can be said that the school is effective when the difference between the qualifications that the student has at the beginning of the school and the qualifications he/she has after spending a certain time at school is deemed sufficient by all school stakeholders (Yıldırım, 2015, p. 72).

The essential components of an ES are the manager, teacher, student, program, learning process, environment, family, school culture and climate (Şişman, 2013, pp. 129-131). However, along with other dimensions, the teacher factor plays a decisive role in ES. In order to increase student success, the ES teacher encourages and supports students and positively affects the student's perspective on life (Can, 2004). In order to prepare an effective learning environment for students, it organizes all of the available opportunities and materials in such a way as to get optimum efficiency (Wragg, 1993). An ES teacher is one who values academic achievement, has a strong knowledge of the subject matter, excellent presentation and communication skills, enables active involvement of all students in the learning process, and rewards positive behavior. Also an effective teacher can keep undesirable behavior under control, and supports students in cooperation (Balcı, 2013). An ES teacher serves as a role model for his students by displaying honest, understanding, and patient behavior during the learning-teaching process (Güçlü, 2000, pp. 21-22). Without teachers' mental and physical as well as emotional efforts, it is unlikely that schools will achieve their goals. Therefore, it can be said that teachers have to spend a lot of EL in the process of supporting student development while performing their profession. From this point of view, it is thought that there may be a relationship between the EL behaviors of teachers and the effectiveness of schools.

The teacher is undoubtedly the most important factor in achieving the school's objectives (Çelikten et al., 2005, p. 220). In order for the school to achieve its goals, positive teacher-student relations are essential (Kaliska, 2002). According to Mc Kinney (1988), teachers use gestures and facial expressions during lessons, make eye contact with pupils, making the class fun, and even turning it into a show is important in achieving the goal of teaching. Teachers, on the other hand, should always show love and compassion to their students and maintain a neutral, calm, and polite attitude in the face of negative situations (Winograd, 2003). According to Hargreaves (1998), who sees emotions as the heart of teaching, it is very important to understand the emotions of the students and to show EL in the teaching process. In order for teachers to exhibit all these attitudes and behaviors, they need to regulate their emotions in accordance with the goals of the school, that is, they need to spend EL (Alemdar, 2019, p. 74). While teachers spend EL in the process of interaction with students in and out of the classroom (Youngmi, 2016, p. 12), they also spend

a lot of EL when communicating with other stakeholders of the school (Troman, 2000). In this sense, it can be stated that the EL that teachers spend in the education process affects the success of the student and the school, and the achievement of the school's ultimate goals.

When the literature is reviewed, it is seen that the relationship between EL and ES variables and different variables in the field of educational sciences has been discussed in various studies. EL behaviors and organizational citizenship (Beğenirbaş & Meydan, 2012; Bıyık & Aydoğan, 2014); EL behaviors and job satisfaction (Karataş et al., 2016); burnout with EL behaviors (Karasu, 2019; Yılmaz et al., 2015); burnout and job satisfaction with EL behaviors (Zhang & Zhu, 2008); EL behaviors and emotional intelligence (Şat et al., 2015); EL behaviors and social support, burnout and job satisfaction (Kinman et al., 2011); EL behaviors and work-family conflict and burnout (Noor & Zainuddin, 2011); EL behaviors and leadership behaviors (Hoşgörür & Yorulmaz, 2015); EL behaviors and managerial support (Ertürk et al., 2016); EL behaviors and the level of belief in education (Ergün & Argon, 2017); EL behaviors and classroom management self-efficacy (Lee & Van Vlack, 2018); EL behaviors and organizational commitment (Deliveli, 2018); EL behaviors and social capital (Alemdar, 2019); It is seen that the relationship between EL behaviors and organizational identification (Aytekin, 2020) is discussed. In some studies, ES and students' academic success (Jacobson & Lombard, 1992); ES and school culture (Ayık, 2007); ES and school principals' self-efficacy beliefs (Lovell, 2009); characteristics of ES and school principals (Helvacı & Aydoğan, 2011); ES and student success and school accountability (Günal, 2014); personality traits and job satisfaction of ES and administrators (Yıldırım, 2015); ES and leadership styles of school administrators (Ermeydan, 2019); the relationship between ES and organizational identification (Yavuz-Özbaş, 2020) was examined. On the other hand, in some studies, demographic characteristics of ES perception (Akan, 2007); the level of differentiation according to the variables of the socio-economic level of the families (Henriquez et al., 2012) was discussed.

In the literature review, no research has been found that examines the relationship between teachers' EL behaviors and their perceptions of ES. In this context, it is thought that this research will clarify the level of relationship between teachers' EL behaviors and their perceptions of ES and will fill an important gap in the literature. The study is significant because it serves as an incentive for more research.

In this context, the problem statement of the research consists of the question: Is there a relationship between teachers' EL behaviors and their perceptions of ES? In addition, the relationship between the EL behaviors of teachers working in secondary schools and their perceptions of ES was examined in terms of gender, educational status, and professional seniority variables. Within the scope of the research, answers to the following sub-problems will also be sought:

For secondary school teachers;

1. What is the level of EL behaviors?
2. What is their perception of the effectiveness of schools?
3. Do EL labor behaviors differ according to gender, educational status, and professional seniority?
4. Do perceptions of the effectiveness of schools differ according to gender, educational status, and professional seniority?
5. Is there a significant relationship between EL behaviors and perceptions of ES?
6. Do EL behaviors predict ES perceptions?

METHOD

Research Design

In this study, the relational survey model, which is one of the quantitative research methods, was used to determine the relationship between secondary school teachers' EL behaviors and their perceptions of school effectiveness. In correlational survey method, it is determined whether one of the variables predicts the other and whether the two variables are related (Creswell, 2012). The correlational survey method is used to explain human behavior and predict its possible consequences (Fraenkel, Wallen, & Hyun, 2015).

Population and Sample

The population of the research consists of 1924 teachers working in public secondary schools in Erzurum city center in the 2020-2021 academic year. Accordingly, the formula that shows the optimal sample size for universes of different sizes developed by Krejcie and Morgan (1970) was taken into account for the sample of the study. It was determined that a sample of approximately 320 people would be sufficient for a population of 1924 people with a 95% confidence level, $p < .05$ margin of error. 673 teachers participated in the study, and 4 forms that were found to be incompletely filled were not taken into consideration. In the study, 11 extreme values determined for single and multiple variables out of 669 data were excluded from the analysis and 658 scales were evaluated. The significance level of $p < .05$ was used in the study. The findings of the demographic information of the teachers participating in the research are given in Table 1.

Table 1. Demographic findings of the research group

Variables		*n*	*%*
Gender	Female	430	65.3
	Male	228	34.7
	Total	658	100.0
Educational Status	University	579	88
	Postgraduate	79	12
	Total	658	100.0
Teaching professional seniority	1-5 Year	81	12.3
	6-10 Year	153	23.3
	11-15 Year	164	24.9
	16-20 Year	114	17.3
	21 Year +	146	22.2
	Total	658	100.0

Data Collection Tools

In this study, the 'Emotional Labor Scale' (ELS) developed by Diefendorff, Croyle, and Gosserand (2005) was used to determine the EL behaviors of secondary school teachers. Adaptation of the scale to Turkish, validity ($\Delta\chi^2$/ sd= 4.316, RMSEA= 0.064, CFI= 0.96, GFI= 0.96, AGFI=0.93) and reliability (α=.80) analyzes were done by Basım and Beğenirbaş (2012). The scale consists of three sub-dimensions, surface acting (6 items), deep acting (4 items), and natural feelings (3 items) and a total of 13 items.

In the study, the 'Perceived School Effectiveness Scale' (PSES) developed by Hoy and Ferguson (1985) was used to determine secondary school teachers' perceptions of school effectiveness. Turkish version of the scale, validity (AGFI .95, GFI.97, NFI.98, NNFI .98, CFI .99, RMR .045, SRMR.029, RMSEA .063, χ^2/sd 3.06) and reliability (α=.866) were analyzed by Yıldırım (2015). The scale is one-dimensional and consists of 8 items.

When interpreting the scores of ELS, (1.00–1.80) "none," (1.81-2.60) "low," (2.61-3.40) "moderate," (3.41-4.20) "high," and (4.21–5.00) “very high” were rated. When interpreting the scores of PSES, (1-1.83) "very low", (1.84-2.66) "low", (2.67-3.49) "below average", (3.50-4.32) "above average", (4.33-5.16) "high", and (5.17-6.00) "very high" were rated.

Data Collection Process

In order to apply the scales used in this study to secondary school teachers, permission to use the scale was obtained from the authors and ethical permission from the relevant institutions. The data of the research were collected from the teachers working in public secondary schools in Erzurum city center in the second term of the 2020-2021 academic year. In this process, due to the COVID-19 epidemic, distance education was carried out, so the scale forms could not be delivered to secondary school teachers face-to-face or by hand. The scale, which was prepared as a digital form in the online environment, was delivered to all secondary school teachers working in the city center through on-line platforms through the District Directorate of National Education and school principals.

Data Analysis

Before the analysis of the data, the distribution of the variables in the data set was examined and univariate and multivariate outliers were removed from the data set. In order to determine the level of meeting the assumptions of the parametric tests, the arithmetic mean, median value, coefficient of variation, histogram graph were examined and it was determined that the skewness and kurtosis values were between +1,-1, and the data were normally distributed. In the analysis of the research data, parametric tests (independent sample t-test, one-way analysis of variance) were used in line with the research questions. In the study, it was tested whether there was a relationship between teachers' EL behaviors and the effectiveness of schools with Pearson correlation analysis. Multiple regression analysis was also applied to examine the predictive level of teachers' EL behaviors on their ES perceptions. Before the multiple regression analysis, the assumption of multivariate normality was tested, the mahalanobis distance coefficients, scatter plots over the residual values were examined, and it was observed that the residual values were normally distributed. In the analysis, bilateral correlations were examined and it was seen that there was no multicollinearity problem. In addition, it was observed that the tolerance value was higher than .20 and the variance magnification factor (VIF) was below 2.5, and it was accepted that the data provided the assumption of multivariate normality (Allison, 1999; Büyüköztürk, 2011). The significance level of .05 was used to determine the differences between the groups.

Validity and Reliability

Within the scope of this study, it was determined that the Cronbach' alpha coefficients of the ELS (.837) and its sub-dimensions (.889; .906; .798) and the ESS (.907) were higher than .70 and that the measurements were reliable.

To confirm the construct validity of the ELS, Confirmatory Factor Analysis (CFA) was conducted with the available research data. Accordingly, when the CFA results of the ELS are examined, it is seen that the fit indices (x^2/df: 4.493, p<.001; RMSEA=.073; CFI=.957; NFI=.946; SRMR=.068) have good fit (Kline, 2011; Wheaton et al., 1977)

According to the CFA performed with the existing research data to confirm the construct validity of the ESS, when the obtained fit indices were examined (x^2/df: 5,818, p<.001; RMSEA=.086; CFI=.972; NFI=.966; SRMR=.040) x^2/sd appears to be greater than 5 and there is no concordance. According to Sayın and Gelbal (2016), considering the research sample (n=658), the x^2/sd value that grows with the sample size gives biased results in the evaluation of the model-data fit, so other fit indices can be used. Doğan (2015, p. 67) emphasizes in his research that the best fit criterion in all sample sizes is RMSEA for data sets in which the assumption of multivariate normal distribution is realized and this criterion should be preferred. Accordingly, it is seen that the other fit indices obtained as a result of CFA have good fit.

FINDINGS

In this section, the data collected within the scope of examining the relationship between the emotional labor behaviors of secondary school teachers and their perceptions of effective school were analyzed. The findings obtained as a result of the analyzes are presented in order in accordance with the sub-problems.

Findings for Research Question 1 and Question 2

The scores regarding the emotional labor of secondary school teachers participating in the research are given in Table 2**.**

Table 2. Teachers' emotional labor behavior and effective school perceptions scores

Scales		n	Mean	SD
Emotional Labor Scale		658	3.25	.64
	Superficial Role-Playing	658	2.51	.98
Scale Sub-Dimensions	Deeply Role-Playing	658	3.58	1.02
	Sincere Behavior	658	4.29	.58
Effective School Scale		658	4.57	.84

In Table 2, the scale mean of emotional labor behaviors exhibited by teachers is at the 'moderate' level of M=3.25, and the superficial role playing dimension is at a 'low' level with M=2.51. The deep acting dimension is 'high' with M=3.58, and the sincere behavior dimension is 'very high' with M=4.29. According to the research findings, teachers exhibit sincere behavior the most, then deeply acting and least superficial acting.

According to the perceptions of the teachers participating in the research, the average effectiveness level of the schools is M=4.57. This result shows that the perception of effectiveness in secondary schools is at a 'high' level. Based on this finding, it can be said that secondary school teachers perceive the schools they work in as effective schools.

Findings for Research Question 3 and Question 4

The results of the analysis on whether there is a significant difference between the emotional labor behaviors of the teachers participating in the research and their perceptions of effective school according to the variables of gender, educational status and professional seniority are presented below.

Examining Teachers' Emotional Labor Behaviors and Effective School Perceptions According to Gender Variable

Table 3 shows the results of the t-test conducted to determine whether teachers' emotional labor behaviors and perceptions of effective school differ significantly by gender.

Table 3. Teachers' perceptions of EL and ES by gender

Dimensions	Gender	n	Mean	SD	df	t	p
Superficial Role-Playing	Female	430	2.40	.99			
	Male	228	2.71	.93	656	3.873	000*
Deeply Role-Playing	Female	430	3.49	1.10			
	Male	228	3.74	.84	656	3.253	.001*
Sincere Behavior	Female	430	4.34	.54			
	Male	228	4.19	.63	656	3.138	.002*
Emotional Labor Total	Female	430	3.19	.67			
	Male	228	3.37	.56	656	3.721	.000*
Effective School Perception	Female	430	4.55	.85			
	Male	228	4.61	.84	656	-.983	.326

*p<.05

When Table 3 is examined, it has been determined that the scores of male teachers (M=2.71) in the superficial role-playing dimension differ significantly from the scores of female teachers (M=2.40) (t=3.873, p=.000). Again, in the deep role-playing dimension, male teachers' scores (M=3.74) were found to differ significantly from female teachers' scores (M=3.49) (t=3.253, p=.001). In the sincere behavior dimension of emotional labor, it was determined that the scores of female teachers (M=4.34)

differed significantly from male teachers' scores (M=4.19) (t=3.138, p=.002). It was determined that the scores of male teachers (M=3.37) in the emotional labor scale total differed significantly from the scores of female teachers (M=3.19) (t=3.721, p=.000). Based on these findings, it was found that male teachers acted with more emotion regulation and emotion control, and they also spent more emotional effort; on the other hand, it can be interpreted that female teachers mostly act with their natural behaviors.

In addition, it was determined that teachers' effective school perception scores (t= -.983, p=.326) did not differ significantly in terms of gender variable. Based on this finding, it can be said that gender does not affect teachers' perceptions of effective school.

Examination of Teachers' Emotional Labor Behaviors and Effective School Perceptions According to the Variable of Educational Status

Table 4 shows the results of the t-test conducted to determine whether teachers' emotional labor behaviors and perceptions of effective school differ significantly according to their educational status.

Table 4. Teachers' perceptions of EL and ES by educational status

Dimensions	Education Status	n	Mean	SD	df	t	p
Superficial Role-Playing	Undergraduate	579	2.51	.97	656	.179	858
	Graduate	79	2.53	1.08			
Deeply Role-Playing	Undergraduate	579	3.62	.97	656	2.534	.013*
	Graduate	79	3.24	1.28			
Sincere Behavior	Undergraduate	579	4.29	.59	656	.282	.778
	Graduate	79	4.31	.54			
Emotional Labor (Total)	Undergraduate	579	3.26	.62	656	1.126	.263
	Graduate	79	3.16	.77			
Effective School Perception	Undergraduate	579	4.58	.83	656	.835	.404
	Graduate	79	4.50	.92			

*p<.05

In Table 4, the scores according to educational status are in the surface role-playing dimension (t=.179, p=.858), in the sincere behavior dimension (t= .282, p=.778 p<. 05) and in the total scale (t= 1.126, p=.263) did not differ significantly. It has been determined that the scores of undergraduate teachers in the deep role-playing dimension are (M =3.62) and (M=3.24) significantly higher than those of graduate teachers (t= 2.534, p=.013). This finding can be interpreted as undergraduate teachers' control and regulation of emotions more than graduate teachers in order to exhibit the expected behaviors. In Table 4, it is seen that teachers' perceptions of effective school (t= -.983, p=.326) do not differ significantly in terms of gender. Based on this finding, it can be said that gender does not affect teachers' perceptions of effective school.

Examining Teachers' Emotional Labor Behaviors and Effective School Perceptions by Professional Seniority

Table 5 presents the results of one-way ANOVA to determine whether teachers' emotional labor behaviors and perceptions of effective school differ significantly in terms of seniority.

Table 5. Teachers' perceptions of EL and ES by professional seniority

Dimensions	Source of Variance	Sum of squares	Mean Square	df	F	P
Superficial Role-Playing	Between Groups	10.975	2.774	4	2.865	.023*
	Within Groups	625.428	.958	653		
	Total	636.404		657		
Deeply Role-Playing	Between Groups	2.644	.661	4	.627	.643
	Within Groups	688.234	1.054	653		
	Total	690.878		657		
Sincere Behavior	Between Groups	.960	.240	4	.701	.592
	Within Groups	223.621	.342	653		
	Total	224.580		657		
Emotional Labor (Total)	Between Groups	3.668	.917	4	2.238	.064
	Within Groups	267.551	.410	653		
	Total	271.219		657		
Effective School Perception	Between Groups	5.791	1.448	4	2.022	.090
	Within Groups	467.647	.716	653		
	Total	473.439		657		

*p<.05

In terms of seniority variable, it was observed that the scores did not differ significantly in acting deeply (F=.627; p=.643), sincere behavior (F=.701; p=.592) and scale total (F=2.238; p=.064). It was determined that there was a significant difference in terms of professional seniority variable in the superficial role-playing dimension (F=2.865; p=.023). According to the results of the LSD test, teachers with (1-5) years of seniority display more superficial roles than teachers with (11-15) years and (21 years and above). Teachers with (6-10) years of seniority exhibit more superficial behavior than teachers with (21 years and above) seniority. Teachers with (16-20) years of seniority exhibit more superficial behavior than teachers with (21 years and above) seniority.

Based on this finding, it can be interpreted that as the professional seniority of the teachers decreases, their superficial role-playing behaviors increase.

According to Table 5, it was determined that teachers' perceptions of effective school did not differ significantly in terms of professional seniority. Based on this finding, it can be said that professional seniority is not effective on teachers' perceptions of effective school.

Findings for Research Question 5

In order to determine the relationship between these two variables, the correlation coefficient was calculated and presented in Table 6.

Table 6. Correlation values between EL and ES perceptions

Scale		Superficial Role-Playing	Deeply Role-Playing	Sincere Behavior	Emotional Labor (Total)
	r	.076	.185**	.240**	.195**
Effective School	p	.051	.000	.000	.000
	n	658	658	658	658

**p<.01

According to Table 6, a low positive correlation was found between teachers' deep acting behavior and effective school. Based on this finding, it can be interpreted that the perception of effective school will increase as teachers' profound behavior increases. A low level of positive correlation was found between the sincere behavior dimension of emotional labor and the perception of effective school. Based on this finding, it can be said that as teachers' sincere behavior increases, their perception of effective school will also increase. A low level of positive correlation was found between total emotional labor behavior scores and perception of effective school. This finding can be interpreted that as the total emotional labor behaviors of teachers increase their perception of effective school will also increase at a low level.

Findings for Research Question 6

Multiple regression analysis was conducted to determine whether teachers' emotional labor behaviors predict effective school perceptions. The independent variable emotional labor sub-dimensions; The predictive effect on the perception of effective school, which is the dependent variable, was examined. The results of multiple regression analysis are given in Table 7.

Table 7. Effective school prediction of emotional labor

Dependent variable	Independent variables	B	SE	β	t	p
Effective School	Constant	2.291	.284		8.055	.000*
	Superficial Role-Playing	.082	.038	.095	2.180	.030*
	Deeply Role-Playing	.115	.035	.139	3.332	.001*
	Sincere Behavior	.387	.057	.267	6.756	.000*
	R= .312 R^2= .093 F=23.442					

*p<.05

When Table 7 is examined, it was determined that emotional labor sub-dimensions predicted the perception of effective school positively and significantly (F=23.442; p<0.05). Emotional labor behaviors explain about 9% of teachers' perception of effective school (R=.312, R^2= .093). This finding indicates that the increase in teachers' emotional labor can also increase the perception of effective school.

DISCUSSION

In the study conducted to examine the relationship between teachers' EL behaviors and their perceptions of ES, it was determined that the general average of secondary school teachers' EL behaviors was at a moderate level. This finding is consistent with the research results of Aytekin (2020), Ergün and Argon (2017), Göç (2017), Ertürk et al. (2016), Akbaş (2016). However, it differs with the intense results in the studies of Karasu (2019), Dahmaz (2019), Cribbs (2015), Beğenirbaş and Can-Yalçın (2013),

Hackney (2012), Schutz and Lanehart (2002). In this study, the reason for the moderate level of EL behavior may be that the rules of emotional behavior are not clear, there is no monetary gain in exchange, and the teachers do not need to exhibit (Akbaş, 2016). While EL requires additional effort, the teacher's unwillingness to expend this effort or inability to find the strength required for this effort, the teacher's unawareness of EL behaviors, and the desire to deliberately keep their emotions in the background can all be counted among these reasons. The reason for the moderate degree of EL behaviors may be because, in today's conditions, teachers consider the teaching profession just as a professional job without adding their feelings.

The results show that the participants exhibit more sincere behavior than the sub-dimensions of EL, then they exhibit deep acting behavior and the least surface acting behavior. There are similar research results in the literature (Aytekin, 2020; Dahmaz 2019; Göç, 2017; Hoşgörür & Yorulmaz 2015; Karasu, 2019; Yılmaz et al., 2015). The fact that teachers' EL behaviors are high in the dimensions of sincere behavior and deep acting indicates that the behaviors expected from them in schools and the emotions they feel are compatible and the same. The positive culture and atmosphere in the school may have caused teachers to behave more sincerely and display more sincere behaviors instead of acting superficially. In addition, in a successful and positive teacher-parent-environment relationship, the teacher may have felt the need to comfortably display real and sincere behaviors instead of acting to be superficial and hiding their feelings. Deliveli (2018) found in her research that teachers exhibited mostly superficial behaviors and least deeply behaved. The reason for this difference between the research results may be the behavioral set required by the institutional policy, individual differences between teachers, the working environment at the school, interaction, communication style, and the approach of the administrator (Dahmaz, 2019).

On the other hand, secondary school teachers' perception of ES is high. Similarly, studies (Ayık & Ada, 2009; Ermeydan, 2019; Kanmaz & Uyar, 2016; Zigarelli, 1996) show that the effectiveness level of schools is perceived as high. Based on these results, it can be said that teachers see their schools as effective. The reason why schools are perceived as highly effective may be that the schools in the city center have more physical facilities, equipment, economic budget, strong and experienced teachers and administrators compared to the schools in the countryside, and the parents are effective and conscious. However, in the studies conducted by Cerit and Yıldırım (2017), Memduhoğlu and Karataş (2017), Oral (2005), the perception of ES is moderate; Yıldırım (2015) and Bart Reeves (2010) found the perception of effectived school slightly above the average in their research. In the perception of schools as effective at different levels; opportunities between schools (private-state), level differences, school types, teachers' perspective and individual characteristics, leadership characteristics of the administrator, working environment in the school, access to financial resources, etc. can be effective.

In the study, it was concluded that male teachers act more superficially and deeply than female teachers in terms of gender variable, and they exhibit more EL behavior in total, while female teachers exhibit more sincere behavior compared to male teachers. Dahmaz (2019), Yücebalkan and Karasakal (2016) reached similar results in terms of sub-dimensions and total EL in their research. In addition, the results of research by Grandey (2000), Kruml and Geddes (2000), and Hochschil (1983) similarly show that men spend more EL than women. Grandey (2000) stated that men need more effort to manage their emotions. The reason why male teachers act more superficially and deeply than women, and female teachers display more sincere behavior compared to men can be related to the upbringing of individuals. For example, men who were brought up with the belief that they "shouldn't cry, they are strong like lions, they should have a tough attitude" from an early age can keep their true feelings hidden in adulthood; they can behave as the environment expects them. Similarly, it is seen that women who express their feelings comfortably since childhood, with the thought that they are more emotional, show their emotions easily and exhibit more natural behavior in adulthood (Dahmaz, 2019). It can be interpreted that the reason why male teachers act more deeply and superficially is that they see teaching as a job that provides financial gain and that they do not need to add their sincere feelings. In addition, male teachers may not be aware that their behaviors are at the level of superficial and deep acting, or they may not know how to behave sincerely.

There are different research results in the literature in terms of the general average and sub-dimensions of EL behaviors. Deliveli (2018), Savaş (2012), Aytekin-Uysal (2007) found that EL did not differ according to the gender variable. Aytekin (2020) found in his research that there is a difference in favor of women in surface acting and total EL, and there is no difference in the dimension of deep and sincere emotion. Karasu (2019), in his research, in favor of men in superficial and deep acting; Göç (2017) in favor of men in deep acting; Kızanlıklı (2014) determined that there is a difference in favor of men in deep emotions. Obtaining different results according to the gender variable in EL shows that there is no consensus in the literature on this subject. In the emergence of different results in terms of EL behaviors according to the gender variable, the individual differences of the teachers, socio-cultural differences, the expectations of the institution they work, the approach of the administrators to the teachers, etc. considerations can be effective.

In this study, It was determined that there was no difference in the whole scale's sub-dimensions of superficial acting and sincere behavior based on educational status, and bachelor's degree teachers acted more deeply than master's degree teachers. This situation can be interpreted to mean that, when compared to master's degree teachers, bachelor's degree teachers have more emotional control, regulate their emotions, and spend more emotional effort in order to exhibit the behaviors expected of them. The reason for this could be that bachelor's degree teachers require more emotion regulation than master's degree teachers because they have slightly less experience and expertise. There are different results in terms of educational status in the literature. Aytekin (2020) found in his research that master's graduate teachers exhibit more sincere feelings than those with less education. In his research, Deliveli (2018) found that lecturers with a master's degree act more deeply than those with a doctorate degree.

In his study, Beğenirbaş (2013) concluded that teachers with doctoral degrees act less deeply than those with less education. On the other hand, Dahmaz (2019), Karasu (2019), Göç (2017), Bıyık and Aydoğan (2014) concluded that EL does not differ in terms of educational status. Since the researchers obtained different results according to the educational status variable, it can be said that the educational status variable does not have a generalizable result to the literature.

The results of the research show that there is no difference in teachers' deep acting, sincere behavior sub-dimensions and scale total scores in terms of professional seniority variable, and that teachers with low professional seniority play more superficial act than teachers with high professional seniority. The significant difference in the superficial role dimension can be interpreted as teachers who do not have sufficient experience in the profession hide their feelings (in order not to make mistakes, not to have problems) and try to exhibit the behaviors expected by the institution. In the literature, there are different results according to the professional seniority variable. The results of the research conducted by Karasu (2019), Deliveli (2018), Savaş (2012) also reveal that EL does not differentiate in terms of professional seniority. In the studies conducted by Lee and Brotheridge, (2011) and Kinman et al., (2011) it was concluded that EL differs in terms of professional seniority variable. This shows that there are different results on EL in terms of professional seniority variable and the results cannot be generalized to the literature.

In the study, it was determined that teachers' perceptions of ES were not different in terms of gender variable. Based on this finding, it can be said that the gender variable does not affect teachers' perception of ES Ermeydan (2019), Akan (2007) obtained similar results in their research. There are also studies with different results in the literature. Yavuz-Özbaş (2020), Kanmaz and Uyar (2016) found in their research that male teachers have a higher perception of ES than female teachers. Ayık (2007), on the other hand, found that female administrators and teachers have a higher perception of ES than men. Similarly, Jochim (1994) concluded in his study that female educators evaluate schools more effectively than men.

In the study, it was also concluded that teachers' perceptions of ES did not differ in terms of educational status. In this context, it can be said that the variable of educational status does not affect teachers' perception of ES. Yavuz-Özbaş (2020), Ermeydan (2019), Kanmaz and Uyar (2016), studies have similar results. However, in the literature, there are differences in favor of teachers with higher education (Eren, 2020; Ayık, 2007) or less educated (Kaya, 2015; Ayık, 2007) in teachers' perceptions of ES in terms of educational status. The reason for these differences in the results may be the individual characteristics of the individuals participating in the research, the facilities of the school where they work, and the socio-economic level of the environment.

According to the results, teachers' perceptions of ES in terms of professional seniority did not differ significantly. Based on this finding, it can be concluded that professional seniority has no effect on teachers' perceptions of ES. The findings of Yavuz-Özbaş (2020), Atcığolu (2018) studies are similar. Based on these findings, it is possible to conclude that teachers' perceptions of ES are unrelated to the professional seniority variable. However, there are studies in the literature with varying results in terms of the professional seniority variable. Ermeydan (2019) and Kaya (2015) found in their research that as teachers' professional seniority increases, so does their perception of an ES. It can be said that this situation is related to the fact that teachers who are new to the profession and whose seniority is low are more idealistic than those with higher seniority.

In the study, a low-level, positive and significant relationship was found between the EL behaviors of secondary school teachers and their perceptions of ES. Depending on this result, it can be stated that as teachers' EL behaviors increase, their perception of ES will increase at a low level. However, Grandey (2000) stated that EL is important in achieving the goals of the organization. We can say that the achievement of the goals of the organization indicates the effectiveness of the organization at the same time.

In the study, it was determined that the EL behaviors of secondary school teachers positively predicted the perception of ES Accordingly, it was concluded that EL behaviors explained approximately 9% of teachers' perception of ES. From this point of view, it can be stated that the increase in teachers' EL behaviors will also increase their perception of ES. Considering the characteristics of an ES, such as a qualified teacher, teacher satisfaction, expectations, participation, and a strong school culture (Helvacı & Aydoğan, 2011), EL behaviors of teachers can be said to be effective in the perception of an ES. While teachers' EL behaviors explain 9% of effective schools, the remaining 91% may be explained by leadership, effective teaching and professional development, organizational commitment, school-environment relations (Gökçe & Bağçeli-Kahraman, 2010). Similarly, Hoy and Miskel (2012) state that the components of an ES are administrator, teacher and student performance, teacher quality, effort, internal harmony, school outcomes, performance outcomes, and job satisfaction. Achieving the goals of the school can only be possible through teamwork. Regardless of how idealistic or successful the teacher, school principal, or any other stakeholder is, none of them can make the school organization effective on their own. As a result, it can be stated that every stakeholder in the organization is aware of his responsibilities and must meticulously carry them out.

CONCLUSION AND RECOMMENDATIONS

According to the results of the research that investigates the relationship between teachers' EL behaviors and their perceptions of ES, it was determined that teachers exhibited moderate EL and thought their schools were highly effective. According to the results of the study, teachers' EL differed significantly by gender, educational level, and professional seniority. Teachers' perceptions of ES do not differ based on gender, educational status, or professional seniority, according to research. It was concluded that EL sub-dimensions positively and significantly predicted ES perception.

To increase teachers' EL levels, which have been determined to be moderate, teachers and administrators should be made more aware of emotions, emotion management, the importance and power of emotional effort, and their emotional awareness

should be increased. Male teachers should be supported in emotion management and their emotion management skills should be improved in order to reduce the superficial and deep acting behaviors of male teachers, which are higher than female teachers, and increase their sincere behaviors. Support can be received from senior teachers in order to reduce the superficial role-playing behaviors and increase the sincere behavior of teachers with low professional seniority. Senior teachers can mentor newly appointed teachers on emotional management, self-expression, and communication skills. Teaching profession requires intense communication and interaction with people. In order to increase the effectiveness of schools, it can be ensured that teachers communicate and interact sufficiently and express their feelings comfortably. For this purpose, a more transparent and fair school management, supportive and democratic working environment should be created in the schools where they work. In this context, the effects of school administrators' management approaches on teachers' EL can be examined with the mixed research method. EL behaviors of teachers in schools that are known as effective schools can be analyzed by observing.

Declaration of Conflicting Interests

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

Funding

The authors received no financial support for the research, author-ship, and/or publication of this article.

Statements of publication ethics

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

Researchers' contribution rate

The first author conceived the presented idea and collected the data. The second author guided the research process and verified the analytical methods. All authors discussed the results and contributed to the final version of the article.

Ethics Committee Approval Information

Ethical committee approval for this study was obtained from the Ethics Committee of Atatürk University (Num: 2020/15-17; Date: 31.12.2020).

REFERENCES

Afacan-Fındıklı, M., & Erkuş, A. (2015, 6-7 November). *Examining the relationships between psychological contract and its importance (psychological contract value), emotional labor, psychological contract breach, and job performance* [Verbal notice]. 3rd Organizational Behavior Congress, Tokat.

Akan, D. (2007). *Levels of primary schools to have effective school characteristics in the process of change (Example of Erzurum province)* (Publication No. 210535) [Doctoral dissertation, Atatürk University-Erzurum]. National Thesis Center of the Council of Higher Education.

Akbaş, A. (2016). *The relationship between teachers' perceptions of organizational policy and emotional labor levels* (Publication No. 442907) [Master's thesis, Uşak University-Uşak]. National Thesis Center of the Council of Higher Education.

Alemdar, M. (2019). *Reflection of social capital on education processes: Emotional literacy and emotional labor context* (Publication No. 557372) [Doctoral dissertation, Osmangazi University-Eskişehir]. National Thesis Center of the Council of Higher Education.

Allison, P. D. (1999). *Multiple regression: A primer.* Pine Forge Press.

Atcıoğlu, E. (2018). Okulların etkililik düzeyleri ile çalışanların işe angaje olma düzeyleri arasındaki ilişki (Tez No. 498730) [Yüksek lisans tezi, Kahramanmaraş Sütçü İmam Üniversitesi-Kahramanmaraş]. Yükseköğretim Kurulu Ulusal Tez Merkezi.

Ayık, A. (2007). *The relationship between the school culture created in primary schools and the effectiveness of schools (Example of Erzurum province)* (Publication No. 210539) [Doctoral dissertation, Atatürk University-Erzurum]. National Thesis Center of the Council of Higher Education.

Ayık, A., & Ada, Ş. (2009). The relationship between the school culture created in primary schools and the effectiveness of schools. *Gaziantep University Journal of Social Sciences, 8*(2), 429-446.

Aytekin, M. (2020). *Examining the relationship between teachers' emotional labor and their organizational identification* (Publication No. 610863) [Master's thesis, Uşak University-Uşak]. National Thesis Center of the Council of Higher Education.

Aytekin-Uysal, A. (2007). *The effect of emotional life patterns and emotional labor observed in teachers on professional job satisfaction* (Publication No. 209059) [Master's thesis, Muğla University-Muğla]. National Thesis Center of the Council of Higher Education.

Balcı, A. (2013). *Effective school and school development theory, practice and research* (6th ed.). Pegem.

Bart Reeves, J. (2010). *Academic optimism and organızatıonal clımate: an elementary school effectıveness test of two measures* [Doctoral dissertation, The University of Alabama]. https://www.proquest.com/docview/851889195

Basım, H. N., & Beğenirbaş, M. (2012). Emotional labor in working life: A scale adaptation study. *Journal of Management and Economics, 19*(1), 77-90.

Başaran, İ. E., & Çınkır, Ş. (2011). *Turkish education system and school management* (3rd ed.). Ekinoks.

Beğenirbaş, M. (2013). *The mediating role of emotional labor and burnout in the effect of personality on teaching styles: A study on teachers* (Publication No. 408749) [Doctoral dissertation, Military Academy Defense Sciences Institute-Ankara]. National Thesis Center of the Council of Higher Education.

Beğenirbaş, M., & Can-Yalçın, R. (2012). The effects of teachers' personality traits on emotional labor representations. *Cag University Journal of Social Sciences, 9*(1), 47-66.

Beğenirbaş, M., & Meydan, C. H. (2012). The relationship between emotional labor and organizational citizenship behavior: A research on teachers. *Journal of Gazi University Faculty of Economics and Administrative Sciences,14*(3), 159-181.

Bıyık, Y., & Aydoğan, E. (2014). The relationship between emotional labor and organizational citizenship behavior: A research. *Journal of Gazi University, Faculty of Economics and Administrative Sciences, 16*(3), 159-180.

Bursalıoğlu, Z. (2012). *Theory and practice in educational administration* (11th ed.). Pegem.

Büyüköztürk, Ş. (2011). *Handbook of data analysis for the social sciences* (13th ed). Pegem.

Can, N. (2004). Teacher development and effective teacher behavior. *Erciyes University Journal of Social Sciences Institute, 1*(16), 103-119.

Cerit, Y., & Yıldırım, B. (2017). The relationship between effective leadership behaviors of primary school principals and school effectiveness. *Bartın University Journal of Education Faculty, 6*(3), 902-914. https://doi.org/10.14686/buefad.312405

Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). Pearson.

Cribbs, A. (2015). *Emotional labor and conflict in schools: Teacher perceptions of the emotional display rules necessary for negative teacher – student interactions* [Doctoral dissertation, University of Pittsburgh]. Retrieved from http://d-scholarship.pitt.edu/26554/1/Cribbs_Dissertation_12-2-15_Version.pdf

Çelikten, M., Şanal, M., & Yeni, Y. (2005). Teaching profession and its characteristics. *Erciyes University Journal of Social Sciences Institute, 2*(19), 207-237.

Dahmaz, A. (2019). *Examining the relationship between classroom teachers' organizational justice and emotional labor levels* (Publication No. 548272) [Master's thesis, Abant İzzet Baysal University-Bolu]. National Thesis Center of the Council of Higher Education.

Deliveli, K. (2018). *The relationship between the emotional labor behaviors of lecturers and their organizational commitment levels* (Publication No. 541901) [Doctoral dissertation, Adnan Menderes University-Aydın]. National Thesis Center of the Council of Higher Education.

Diefendorff, J. M., Croyle, M. H., & Gosserand, R. H. (2005). The dimensionality and antecedents of emotional labor strategies. *Journal of Vocational Behavior, 66*(2), 339-357. https://doi.org/10.1016/j.jvb.2004.02.001

Doğan, İ. (2015). *Evaluation of the validity and reliability of structural equation models in different data structures and sample sizes* (Publication No. 414930) [Doctoral dissertation, Eskişehir Osmangazi University-Eskişehir]. National Thesis Center of the Council of Higher Education.

Doğan, İ., & Özdamar, K. (2017). The effect of different data structures, sample sizes on model fit measures. *Communications in Statistics-Simulation and Computation, 46*(9), 7525-7533. https://doi.org/10.1080/03610918.2016.1241409

Eren, A. (2020). *The relationship between the instructional leadership behaviors of primary school principals and the effective school* (Publication No. 638149) [Master's thesis, Gazi University-Ankara]. National Thesis Center of the Council of Higher Education.

Ergün, E., & Argon, T. (2017). The relationship between teachers' belief in education and emotional labor behaviors. *International Journal of Social Studies, 10*(53), 556-566.

Erkorkmaz, Ü., Etikan, İ., Demir, O., Özdamar, K., & Sanisoğlu, S. Y. (2013). Confirmatory factor analysis and fit indices. *Turkish Clinics Journal of Medical Sciences, 33*(1), 210-223. https://doi.org/10.5336/medsci.2011-26747

Ermeydan, M. (2019). *The relationship between school administrators' leadership styles and perceived school effectiveness according to teacher opinions* (Publication No. 579558) [Master's thesis, Kahramanmaraş Sütçü İmam University-Kahramanmaraş]. National Thesis Center of the Council of Higher Education.

Ertürk, A., Keskinkılıç-Kara, S. B., & Zafer-Güneş, D. (2016). Emotional labor and psychological well-being: Perception of managerial support as a predictor. *Abant İzzet Baysal University Journal of the Faculty of Education, 16*(4), 1723-1744.

Fraenkel, J. R., Wallen, N. E., & Hyun, H. (2015). *How to design and evaluate research in education* (9th ed.). McGraw-Hill.

Göç, A. (2017). *An investigation on the relationship between school administrators' emotional labor and job satisfaction* (Publication No. 471013) [Master's thesis, On Sekiz Mart University-Çanakkale]. National Thesis Center of the Council of Higher Education.

Gökçe, F., & Bağçeli-Kahraman, P. (2010). Components of an effective school: The case of Bursa province. *Journal of Uludag University Faculty of Education, 23*(1), 173-206.

Grandey, A. A. (2000). Emotion regulation in the workplace: A new way to conceptualize emotional labor. *Journal of Ocupational Health Psychology, 5*(1), 95-110. https://doi.org/10.1037/1076-8998.5.1.95

Güçlü, N. (2000). Teachers' behavior. *Journal of National Education,* (147), 21-23.

Günal, Y. (2014). *The relationship of effective school variables with student achievement and school accountability* (Publication No. 381794) [Doctoral dissertation, Ankara University-Ankara]. National Thesis Center of the Council of Higher Education.

Hargreaves, A. (1998). The emotional practice of teaching. *Teaching and Teacher Education, 14*(8), 835-854. https://doi.org/10.1016/S0742-051X(98)00025-0

Hackney, R. (2012). *Emotional portraits of teaching: An examination of perceptions of emotional expression, emotional labor, and teacher identity using narrative inquiry.* ETD Collection for University of Texas.

Helvacı, M. A., & Aydoğan, İ. (2011). Teachers' views on effective school and effective school principal. *Uşak University Journal of Social Sciences, 4*(2), 41-60. https://doi.org/10.12780/UUSBD91

Henríquez, F., Lara, B., Mizala, A., & Repetto, A. (2012). Effective schools do exist: Lowincome children's academic performance in Chile. *Applied Economics Letters, 19*(5), 445-451. https://doi.org/10.1080/13504851.2011.583208

Hochschild, A. R. (1983). *The managed heart: The commercialization of human feeling.* University of California Press.

Hoşgörür, T., & Yorulmaz, Y. İ. (2015). The relationship between teachers' leadership behaviors and their emotional labor. *Journal of Educational Sciences Research, 5*(2), 166-190.

Hoy, W. K., & Ferguson, J. (1985). A theoretical framework and exploration of organizational effectiveness of schools. *Educational Administration Quarterly, 21*(2), 117-134. https://doi.org/10.1177/0013161X85021002006

Hoy, W. K., & Miskel, C. G. (2012). *Educational administration: theory, research and practice.* (S. Turan, Trans. Ed.). Nobel.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1-55. https://doi.org/10.1080/10705519909540118

Isenbarger, L., & Zembylas, M. (2006). The emotional labour of caring in teaching. *Teaching and Teacher Education, 22*(1), 120-134. https://doi.org/10.1016/j.tate.2005.07.002

Jacobson, M. G., & Lombard, R. H. (1992). Effective school climate: Roles for peers, practitioners, and principals. *Rural Research Report, 3*(4), 1-8.

Jochim, N. (1994). *Effective schools practices: A study of translation of effective schools characteristics to the school setting following the W.E.S.C.O. Conference* (Publication No. 9524536) [Doctoral dissertation, The University of Wyoming]. ProQuest Dissertations Publishing.

Kaliska, P. (2002). *A comprehensive study identifying the most effective classroom management techniques and practice roasting* [Doctoral thesis, The Graduate School of University of Wisconsin-Stout]. Retrieved from https://minds.wisconsin.edu/bitstream/handle/1793/40483/2002kaliskap.pdf?sequence =1&isAllowed=y

Kanmaz, A., & Uyar, L. (2016). The effect of school effectiveness on student achievement. *International Journal of Assessment Tools in Education, 3*(2), 123-136.

Karakaş, A., Tösten, R., Kansu, V., & Aydın, A. S. (2016). The effect of teachers' emotional labor behaviors on job satisfaction. *Electronic Journal of Social Sciences, 15*(56), 177-188. https://doi.org/10.17755/esosder.14708

Karasu. A. (2019). *Examining the relationship between secondary school teachers' emotional labor behaviors and burnout levels (Example of Erzurum province)* (Publication No. 581833) [Master's thesis, Atatürk University-Erzurum]. National Thesis Center of the Council of Higher Education.

Kaya, Y. (2015). *Effective school development according to the opinions of school stakeholders (Şahinbey district example)* (Publication No. 425059) [Master's thesis, Hasan Kalyoncu University-Gaziantep]. National Thesis Center of the Council of Higher Education.

Kızanlıklı, M. M. (2014). *A research on the determination of emotional labor antecedents in hotel businesses* (Publication No. 356696) [Doctoral dissertation, Gazi University-Ankara]. National Thesis Center of the Council of Higher Education.

Kinman, G., Wray, S., & Strange, C. (2011). Emotional labour, burnout and job satisfaction in UK teachers: The role of workplace social support. *Educational Psychology, 31*(7), 843-856. https://doi.org/10.1080/01443410.2011.608650

Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3rd ed.). Guilford Press.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and psychological measurement, 30*(3), 607-610. https://doi.org/10.1177/001316447003000308

Kruml, S. M., & Geddes, D. (2000). Exploring the dimensions of emotional labor: the hearth of Hochschild's work. *Management Communication Quarterly, 14*(1), 8-49. https://doi.org/10.1177/0893318900141002

Lee, M., & Van Vlack, S. (2018). Teachers' emotional labour, discrete emotions, and classroom management self-efficacy. *Educational Psychology, 38*(5), 669-686. https://doi.org/10.1080/01443410.2017.1399199

Lee, R. T., & Brotheridge, C. M. (2011). Words from the heart speak to the heart. *Career Development International, 16*(4), 401-420. https://doi.org/10.1108/13620431111158805

Lovell, C. W. (2009). *An investigation of school principals' sense of efficacy and indicators of school effectiveness* [Doctoral dissertation, University of MiSouri]. Retrieved from https://core.ac.uk/download/pdf/301299206.pdf

McKinney, C. W. (1988). *Preservice elementary education majors' knowledge of World geography.* United States: Oklahoma. Retrieved from http://files.eric.ed.gov/fulltext/ED305313.pdf.

Memduhoğlu, H. B., & Karataş, E. (2017). How effective are the schools where they work, according to the teachers? *Journal of Educational Sciences Research, 7*(2), 227-244.

Noor, N. M., & Zainuddin, M. (2011). Emotional labor and burnout among female teachers: Work-family conflict as mediator. *Asian Journal of Social Psychology, 14*(4), 283-293. https://doi.org/10.1111/j.1467-839X.2011.01349.x

Özdemir, S. (2013). *Organizational innovation in education* (7th Ed.). Pegem.

Savaş, A. C. (2012). *The effect of school principals' emotional intelligence and emotional labor competencies on teachers' job satisfaction levels* (Publication No. 320035) [Doctoral dissertation, Gaziantep University-Gaziantep]. National Thesis Center of the Council of Higher Education.

Sayın, A., & Gelbal, S. (2016). The effect of limiting parameters according to classical test theory and item response theory on fit indices in structural equation modeling. *International Journal of Education Science and Technology, 2*(2), 57-71.

Schutz, P. A., & Lanehart, S. L. (2002). Introduction: Emotions in education. *Educational Psychologist, 37*(2), 67-68.

Şat, A., Amil, O., & Özdevecioğlu, M. (2015). Examination of emotional intelligence and emotional labor levels in terms of some demographic variables: A study with private school teachers. *Erciyes University Journal of Social Sciences Institute,* (39), 1-20.

Şişman, M. (2013). *The pursuit of excellence in education: Effective schools* (4th ed.). Pegem.

Tozkoparan, G., & Özgün, A. (2015, 6-7 November). *The effect of emotional labor behavior on work stress: A study in the education sector* [Verbal notice]. 3rd Organizational Behavior Congress, Tokat.

Troman, G. (2000). Teacher stress in the low-trust society. *British Journal of Sociology of Education, 21*(3), 331-353. https://doi.org/10.1080/713655357

Truta, C. (2014). Emotional labor and motivation in teachers. *Procedia-Social and Behavioral Sciences,* 127, 791-795. https://doi.org/10.1016/j.sbspro.2014.03.356

Vatanartıran, S., & Eren, A. K. (2014). Investigation of Anatolian health vocational high schools in the context of effective school dimensions. *Adıyaman University Journal of Social Sciences Institute, 7*(16), 449-475.

Wheaton, B., Muthen, B., Alwin, D. F., & Summers, G. F. (1977). Assessing reliability and stability in panel models. *Sociological Methodology,* (8), 84-136. https://doi.org/10.2307/270754

Winograd, K. (2003). The Functions of teacher emotions: the good, the bad, and the ugly. *Teachers College Record, 105*(9), 1641-1673.

Wragg, E. C. (1993). *Class management*. Routledge publishing.

Yavuz-Özbaş, E. (2020*). Examining the relationship between teachers' perceptions of organizational identification and organizational effectiveness in secondary schools* (Publication No. 638118) [Master's thesis, Gazi University-Ankara]. National Thesis Center of the Council of Higher Education.

Yıldırım, İ. (2015). *Examining the personality and locus of control characteristics of school administrators in terms of teachers' job satisfaction and school effectiveness* (Publication No. 418239) [Doctoral dissertation, Atatürk University-Erzurum]. National Thesis Center of the Council of Higher Education.

Yılmaz, K., Altınkurt, Y., Güner, M., & Şen, B. (2015). The relationship between teachers' emotional labor and burnout levels. *Eurasian Journal of Educational Research,* (59), 75-90.

Yin, H. B., Lee, J. C. K., Jin, Y. L., & Zhang, Z. H. (2013). Exploring the relationship among teachers' emotional intelligence, emotional labor strategies and teaching satisfaction*. Teaching and Teacher Education, 35*(1), 137-145. https://doi.org/10.1016/j.tate.2013.06.006

Youngmi, K. (2016). *Emotional labour and burnout among public middle school teachers in South Korea* [Master's thesis, University of Jyvaskyla]. Retrieved from https://jyx.jyu.fi/bitstream/handle/123456789/49560/URN:NBN:fi:jyu201604262318.pdf?isAllowed=y&sequence=1

Yörük, S., & Şahin, B. (2012). Cultural leadership roles of school principals in high schools as effective schools. *Journal of Theoretical Educational Science, 5*(3), 352-368.

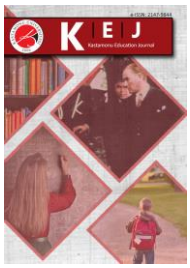
Yücebalkan, B., & Karasakal, N. (2016). A research on the relationship between emotional labor and burnout level in academicians: The case of Kocaeli University. *International Journal of Scientific Research, 1*(2), 72-85. https://doi.org/10.21733/ibad.26

Zembylas, M. (2004). The emotional characteristics of teaching: An ethnographic study of one teacher. *Teaching and Teacher Education, 20*(2), 185-201. https://doi.org/10.1016/j.tate.2003.09.008

Zhang, Q., & Zhu, W. (2008). Exploring emotion in teaching: emotional labor, burnout, and satisfaction in Chinese higher education. *Communication Education, 57*(1), 105-122. https://doi.org/10.1080/03634520701586310

Zigarelli, M. A. (1996). An empirical test of conculisions from effective schools research. *The Journal of Educational Research, 90* (2), 103-110.

Kastamonu Education Journal, 2024, Vol. 32, No:1, 14-37
doi: 10.24106/kefdergi.1426429



| Research Article / Araştırma Makalesi |

Developing a Curriculum Framework of Artificial Intelligence Teaching for Gifted Students

Özel Yetenekli Öğrenciler için Yapay Zekâ Çerçeve Öğretim Programının Geliştirilmesi [1]

Mehmet Aydın[2], **Halil Yurdugül**[3]

Keywords

1. Artificial Intelligence
2. BİLSEM
3. Gifted Students
4. Curriculum
5. Special Ability

Anahtar Kelimeler

1.Yapay Zeka
2.BİLSEM
3.Özel Yetenekli Öğrenciler
4.Öğretim Programı
5.Özel Yetenek

Received/Başvuru Tarihi
01.10.2023
Accepted / Kabul Tarihi
27.11.2023

Abstract

Purpose: The aim of this study is to determine the artificial intelligence (AI) subjects that can be handled at the beginner level for gifted students at the 6th grade -10th level studying in Science and Art Centers (BİLSEMs) and to prepare a framework curriculum for artificial intelligence to guide teachers.

Design/Methodology/Approach: This study was also considered as a design-based research; however, it was limited to needs analysis and design dimensions. In the needs analysis phase of this study, content analysis of existing curricula was used and in the design phase, quantitative analysis based on expert opinions was used. Within the scope of the needs analysis, 54 curricula structured at undergraduate and graduate levels of 41 different universities were examined. An AI subject list was created by examining the subjects included in AI curriculums. In the design phase, the AI subject list was presented to the expert opinion. Content validity criterion was used to determine whether each topic predicted by the experts "to be in the AI curriculum" was statistically significant. Hierarchical clustering analysis was also applied to the data set including the subject that the experts marked from the subject list. Based on the content validity rates (CVR) and hierarchical clustering analysis, the framework curriculum was created by determining the prominent topics.

Findings: According to the opinions of 20 experts in the research, it was seen that eight AI subjects were at the minimum CVR value and above. In the grouping made with cluster analysis, 13 subjects were obtained. Although there is a great deal of similarity between CVR and cluster analysis results, minor differences emerged between them. Based on both analyses, 6 learning domains and 22 sub-learning domains were determined regarding the subjects to be included in the curriculum.

Highlights: When compared to the studies on AI education in the literature, the prepared curriculum mostly overlaps with machine learning techniques and learning from data. There is a need to design, implement and evaluate the results of different activities aimed at the acquisitions of the curriculum put forward as a result of the study.

Öz

Çalışmanın amacı: Bu çalışmanın amacı, Bilim ve Sanat Merkezlerinde (BİLSEM) öğrenim görmekte olan altıncı - 10. sınıf düzeyindeki özel yetenekli öğrenciler için başlangıç düzeyinde ele alınabilecek yapay zeka (YZ) konularının belirlenmesi ve öğretmenlere yol gösterici bir YZ çerçeve öğretim programının hazırlanmasıdır.

Materyal ve Yöntem: Bu çalışma tasarım tabanlı araştırma olarak ele alınmış ancak ihtiyaç analizi ve tasarım boyutu ile sınırlandırılmıştır. İhtiyaç analizi aşamasında mevcut öğretim programlarının içerik çözümlemesine ve tasarım aşamasında ise uzman görüşlerine dayalı nicel çözümlemelere başvurulmuştur. İhtiyaç analizi kapsamında 41 farklı üniversitenin lisans ve lisansüstü düzeyde yapılandırılmış 54 adet öğretim programı incelenmiştir. Yapay zeka öğretim programlarında yer alan konular incelenerek bir yapay zeka konu listesi oluşturulmuştur. Tasarım aşamasında oluşturulan yapay zeka konu listesi uzman görüşüne sunulmuştur. Uzmanlar tarafından "YZ öğretim programında olması" öngörülen her bir konunun istatistiksel olarak anlamlı olup olmadığını belirlemek için kapsam geçerlik ölçütü kullanılmıştır. Uzmanların konu listesinden işaretledikleri konuların yer aldığı veri kümesine ek olarak hiyerarşik kümeleme analizi de uygulanmıştır. Kapsam geçerlik oranları (KGO) ve hiyerarşik kümeleme analizine dayalı olarak ön plana çıkan konular belirlenerek çerçeve öğretim programı oluşturulmuştur.

Bulgular: Araştırmada 20 uzman görüşüne göre KGO minimum değer ve üzerinde sekiz yapay zeka konusunun yer aldığı görülmüştür. Kümeleme analizi ile yapılan gruplamada ise 13 adet konu elde edilmiştir. KGO ile kümeleme analizi sonuçları arasında büyük ölçüde benzerlik olmakla beraber aralarında küçük farklılıklar ortaya çıkmıştır. Her iki analize dayalı olarak öğretim programında yer alacak konular ve konulara ilişkin 6 öğrenme alanı ve 22 alt öğrenme alanı belirlenmiştir.

Önemli Vurgular: Alanyazında yapay zeka eğitimi ile ilgili yapılan çalışmalar ile karşılaştırıldığında ortaya konan öğretim programı en çok makine öğrenmesi teknikleri ve veriden öğrenme konuları ile örtüşmektedir. Çalışma sonucunda ortaya konan öğretim programındaki kazanımlara yönelik farklı etkinliklerin tasarlanmasına, uygulanmasına ve sonuçlarının değerlendirilmesine ihtiyaç duyulmaktadır.

[1] This study is a part of PhD dissertation prepared by the first author under the supervision of the second author.

[2] **Corresponded Author,** PhD Student, Hacettepe University, Institute of Educational Sciences, Ankara, TÜRKİYE; https://orcid.org/0000-0001-8148-4251
[3] Hacettepe University, Faculty of Education, Institute of Educational Sciences, Ankara, TÜRKİYE; https://orcid.org/0000-0001-7856-4664

Citation/Alıntı: Aydın, M., & Yurdugül, H. (2024). Developing a Curriculum Framework of Artificial Intelligence Teaching for Gifted Students. *Kastamonu Education Journal, 32*(1), 14-37. doi: 10.24106/kefdergi.1426429

INTRODUCTION

The rapid development in digitalization has revealed the concept of big data by increasing the amount of data held in digital environments. Artificial intelligence (AI) has come to the fore with the increase in knowledge in keeping, processing and analyzing data in digital environments. AI studies are increasing day by day and are trying to solve problems in many areas. In recent years, the importance of educating individuals with these skills for the development of AI technologies has increased.

AI education is provided at different education levels. In recent years, AI has also started to come to the agenda for students studying at K12 (primary and secondary education) level (AI4K12, 2018; Long & Magerko, 2020; UNESCO, 2022). In particular, on AI education for the K12 level; the Association for the Advancement of Artificial Intelligence (AAAI) and The AI for K12 (AI4K12) Community, supported by the Computer Science Teachers Association (CSTA), are working on skill sets and/or curriculum for AI at the K12 level. Similarly, Long & Magerko (2020) present a conceptual framework about what competencies should be in AI literacy. In another study, Lao (2020) offers a training framework for machine learning (ML). On the basis of these studies, it offers some competency framework for K12 in AI education. Although such studies have created various skill sets and frameworks on AI education, a concrete curriculum has not yet been put forward on the subject.

While some countries in the world have started to include artificial intelligence curriculum at the K12 level, some countries are conducting studies on this matter (UNESCO, 2022). Although there are some initiatives at the K12 level in the country where this study was conducted (Türkiye), there is a need for more studies on this matter. In the framework curriculum prepared for the field of information technologies within the Ministry of National Education (MEB), Vocational and Technical Anatolian High School, there is an optional "AI and ML" course for 11th and 12th grades (MEB, 2022a). In addition, the Board of Education has included "AI applications" as an elective course for the seventh grade and eighth grades of secondary school in its latest update of the Weekly Course Schedule for Primary Education Institutions (MEB, 2023). Apart from this, it is seen that there are efforts of some private or public education institutions on AI teaching. At the forefront of these efforts is the Science and Art Centers (BİLSEM), where gifted students are educated in Türkiye.

Gifted students need differentiated instruction beyond the curriculum in their schools (Marland, 1972; Sak, 2011). Science and Art Centers have been established in Türkiye in order to provide differentiated education for gifted students at the K12 level. Apart from the formal education institutions they attend, these students have an activity-based learning experience in these centers. For the teaching of AI in BİLSEMs, the AI Module has been included in the Information Technologies and Software field for the ÖYG (Special Talent Development Program) program by the Ministry of National Education, General Directorate of Special Education and Guidance. There are many AI subjects in this module (MEB, 2022b). According to the BİLSEM directive, the ÖYG program is planned and implemented for two academic years for students diagnosed in the field of general mental ability (MEB, 2022c). In this sense, it is seen that there is a need for an initial framework curriculum for students who will just start their AI studies in BİLSEMs.

The fact that AI, whose importance is increasing day by day, is not sufficiently included in the curriculum of formal education institutions at the K12 level in Türkiye, emerges as a need for gifted students who have an interest and ability in this subject. BİLSEMs have an important purpose for gifted students who need differentiated education in Türkiye. With their aims and opportunities, BİLSEMs are important educational institutions for students who are interested in AI and have special abilities. The fact that AI has a wide field of study and makes use of different disciplines reveals the need for guiding studies for teachers in teaching AI at the K12 level. The aim of this study is to determine the AI subjects that can be handled at the beginner level for gifted students at the sixth grade -10th grade level who are being taught in BİLSEMs and to prepare a framework curriculum to guide teachers.

What is AI?

McCarthy (2007) defines AI as "*the science and engineering of making intelligent machines, especially intelligent computer programs*" and divides it into 12 sub-branches. These are logic AI, search, pattern recognition, representation, inference, common sense knowledge and reasoning, learning from experience, planning, epistemology, ontology, heuristics and genetic programming (McCarthy, 2007). Antebi (2021), shows AI and its sub-fields as in Figure 1.

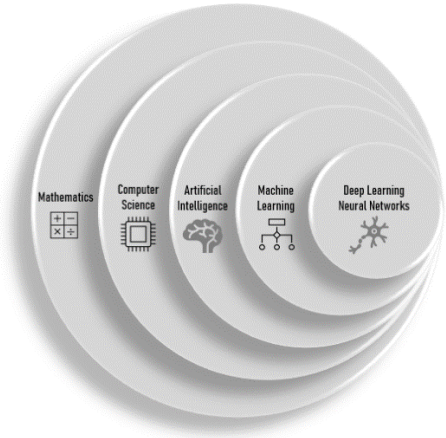


Figure 1. AI and its sub-fields (Antebi, 2021).

As seen in Figure 1, AI is based on mathematics and computer science. In addition, ML, deep learning and neural networks appear to be sub-work areas of AI. Machine learning, a sub-study of artificial intelligence, is "*programming computers to optimize a performance measure using sample data or past experiences*" (Alpaydın, 2004). Another issue to be emphasized is that AI is an umbrella concept and it consists of many sub-studies such as ML, expert systems, speech recognition, image processing, natural language processing, robotics and so on. ML and expert systems include decision-making processes based on the processing of data, while others include dominant features such as perception and/or reaction. Of these, ML and expert systems include decision-making processes based on the processing of data, while others include dominant features such as perception and/or reaction.

AI Curriculum Studies

With the rapid development in technology, AI studies in the world have gained even more speed and AI education has come to the forefront at the K12 level after graduate and undergraduate levels. Some countries have taken action on this issue and have started AI curriculum studies at the K12 level. United Nations Educational, Scientific and Cultural Organization (UNESCO), which is conducting a study on mapping AI curriculum endorsed by governments, has prepared a comprehensive report on this matter (UNESCO, 2022). It is stated in the report that UNESCO has contacted 193 member states through official correspondence channels and received responses from a total of 51 countries. AI curricula for K12 endorsed and implemented by governments are given in Table 1 (UNESCO, 2022).

Table 1. K-12 AI curriculum endorsed and implemented by governments (UNESCO, 2022)

Countiries	Curriculum Title	Curriculum Developer	Educational Levels		
			Primary school	Middle school	High school
Armenia	Curriculum of ICT	Government		X	X
Austria	Data Science and Artificial İntelligence	The Federal Ministry of Education, Science and Research			X
Belgium	IT Repository	Fédération Wallonie-Bruxelles (French-speaking Community of Belgium)			X
China	AI curriculum embedded in the Information Science and Technology curriculum	The Ministry of Education of the People's Republic of China	X	X	X
India	Atal Tinker Labs artificial intelligence modules	Atal Tinker Labs, Atal Innovation Mission, NITI Aayoag		X	X
Republic of Korea	'AI Mathematics' under the Mathematics Subject Group for high schools	Korean Foundation for the Advancement of Science and Creativity			X
	'AI Basics' under Technology Home Economics Subject Group for high schools	Korean Foundation for the Advancement of Science and Creativity			X
Kuwait	Standard curriculum	Curriculum technical guidance experts and teachers	X	X	
Portugal	Information and Communication Technologies	Stade school teachers of ICT and Mathematics	X	X	X

Countiries	Curriculum Title	Curriculum Developer	Educational Levels		
			Primary school	Middle school	High school
Qatar	Computing and Information Technology	Binary Logic, Ministry of Education and Higher Education	X	X	X
	Computing and Information Technology (High-Tech Track)	Binary Logic, Ministry of Education and Higher Education			X
Serbia	Informatics and programming – Grade 8	Ministry of Education working group		X	
	Modern technologies in gymnasiums – Grade 3 and 4	Ministry of Education working group			X
The United Arab Emirates	AI curriculum embedded under the Technology Subject Framework	Ministry of Education	X	X	X

As presented in Table 1, there are 14 AI curriculum at the K12 level, endorsed by the government and implemented in 11 countries. It is seen that %71,4 (10) curriculum are under the heading of information technologies/information and communication technologies/technology. It is seen that %71,4 (10) curriculum were developed by the Ministries of National Education or state institutions, and %28,6 (four) of them were developed by foundations or communities. It is seen that six of the 14 curriculum developed are high school, four of them are primary school-middle school-high school, two of them are middle school-high school, one of them are primary-middle school and one of them is middle school. Table 2 shows the AI curriculum at the K12 level that governments continue to develop (UNESCO, 2022).

Table 2. AI curriculum that continue to be developed by the official institutions of the countries (UNESCO, 2022)

Countries	Curriculum Title	Curriculum Developer	Educational Levels		
			Primary School	Middle School	High School
Germany	Identifying and Formulating Algorithms	Standing Conference of the Ministers of Education and Cultural Affairs of the Länder	X	X	X
Jordan	Digital skills	National Center for Curriculum Development		X	X
Bulgaria	Computer Modeling, Information Technology And Informatics	Expert groups (academia, teachers, education experts)	X	X	X
Saudi Arabia	Digital skills	Binary Logic and Tatweer Co.	X	X	X
Serbia	Technique and Technology	Ministry of Education working group		X	
	AI in gymnasium	Ministry of Education working group			X
	AI in all high schools	Ministry of Education working group			X

As presented in Table 2, the process of developing seven AI curriculum at K12 level by governments in five countries continues. It is seen that five of these seven curriculum are under the heading of algorithm/digital skills/information technology. It is seen that the majority of these seven curriculum were developed by the Ministries of National Education or state institutions. It is seen that three of the seven curriculum that are in development process are primary school-middle school-high school, two are high school, one is middle school-high school and one is middle school.

In Türkiye, there is an optional "AI and ML" course for 11th and 12th grades in the field of information technologies within the Vocational and Technical Anatolian High School at the K12 level (MEB, 2022a). The Board of Education has included "AI applications" as an elective course for the seventh grade and eighth grades of secondary school in its latest update of the Weekly Course Schedule for Primary Education Institutions (MEB, 2023).In addition, there are private initiatives of some institutions for AI education at the K12 level in Türkiye. In Türkiye, AI studies are carried out according to the interests and abilities of the students in the Science and Art Centers, where gifted students at the K12 level are educated. In addition, the “Deneyap Technology Workshops”, which were realized in cooperation with the Ministry of Industry and Technology, Ministry of Youth and Sports, The Scientific And Technological Research Council of Türkiye (TÜBİTAK) and the Turkish Technology Team Foundation in Türkiye and are aimed to be established in 81 provinces, allow students at the K12 level to conduct AI studies (https://www.deneyapturkiyeorg/). The first National Artificial Intelligence Strategy (NAIS) (2021-2025) which also includes targets for such AI education studies was published in Türkiye. NAIS (2021-2025), which was prepared in line with the eleventh development plan and presidential annual programs and is the first national strategy document of our country in the field of AI, entered into force after being published in the Official Newspaper dated 20.08.2021 and numbered 31574 (Republic of Türkiye Official Newspaper, 2021). One of the objectives included in the strategy document prepared in cooperation with Presidency of the Republic of Türkiye Digital Transformation Office and the Ministry of Industry and Technology has been determined as "to enable pre-higher youth to receive applied training in algorithmic thinking, coding and AI in line with their interests, abilities and temperaments, in accordance with their education level". One of the measures to be taken for this purpose is expressed as "the

development of training models that will provide experimentation, interaction and deepening in the field of AI and programs according to existing and/or new structures will be encouraged" (NAIS, 2021). In the national AI strategy, it is an important step to set the aim of ensuring that young people receive AI education before higher education and to encourage the development of education models in this regard as a precaution. This study is also important in terms of serving the purposes of NAIS (2021-2025).

AI Education

There are important studies that present conceptual frameworks on AI education and competencies for students. Some studies on AI education are given below. “The AI for K-12 (AI4K12)” Initiative, supported by the Association for the Advancement of Artificial Intelligence (AAAI) and the Computer Science Teachers Association (CSTA) revealed the “Five Big Ideas in Artificial Intelligence” study in Figure 2, which includes some competencies for students in each grade group at the K12 level (AI4K12, 2018).

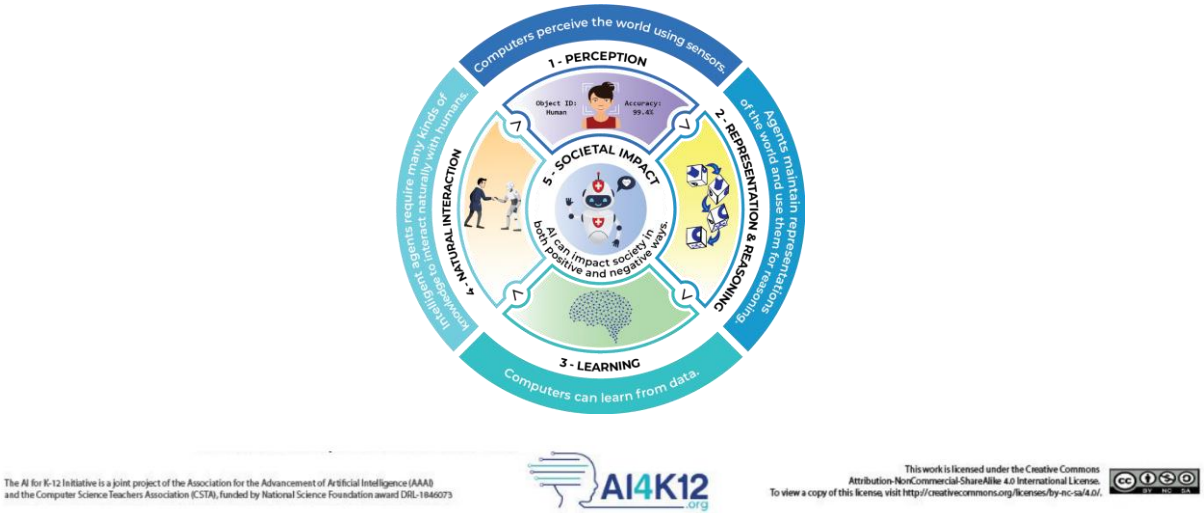


Figure 2. Five big ideas in AI (AI4K12, 2018)

These five big ideas in Figure 2 are explained as follows (Touretzky, Gardner-McCune, Martin & Seehorn, 2019);

1. Computers perceive the world using sensors: perception is the process of obtaining information from sensory signals. The ability of computers to "see" and "hear" well enough to be useful in practice is one of AI's greatest achievements. Students should understand that machine perception of spoken language or visual images requires extensive domain knowledge.

2. Agents maintain models/representations of the world and use them for reasoning: AI systems are often described as intelligent agents that perceive and represent the world, think and produce outputs that affect the world. Students should understand that computers create representations using data and that these representations can be manipulated by applying reasoning algorithms that derive new information from what is already known.

3. Computers can learn from data: ML algorithms allow computers to construct their own representations using training data provided by humans or acquired by the machine itself. Students should understand that ML is a type of statistical inference that finds structures in data.

4. Enabling agents to interact comfortably with humans is a major challenge for AI developers: understanding humans is one of the most difficult challenges intelligent agents face. This includes tasks such as speaking in natural language, recognizing emotional states, and inferring intentions from observed behavior. Students should understand that while computers have a limited understanding of natural language, they currently lack the general reasoning and speaking abilities of even a child.

5. AI applications can impact society in both positive and negative ways: students should be able to identify ways that AI contributes to their lives.

In another study, Lao (2020) presents an ML education framework based on self-regulation, constructivism and computational thinking. Lao (2020) presents a ML education framework based on self-efficacy, constructivism and computational training theories for people who like to repair/experiment or who are in a consumer position (Figure 3).

Figure 3. ML education framework (Lao, 2020)

The ML education framework in Figure 3 consists of three interrelated categories. These are knowledge, skills and attitudes. The knowledge category includes general information about ML, information about the methods used in ML, the subject of bias in ML systems, and information about the social effects of ML. The skills category includes which problems can be solved with ML, planning a solution for a given problem in ML, creating various ML artifacts, analyzing ML design goals and results. Also, this category includes ML advocacy and independent out-of-class learning, which refers to students' ability to interact critically with ML in their community. Attitudes category includes students' interest in ML, students' feeling of belonging to a ML community, students' feeling powerful about ML, and students' persistence in ML (Lao, 2020).

In one another study, Long & Magerko (2020), based on current research, provides a general framework on what competencies are required for AI literacy and what kind of design features should be taken into account. Based on the literature review, the study includes a conceptual framework consisting of five different overarching themes with questions about AI and a set of competencies for each theme (Table 3).

Table 3. AI literacy conceptual framework and competencies (Long & Magerko ,2020)

Theme	Competency
What is AI?	1-Recognizing AI 2- Understanding Intelligence 3- Interdisciplinarity 4- General vs. Narrow
What can AI do?	5-Strengths and Weaknesses of Artificial Intelligence 6-Imagine Future Artificial Intelligence
How does AI work?	7-Representations 8-Decision - Making 9- Machine Learning Steps 10-Human Role in Artificial Intelligence 11-Data Literacy 12-Learning from Data 13- Critically interpreting Data 14- Action and Reaction 15- Sensors
How should AI be used?	16-Ethics
How do people perceive AI?	17- Programmability

As seen in Table 3, there are 17 separate competencies in the conceptual framework consisting of five themes. A significant number of these competencies (nine competencies) are related to how AI works. As another purpose of their study, the researchers put forward a definition of AI literacy based on existing research. This definition is as follows : "*AI literacy as a set of competencies that enables individuals to critically evaluate AI technologies; communicate and collaborate effectively with AI; and use AI as a tool online, at home, and in the workplace*" (Long & Magerko, 2020).

The studies mentioned above provide important frameworks for AI education and present some competencies that students are expected to have. Knowing to what extent the countries that are implementing or in the process of developing AI curriculum include these competencies is important in terms of guiding AI curriculum development studies. UNESCO, which has conducted a comprehensive study on this matter, has mapped the K12 AI curriculum endorsed by governments (UNESCO, 2022). In the study, information was collected from member states and private sector actors through surveys. In this mapping study, the AI curriculum content was divided into nine subject areas under three categories (Table 4) and the respondents were asked to provide information about the time and percentage they allocate to these subject areas in their curriculum.

Table 4. AI curriculum areas (UNESCO, 2022)

Category	Topic area	Competency and curriculum considerations
AI foundations	Algorithms and programming	*"Together with data literacy, algorithms and programming can be viewed as the basis of technical engagement with AI".*
	Data literacy	*"A majority of AI applications run on 'big data'. Managing the data cycle from collection to cleaning, labelling, analysis and reporting forms one of the foundations for technical engagement with using and/or developing AI. An understanding of data and its functions can also help students understand the causes of some of the ethical and logistical challenges with AI and its role in society".*
	Contextual problem-solving	*"AI is often framed as a potential solution to business-related or social challenges. Engaging at this level requires a framework for problem-solving in context, encompassing things like design thinking and project-based learning".*
Ethics and social impact	The ethics of AI	*"Regardless of technical expertise, students in future societies will engage with AI in their personal and professional lives – many do so from a young age already. It will be important for every citizen to understand the ethical challenges of AI; what is meant by 'ethical AI'; concepts such as transparent, auditable, and fair use of AI; and the avenues for redress in case of unethical or illegal use of AI, e.g. that which contains harmful bias or violates privacy rights".*
	The social or societal implications of AI	*"The social impacts of AI range from requiring adjustments to legal frameworks for liability, to inspiring transformations of the workforce. Survey respondents were asked about the extent to which their curricula targeted these issues. Trends such as workforce displacement, changes to legal frameworks, and the creation of new governance mechanisms were given as examples".*
	Applications of AI to domains other than ICT	*"AI has a wide range of applications outside of computer science. The survey asked participants whether and to what extent AI applications in other domains were considered. Art, music, social studies, science and health were given as examples".*
Understanding, using and developing AI	Understanding and using AI techniques	*"This area included (1) the extent to which theoretical understandings of AI processes were developed (e.g. defining or demonstrating patterns, or labelling parts of a machine learning model); and (2) the extent to which students used existing AI algorithms to produce outputs (e.g. training a classifier). Machine learning in general, supervised and unsupervised learning, reinforcement learning, deep learning, and neural networks were given as examples of AI techniques".*
	Understanding and using AI technologies	*"AI technologies are often human-facing applications which may be offered 'as a service'. NLP and computer vision were given as examples. Respondents were asked about the extent to which learners used existing AI technologies to complete tasks or projects, and/ or studied the processes of creating these Technologies".*
	Developing AI technologies	*"Developing AI technologies deals with the creation of new AI applications that may address a social challenge or provide a new type of service. It is a specialized field requiring knowledge of a range of complex techniques and skills in coding, mathematics (especially statistics), and data science".*

UNESCO (2022) has revealed the rates of inclusion of the categories in Table 4 in the curriculum, based on the information received from the participants. "AI foundations", which forms the basis of many curriculum, constitutes an average of 41% of the curriculum time. Another category, "Ethics and social impact", accounts for an average of 24% of the hours. "Understanding, using and developing AI" accounts for an average of 25% of the hours. Since not all countries responded to requests for clarification, 10% are shown as "unspecified" (Figure 4).

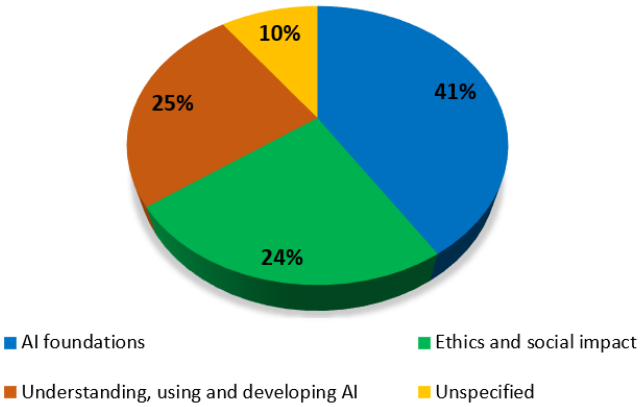


Figure 4. The rates of inclusion of AI Curriculum Categories (UNESCO, 2022)

According to the information received from the participants, the average durations committed for the subject domains are given in Table 5. (UNESCO, 2022).

Table 5. The average hour commitment (all) of AI subject domains (UNESCO, 2022)

AI foundations	99.8
Ethics and social impact	29.7
Understanding, using and developing AI	39.0

As seen in Table 5, while “AI foundations” has the most time (99.8), it is followed by “Understanding, using and developing AI” (39.0) and “Ethics and social impact” (29.7). In its report, UNESCO (2022) also mentions the extent to which AI main domains are included in different curriculum in terms of time. It is appeared that “AI foundations” is included in the curriculum at different rates between 0% and 75%, “Ethics and social impact” is between 0% and 60%, and “Understanding, using and developing AI” varies between 0% and 70%. The report also states that different curriculum focus on different domains. For instance; Armenia allocates 70% of the time to the domain of "Understanding, using and developing AI" in the Curriculum of ICT, while 0% of the time is allocated to the domains of "Ethics and social impact" and "AI foundations". In the "Computer Modeling, Information Technology and Informatics" Curriculum, Bulgaria allocates 75% of the time to the "AI foundations" domain, 0% to the "Understanding, using and developing AI" and 15% to the "Ethics and social impact" domain. In the Informatics and Programming curriculum, Serbia allocates 20% of the time to the field of "AI foundations", 20% to the domain of "Understanding, using and developing AI", and 60% to the domain of "Ethics and social impact". The report also includes the curriculum numbers, hour intervals and average time commitments covering the sub-domains given in Table 4. This information is given in Table 6 (UNESCO, 2022).

Table 6. Engagement of AI sub-subjects domains in the curriculum (UNESCO, 2022)

Category	Topic area	Number covering the topic area (n = 21)	Range of hours	Average hour commitment (all)
AI foundations	Algorithms and programming	19	0-269	50.0
	Data literacy	17	0-78	21.5
	Contextual problem-solving	14	0-198	28.3
Ethics and social impact	The ethics of AI	17	0-54	10.8
	The social or societal implications of AI	12	0-78	8.1
	Applications of AI to domains other than ICT	18	0-92	11.9
Understanding, using and developing AI	Understanding and using AI techniques	18	0-128	14.6
	Understanding and using AI technologies	12	0-307.5	21.1
	Developing AI technologies	6	0-30	3.3

It is seen in Table 6 that the subject domain covered by the "Algorithms and programming" domain in the AI foundations category and the average hours allocated are more than the domains of "Data literacy" and "Contextual problem-solving". It also seems that the time interval is longer than the other two areas. While "Data literacy" ranks second as the subject domain covered

by the field, "Contextual problem-solving" field ranks second in terms of average time and hour range. In the While in the "Ethics and social impact" category, "Applications of AI to domains other than ICT" ranks first in terms of subject domain coverage, "The ethics of AI" ranks second with a value close to it. It is seen that these two domains are close to each other in terms of committed time, and "The social or societal implications of AI" is allocated less time than the other two fields. It is seen that the "Applications of AI to domains other than ICT" domain has the widest time range. In the “Understanding, using and developing AI” category, the domain of “Understanding and using AI techniques” ranks first in terms of subject domain coverage, followed by “Understanding and using AI Technologies” and “Developing AI Technologies”. It is noteworthy that the “Understanding and using AI Technologies” domainhas a longer time range than the other two domains. The "Understanding and Using AI Technologies" domain comes first in terms of allocated hours.

When the evaluations made on the basis of the curriculum are examined, the curriculum prepared in Qatar includes a compulsory course for all grade levels and an elective 'high technology' course for high schools. Both sections include AI learning outcomes related to algorithms, programming, ethics and social impact, and understanding and using AI tools and technologies. Students in high-tech fields are also noted to be involved in the development of AI technologies. It is underlined that the purpose of the curriculum is to follow current trends in information technologies and to review it periodically. It is stated that another important issue is to ensure that the curriculum is not dependent on specific technologies, platforms or applications, and to guarantee the sustainability of the standards over time (UNESCO, 2022).

In another study on the comparison of artificial intelligence curricula, Li (2020) compared curricula in Canada, India, the US and the UK. He states that the four curricula he compared converge and diverge in terms of basic elements. He states that the Canadian and Indian curricula emphasize technical subjects, while the US curriculum emphasizes social and ethical issues. It underlines that the UK curriculum covers the widest and most balanced range of subjects.

Williams, Kaputsos & Breazeal (2021) share some evaluations after the implementation of the curriculum they developed. They developed the AI and Ethics Curriculum for secondary school teachers as an introduction to AI. The study includes the training of teachers for a five days AI course and teacher feedback regarding the process. It is stated that the curriculum prepared in the study includes the third idea of the five big ideas put forward by AI4K12 (2018), that “computers can learn from data”, and the fifth idea, that “AI applications can impact society in both positive and negative ways”. Additionally, It is indicated that the competencies numbered one and two "Recognizing AI" and "Understanding Intelligence" are included in the framework put forward by Long and Magerko (2020) and the skills numbered two and three "ML project planning" and "creating ML artifacts" are included in the framework put forward by Lao (2020). As a result of the study, researchers point out how old computers and other devices can be used in practice and the difficulties experienced in accessing such devices, especially in rural areas. Similarly, the problems experienced in internet access and the cost of robots are mentioned. For future research, the importance of students' cultural backgrounds and designing AI platforms together with teachers to support their learning needs is emphasized.

In its evaluation of the curriculum in practice in the UNESCO (2022) report, it is stated that the AI curriculum should be coordinated with the mathematics curriculum and classroom requirements. It is marked that curriculum should also address a wide range of contexts and the different opportunities and challenges of both urban and rural environments. The conclusion of the report includes nine key findings and 13 recommendations. Some of the highlights of these findings and recommendations are as follows: it is stated that there are a limited number of AI curriculum developed and implemented by governments, and there are very few published studies on the evaluation of curriculum. It is underlined that more pilot studies should be conducted to obtain feedback and that evaluations regarding the impact on students should be evidence-based. It is stated that discussion on ethics alone, without sufficient knowledge about AI techniques and tools, will not be sufficient to guide students to an in-depth understanding. It is emphasized that the AI curriculum should not be associated with specific technologies, brands or platforms, and that students should gain basic knowledge to apply AI in different domains and contexts.

Educational Platforms for AI

With the emergence of AI at the K12 level, some software companies have developed some applications for students to work with AI (Table 7.)

Table 7. AI applications for K12

Application Name	Web address
Machine Learning for Kids	https://machinelearningforkids.co.uk/
mBlock	https://www.mblock.cc/
PictoBlox	https://pictoblox.ai/

Machine Learning for Kids, shown in Table 7, is a platform where students can make different applications by entering the specified web page. In Machine Learning for Kids, students can work on classifying text, numbers, pictures or sounds. The mBlock and pictoblox in Table 7 are the platforms where students can make various applications through the software they downloaded to their computers from the specified web page. In mBlock, students can work on classifying objects, detecting mood, detecting age, and detecting some situations related to physical appearance by using the camera. Similarly, in the pictoblox application, which is another application, students can make use of the camera to work on detecting moods or detecting some situations related to physical appearance.

Such applications can be beneficial in terms of drawing the attention of young children to AI, showing what AI can do and making some projects. However, the ready and limited features offered by such applications are insufficient for students who plan to advance in AI.

It is seen that most of these initiatives at the K12 level are tool/software based and are independent of the mathematical and statistical infrastructure of the algorithms used. AI systems express the data they receive from outside numerically and obtain an output by reaching the result with the mathematical and statistical calculations they make over the numbers. Therefore, it is important to emphasize the teaching of algorithms based on statistical and mathematical theories instead of a teaching approach based on tool-based activities unaware of these algorithms, in terms of understanding what kind of system works in the background of AI.

The Basic Approach Followed in the Study

In this study, it is planned to focus mainly on the mathematical and statistical dimensions of AI for sixth grade - 10th grade gifted students who have not received artificial intelligence education before, but also include basic concepts and ethical dimensions. Students are not required to know any programming language. The main purpose is to ensure that students learn AI algorithms and techniques, make applications using simple tools and relate them to daily life. The dimensions focused on in the study are given in figure 5.

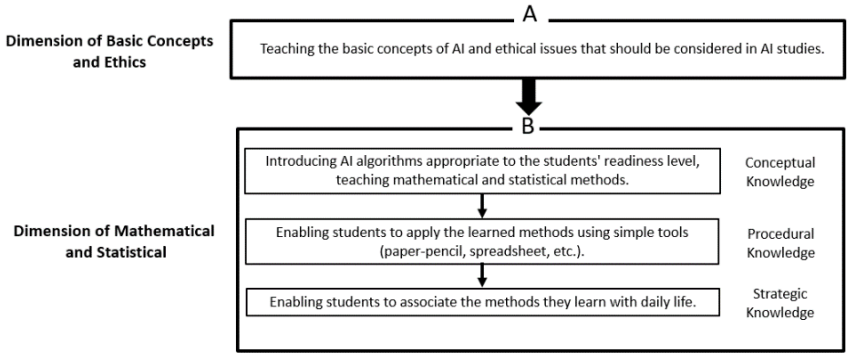


Figure 5. Dimensions focused on in the study

As seen in Figure 5, the mathematical and statistical dimension, which is mainly focused on in the study, consists of three stages. These are introducing AI algorithms, teaching mathematical and statistical methods (conceptual knowledge), applying the learned methods using simple tools (procedural knowledge), and associating the learned methods with daily life (strategic knowledge).

It is seen that different types of information are included in the literature. Conceptual knowledge is "*static knowledge about facts, concepts, and principles valid in a particular field. Conceptual knowledge functions as additional information that problem solvers add to the problem and use to realize the solution*" (De Jong & Ferguson-Hessler, 1996). Procedural knowledge is "*about knowing how. In other words, procedural knowledge refers to the skills, processes, and algorithms associated with a topic or content area. Usually represented as a series of steps, procedural knowledge requires students to know when to apply certain skills, processes, and algorithms*" (Almarode, Fisher & Frey, 2021). Strategic knowledge is "*the knowledge of general strategies for learning, thinking and problem solving*" (Anderson et al., 2001). In other words, it is "*knowing why and when to use declarative and procedural knowledge and when to leave declarative and procedural knowledge while engaged in new learning*" (Almarode, Fisher & Frey, 2021).

Aim of the Research

One of the goals of the 2023 Education Vision document published by the Ministry of National Education is to develop learning environments, course structures and materials for gifted students (MEB, 2018a). In this vision document, one of the objectives planned for this purpose is "curriculum studies covering formal and non-formal education for the education of gifted individuals

will be initiated". In BİLSEMs, where gifted students are educated in Türkiye, education and training activities are carried out outside the hours of formal education. The aim of BİLSEMs is to enable students to gain creative thinking, discovery, invention, success in social relations, innovation, leadership, communication and artistic skills. In addition, in BİLSEMs, it is aimed that students gain the discipline of scientific study in line with their special abilities, think interdisciplinary, solve problems, and realize projects to meet the determined needs (MEB, 2022c). In this context, it is important to enable gifted students to discover new topics required by the age, and to offer educational opportunities in line with their interests and abilities. AI, which is one of the most important developments of our age, has begun to take its place in the background of many systems. It is important for gifted students who are interested in this subject to know what AI is and how it works, so that they can solve the problems they encounter.

In BİLSEMs, there are a total of 19 fields that students who are diagnosed with general mental ability can take. These areas are classroom teaching, science and technology, primary school mathematics, guidance, social studies, technology design, Turkish, foreign language, information technologies and software, visual arts, music, Turkish language and literature, biology, geography, philosophy, physics, chemistry, high school mathematics and history (MEB, 2022c). There is a framework program for each field. These framework programs offer BİLSEM teachers a pool of skill-oriented acquisitions for the gifted students in their groups to take advantage of by taking into account their individual differences (Göksu, 2021).

Akbaş & Tortop (2015) state that the framework programs that provide resources for teachers in BİLSEMs are not a complete program in terms of acquisition and evaluation, although this situation leaves BİLSEM teachers free to teach, if they are educationally inadequate, it causes them to make wrong practices, and that most of the applications made are enrichment practices. Göksu (2021) states that these framework programs created for BİLSEMs are formed according to the parallel curriculum model, curriculum narrowing model and integrated curriculum model strategies, which are among the curriculum differentiation models, and that the framework programs are based on enriching and deepening among the curriculum differentiation strategies.

There are nine modules in the framework program prepared for the ÖYG (Special Talents Development Program) program in the field of information technologies and software. While preparing Individualized Education Programs (BEP), teachers can include the subjects in these modules into their plans, taking into account the individual characteristics of the students. The topics under the AI module, which is one of these modules are introduction to AI, AI in daily life, agents, search algorithms, artificial neural networks, introduction to ML, classification in ML, clustering in ML, deep learning (MEB, 2022b). It is seen that the topics in the module cover most of the topics related to artificial intelligence and there are general gains related to the topics. The fact that the subject of AI is included as a module in the framework program prepared for the field of information technologies and software in BİLSEMs indicates the need for this issue in the education of gifted students. For gifted students who want to work on AI (especially for those who are new to AI), it is seen that it would be useful to present a framework teaching program that guides information technologies and software teachers about which AI topics to start with and how a hierarchical structure can be followed.

Another important issue is that teachers in BİLSEMs can also open elective field/activity/skill development workshops apart from the basic fields in which students are educated. The education programs of the elective fields are prepared by the relevant elective field/activity/talent development workshop teacher in accordance with the age and cognitive levels of the students and applied after they are approved by the BİLSEM management. In the annex of the BİLSEM directive, there are 30 elective courses/activity/talent development workshops that can be taken by students who are diagnosed according to the general mental ability field. Some of these are mind games, astronomy, aviation and space, robotics, software development. BİLSEM administrations can add new workshops to these workshops, which are included in the annex to the directive, by taking advantage of local opportunities within their possibilities and by obtaining the approval of the General Directorate (MEB, 2022c). Different talent workshops are established in BİLSEMs, taking into account their physical conditions. A cooperation protocol was signed between the Ministry of National Education and Vakıfbank for the construction of AI workshops, which is one of these workshops. The Minister of National Education stated that 15 AI workshops would be established in the first place (MEB, 2022d). This situation will reveal the need for resources for teachers who will provide AI training in these workshops.

In this study, based on institutional goals and social needs, it is aimed to prepare a beginning level AI framework curriculum for the 6th-10th grade gifted students, as a guiding recommendation for teachers. The problem situation that is aimed to be answered in the study is as follows: Which subjects should be included in the framework curriculum to be prepared for gifted students at the 6th -10th grade level who will just start their studies on AI in order to teach basic concepts, ethical, mathematical and statistical dimensions of AI?

METHOD

Research Design

The process of developing an educational program essentially corresponds to a design-based research. This study was also structured as a design-based research; however, current research was limited to needs analysis and design dimensions. In the needs analysis stage, the content analysis of the existing curriculum and in the design stage, quantitative analyzes based on expert opinions were used. Within the scope of the needs analysis, 54 structured undergraduate and graduate level curriculum of 41 different universities that can be accessed through searches on the google search engine with the keywords "Artificial Intelligence Syllabus" and "Machine Learning Syllabus" were examined. Since the main purpose of the study is to teach students the mathematical and statistical dimensions of AI algorithms, the subjects in undergraduate and graduate courses of universities were analyzed in order to create a wide subject list regarding these subjects. A subject list was created by examining the subjects included in the courses and the frequency of these subjects. In the design phase, the prepared subject list was presented to the experts and their opinions were received.

The "Artificial Intelligence Curriculum Subjects Determination Form for 6th Grade - 10th Grade Gifted Students", which includes the subject list, was sent to the experts via e-mail and their opinions were received. In the form sent to the experts, a one-page explanation was made about the purpose of the study. In this statement, brief information is given about the BİLSEMs where the gifted students, the target group of the study, are educated in Türkiye. Afterwards, experts were asked to mark the subjects that they deem appropriate to be included in the framework curriculum for the sixth grade - 10th grade gifted students from AI and ML subjects in the form presented to them, according to certain evaluation criteria. Evaluation criteria that experts were asked to consider; (1) students' readiness level (especially in the field of mathematics), (2) taking account two lesson hours a week and a 16-week period (32 lesson hours in total), (3) students' not having received AI training before, and (4) that no programming language will be taught. It was also stated that the calculations regarding the subjects to be included in the curriculum would be made manually or by using simple calculation tools (such as Excel). Experts were specifically asked to consider these issues while marking the subjects in the subject determination form. By analyzing the opinions of experts, the subjects to be included in the AI framework curriculum were determined. In the final stage, learning domains, sub-learning domains and acquisitions related to the subjects were determined.

Study Participants

Opinions of 20 experts were received in the study. While determining the experts, attention was paid to their knowledge in different areas of AI and ML. In addition, it was ensured that the experts included university lecturers and teachers working in the Ministry of National Education. Panel information on these experts is given in Table 8.

Table 8. Panel information on experts

		Number
Institution	University	14
	The Ministery of National Education	6
Field of study[4]	Educational Technologies/Instructional Technologies	7
	Information and communication Technologies	3
	Educational Data Mining/Learning Analytics	2
	Artificial Intelligence	2
	Intelligent Tutoring Systems	1
	Machine Learning	1
	Adaptive Systems	1
	Robotic Coding	1
	Software/hardware	1
	Text Mining	1

As seen in Table 8, 14 of the 20 experts participating in the research are university faculty members and six are teachers at the Ministry of National Education. Additionally, the table shows that the experts participating in the study have different fields of work.

Analysis of Data

The content validity ratios (CVR) for the marking status of the subjects in the subject determination form from 20 experts were calculated. The subjects that were above the minimum value in the CVRs were determined and the content validity index (CVI)

[4] The information of study field is based on self- declaration of experts.

was calculated. In addition, hierarchical clustering analysis was performed for the subjects marked in the subject determination form by the experts, and the clustering status of the subjects was analyzed.

Based on content validity ratios and hierarchical clustering analysis, prominent subjects were revealed. As a result of the evaluations based on these subjects, learning areas and sub-learning areas were determined for the 16-week framework curriculum. Afterwards, each AI subject related to each learning area and sub-learning area was examined in detail and it was determined which concepts were included and which calculations were made for each subject separately. Later, taking main purpose of the prepared curriculum, the characteristics of the subjects and the knowledge levels of the students into account, target acquisitions were created for each subject.

FINDINGS

This study is based on analysis based on expert data. However, in order to obtain a structured form for expert opinions, an AI subject list was created, and then the experts were asked which of these subjects were suitable for the target audience. To create the subject list; access was provided to 54 AI and ML course curriculum at undergraduate and graduate levels from 41 different universities. Information on the courses accessed is given in Table 9.

Table 9. AI and ML courses and number of subjects in universities

University	Course Name	Number of Subjects
Birla Institute of Technology and Science	Artificial Intelligence and Machine Learning	38
Indian Institute of Technology Bombay	Introduction to Machine Learning	21
King Abdullah University of Science and Technology	Machine Learning	13
	Specific Topics in Artificial Intelligence	13
McGill University	Machine Learning	18
MIT	Artificial Intelligence	23
	Machine Learning	24
New York University	Introduction to Machine Learning	23
	Foundations of Machine Learning	14
Princeton University	Introduction to Machine Learning	21
Temple University	Machine Learning and Pattern Recognition	37
The Georgia Institute of Technology	Machine Learning	17
Tufts University	Introduction to Machine Learning	9
University at Buffalo	Introduction to Machine Learning	14
University Buelvard	Advanced Artificial Intelligence	12
University of Bilkent	Introduction to Machine Learning	19
	Artificial Intelligence	14
University of Cambridge	Machine Learning and Algorithms for Data Mining	5
	Artificial Intelligence I	8
University of Çankaya	Artificial Intelligence	20
University of Harvard	Artificial Intelligence	23
University of Manchester	Foundations of Machine Learning	7
University of Pompeu Fabra	Machine Learning	11
University of Simon Fraser	Machine Learning	7
University of Standford	Artificial Intelligence: Principles and Techniques	8
University of Uppsala	Artificial Intelligence	6
University of Washington in St. Louis	Introduction to Artificial Intelligence	20
University of Washington State	Introduction to Machine Learning	31
	Artificial Intelligence	9
University of AIZU	Artificial Intelligence	14
University of California, Berkeley	Introduction to Machine Learning	18
	Introduction to Artificial Intelligence	12
University of California, Los Angeles	Introduction to Machine Learning	25
	Introduction to Artificial Intelligence	14
University of Carnegie Mellon	Artificial Intelligence	27

	Machine Learning	28
	Introduction to Machine Learning	24
University of Clemson	Artificial Intelligence	9
University of Hacettepe	Fundamentals of Artificial Intelligence	13
University of Minesota Duluth	Artificial Intelligence	15
University of North Carolina	Introduction to Machine Learning	12
University of Northheastern	Artificial Intelligence	23
University of Oxford	Advanced Topics in Machine Learning	14
	Artificial Intelligence	10
University of Puerto Rico	Artificial Intelligence	8
University of Rochester	Introduction to Artificial Intelligence	7
University of Southern California	Machine Learning	13
	Introduction to Artificial Intelligence	25
University of Texas at Austin	Artificial Intelligence	16
University of Toledo	Machine Learning	11
University of Toronto	Introduction to Machine Learning	26
	Artificial Intelligence	11
University of Warwick	Machine Learning	10
University of Wisconsin Madison	Machine Learning	8

As seen in Table 9, 25 of the 54 AI and ML courses are artificial intelligence, 28 of them are ML courses and one of them is AI and ML course. Information on the frequency of the 25 AI and 28 ML courses in Table 9 is given in Table 10.

Table 10. Frequency of subjects in the current AI and ML curriculum of universities

Artificial Intelligence Courses			Machine Learning Courses		
Subjects	Frequency	%	Subjects	Frequency	%
Search	23	92	Support Vector Machine	21	72
Introduction to Artificial Intelligence	19	76	Introduction to Machine Learning	20	69
Constraint Satisfaction Problems (CSPs)/Problems Solving	16	64	Neural Networks	19	66
Games/Games Trees/Game Playing	13	52	Clustering	16	55
Learning	9	36	Logistic Regression	15	52
Markov Decision Processes/Markov Processes	8	32	Reinforcement Learning	15	52
Bayesian Network	8	32	Decision Trees	14	48
Neural Networks	8	32	Linear Regression	12	41
Propositional Logic	8	32	Regularization	11	38
Machine learning	8	32	Kernels	9	31
Reasoning	8	32	Dimensionality Reduction	9	31
Knowledge Representation	7	28	Deep Learning	9	31
Planning	7	28	Principal Component Analysis	8	28
Probabilistic	7	28	Boosting	8	28
Agents	7	28	K- Nearest Neighbors (Knn)	8	28
First-Order Logic	7	28	Probability	7	24
Knowledge Representation	7	28	Ensemble Methods	7	24
Uncertainty	6	24	Graphical Models	7	24
Probability	6	24	Naive Bayes	6	21
Reinforcement Learning	6	24	Unsupervised Learning Conceptual Knowledge	6	21
Hidden Markov Models	5	20	Feature Selection	5	17
Markov Models	5	20	Linear Classification	4	14
Deep Learning	3	12	Gradient Descent	4	14
Constraints	3	12	K-Means Clustering	4	14
			Hidden Markov Models	4	14
			Ensemble Learning	4	14

	Multi-Class Classification	3	10
	Computational Learning Theory	3	10
	Information Theory	3	10
	Supervised Learning Conceptual Knowledge	1	3

As seen in Table 10, the most common subjects in AI curriculum are search, introduction to AI, constraint satisfaction problems, problem solving and games. The most common subjects in ML curriculum are support vector machines, introduction to ML, neural networks, clustering, logistic regression and reinforcement learning. A subject list was created by bringing together the subjects of AI and ML in Table 10.

The experts were sent the "Artificial Intelligence Curriculum Subject Determination Form for 6th grade - 10th Grade Gifted Students", which includes the subject list, and they were asked to mark the subjects in the subject list according to certain evaluation criteria, and to write the subjects they would like to add in the other section, apart from these subjects. Here, the following points were determined as the evaluation criteria for the opinions of the experts:

1. The readiness level of students (especially in mathematics),
2. Considering two course hours per week and a 16-week period (32 course hours in total),
3. Students' not having received AI training before
4. that no programming language will be taught.

The number of subjects (NG) and CVR values marked by the experts are given in Table 11. CVRs were calculated with the following formula (Lawshe, 1975).

$$CVR = \frac{NG}{N/2} - 1$$

NG= The number of experts marking the subject

N= The total number of experts participating

Table 11. CVR Values of AI subjects according to expert opinion[5]

N	N_G	Subjects	CVR
1	19	Introduction to Artificial Intelligence	0.90
2	18	Probability	0.80
3	18	Supervised Learning Conceptial Knowledge	0.80
4	17	Decision Trees	0.70
5	16	Unsupervised Learning Conceptial Knowledge	0.60
6	16	K- Nearest Neighbors (Knn)	0.60
7	15	Clustering	0.50
8	15	Naive Bayes	0.50
9	14	Reinforcement Learning	0.40
10	12	Linear Classification	0.20
11	11	Linear Regression	0.10
12	11	Logistic Regression	0.10
13	10	Foundations of Bayesian Networks	0.00
14	9	Feature Selection	-0.10
15	9	K-Means Clustering	-0.10

The content validity criterion was used to determine whether each subject predicted to be in the "AI curriculum" by the experts was statistically significant. Since there were 20 experts in this study, the critical value (0.05 significance level) for the content validity criterion was determined as 0.42 (Veneziano & Hooper, 1997). From this point of view, it is seen in Table 11 that according to the opinions of 20 experts, there are eight subjects with the minimum value of CVR and above.

The content validity index (CVI) must be calculated to see if the content validity is statistically significant. CVI is calculated by taking the average of the CVR values of the items decided to be included (Lawshe, 1975). Based on this, the CVI was found to be 0.68 by taking the average of the CVR values of eight subjects whose CVR values were at or above the minimum value (Table 12).

[5] This table includes the CVR values for the first 15 subjects, and the full table is in Appendix-1.

Table 12. Content validity index of the subjects

N.	NG	Subjects (Learning Domains)	CVR
1	19	Introduction to Artificial Intelligence	0.90
2	18	Probability	0.80
3	18	Supervised Learning Conceptial Knowledge	0.80
4	17	Decision Trees	0.70
5	16	Unsupervised Learning Conceptial Knowledge	0.60
6	16	K- Nearest Neighbors (Knn)	0.60
7	15	Clustering	0.50
8	15	Naive Bayes	0.50
The content validity index			0.68

The content validity index and the content validity ratios are defined as the consistency among experts on the issues that experts find important (Yurdugül & Bayrak, 2012). It is seen that the content validity index is greater than the content validity criterion (0.68>0.42). Therefore, the content validity of the subjects is statistically significant.

Hierarchical clustering analysis was also applied in addition to the dataset, which included the subjects that the experts marked from the subject list. Although there is a great deal of similarity between the content validity ratios in Table 12 and the results of the clustering analysis given in Appendix-2, minor differences have emerged between them. According to this, 13 subjects were obtained in the grouping made by cluster analysis while 8 subjects were determined according to the cut-off points based on CVRs. The five subjects that differ are as follows: a) reinforcement learning, b) logistic regression, c) linear regression d) linear classification and e) Foundations of Bayesian Networks.

The process of examining the AI subjects that emerged as a result of both analyses, determining the subjects to be included, determining the learning domains and sub-learning domains related to the subjects, and creating acquisition statements are given in the discussion, conclusion and recommendations section of the research. The learning domains, sub-learning domains and their related acquisitions are given in appendix-3 as the general findings of this research.

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

There are studies on K-12 AI education in the literature, and these studies include educational frameworks and student competencies (AI4K12, 2018; Lao, 2020; Long & Magerko, 2020). In addition to this, there are AI curricula endorsed by governments in some countries, albeit in a small number. It is seen that these curriculum focus on different subjects related to AI and that AI subjects are included in the curriculum for different periods of time (Li, 2020; UNESCO, 2022).

In this study, a framework curriculum that includes the basic concepts of AI and the mathematical and statistical dimensions of AI for gifted students in 6th grade - 10th grades who are just starting to study AI is presented as a guide to teachers and some suggestions for future studies on AI education are put forward. The curriculum presented in the study is not associated with any technology or platform. This approach is consistent with UNESCO (2022)'s recommendation that curriculum should not be associated with specific technologies, brands or platforms. Williams, Kaputsos & Breazeal (2021) also mention the difficulties related to robot costs as a result of the AI curriculum they implemented. There is no obligation to use any robot set for the acquisitios in the AI curriculum presented in this study. Another important issue is whether coding is a part of AI education or not, as Li (2020) points out. It states that coding should not be a preliminary skill to start learning AI and that coding can be learned in other situations. The learning acquisitions in this study overlap with this understanding and do not take coding as a prerequisite. Another important point is the place of mathematics in AI education. UNESCO (2022) emphasizes that the AI development curriculum should be based on relevant subject expertise and the need for harmony between mathematical principles, coding and algorithms. For example; whereas Portugal places most of its AI learning outcomes in 'computational thinking' within the mathematics subject, China designs its ICT curriculum according to mathematics requirements from year to year (UNESCO, 2022). This information points to the importance of mathematical and statistical dimensions in AI education, and this study generally focuses on this point.

In this study, opinions were received from experts about the subjects that could be included in the AI curriculum to be created for gifted students in the sixth grade - 10th grades who are just starting to study artificial intelligence. Content validity was checked by calculating CVRs for the subjects marked by experts, and hierarchical clustering analysis was performed to examine which subjects were clustered. According to CVRs, it was observed that eight subjects were above the cut-off point (Appendix-1), and according to hierarchical clustering, 13 subjects were clustered (Appendix-2).

As a result of both analyses, there are eight subjects that overlap. These are introduction to AI, probability, supervised learning conceptual knowledge, unsupervised learning conceptual knowledge, clustering, k-nearest neighbor algorithm, decision trees and Naive Bayes algorithm. It can be seen that the subjects mainly consist of ML subjects. Unsupervised learning is a learning domain and there are sub-learning domains under it. Since distance-proximity calculations are used in ML algorithms and are a prerequisite for subsequent subjects, it was decided to include the subject of similarity and dissimilarity calculations as a sub-learning domain

under the unsupervised learning domain. Supervised learning, which experts agree on, is an ML subject and has been discussed in two contexts: classification and prediction. The knn algorithm, Naive Bayes classifier and decision trees included in both analyzes are classification methods. Linear regression, which is clustered within 13 subjects as a result of hierarchical clustering analysis, is a prediction method. Linear regression and knn regression subjects are also included under the heading of prediction in order not to disrupt the integrity of supervised learning domains. Again, the subject of Bayesian networks foundations which is included in 13 subjects as a result of hierarchical clustering was decided to be in the program because it is an inclusive subject and is related to the subject of probability and Naive Bayes, which experts have agreed on.

As a result, learning domains and sub-learning domains were determined for the AI framework curriculum for gifted students in line with the main objectives of the study and the teaching period (2 hours per week, 16 weeks). Both predecessor-successor relationships and horizontal-vertical relationships were observed between the subjects. In addition, the learning domains and sub-learning domains were finalized by taking into account the ordering of the cognitive skills required by the learning and sub-learning domains from simple to complex (Table 13). The determined learning domains correspond to the subject of "Computers can learn from data", which is the third of the five big ideas of AI4K12, (2018) and the subjects "general information about ML" and "knowledge of ML methods" under the title of knowledge within the ML education framework of Lao (2020). They also correspond to the fourth Competence “General vs. Narrow”, the nineth Competence “ML Steps”, the eleventh Competence “Data Literacy”, the twelfth Competence “Learning from Data” and the sixteenth Competence “Ethics” within the framework put forward by Long and Magerko (2020). They are in line with the domains of "Data literacy", "The ethics of AI" and "Understanding and using AI techniques", which are among the AI curriculum domains prepared by UNESCO (2022) to determine the duration of the subjects in the AI curriculum. The duration of the “Understanding and using AI techniques” domain in the curriculum endorsed by governments is between 0 and 128 hours (UNESCO, 2022). The AI framework curriculum put forward in this study is planned to be 32 lesson hours.

Table 13. AI curriculum learning domains and sub-learning domains for gifted students

1. INTRODUCTION TO AI
2. PROBABILITY
2.1. The Importance of Probability for AI
2.2. The Probability of Simple Events
2.3. Jointly Probability
2.4. Conditional Probability
2.5. Marginal Probability
2.6. Bayes Theorem
3. SUPERVISED AND UNSUPERVISED LEARNING
4. UNSUPERVISED LEARNING
4.1. Similarity and Dissimilarity Calculations
4.1.1. Similarity and Dissimilarity Calculations for Binary Measurements
4.1.2. Similarity and Dissimilarity Calculations for Quantitative Measurements
4.2. Clustering Analysis
5. SUPERVISED LEARNING
5.1. Classification
5.1.1. Knn (K-Nearest Neighbours) Algorithm
5.1.2. Naive Bayes Classifier
5.1.3. Decision Trees
5.2. Prediction
5.2.1. Linear Regression
5.2.2. Knn Regression
6. FOUNDATIONS OF BAYESIAN NETWORKS
6.1. Configuration of Bayesian Networks[6]
6.2. Bayesian Calculations
6.2.1. Calculations in three-node serial-connected networks
6.2.2. Calculations in three-node convergent networks
6.2.3. Calculations in three-node divergent networks

[6] The configuration of Bayesian networks is limited to three nodes.

As seen in Table 13, there are six learning domains and 22 sub-learning domains in the curriculum. After this stage, each AI subject related to the learning domains and the sub-learning domains in Table 13 were examined in detail and it was determined which concepts were included and which calculations were made for each subject separately. Then, acquisition statements were formed for learning domains and sub-learning domains based on conceptual knowledge, procedural knowledge and strategic knowledge in line with the students' prior knowledge and the main objectives of the study (Appendix-3).

Information technologies and software are among the fields that students in the field of general mental ability can take at BİLSEMs. Students can do AI studies in the field of information technologies and software. In addition, these students can work on AI in AI workshops opened by teachers. In this study, an AI framework curriculum was prepared to support studies in the field of information technologies and software and in the artificial intelligence workshop. The learning domains, sub-learning domains and acquisitions of the AI curriculum put forward in this study provide guidance for teachers who will start AI studies with their students. BİLSEM teachers are expected to include the subjects in the framework curriculum into their plans, taking into account factors such as students' interests, abilities and readiness. In this regard, it is clearly stated in the BİLSEM directive that education and training activities at BİLSEM will be carried out according to the "Individualized Education Program" to be prepared in line with the performances and educational needs of gifted students (MEB, 2022c).

The AI framework curriculum put forward in this study covers some of the subjects and student competencies related to AI education in the literature. In future research, a curriculum that includes other AI subjects and acquisitions can be developed to be compatible with the AI subjects and student acquisitions revealed in this study. As UNESCO (2022) points out, the AI curriculum needs to be further tested and improved by publishing the results. There is a need to design, implement and evaluate the results of many different teaching activities in accordance with the AI curriculum, subjects and acquisitions presented in this study.

Declaration of Conflicting Interests

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

Funding

The author(s) received no financial support for the research, author-ship, and/or publication of this article.

Statements of publication ethics

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

Researchers' contribution rate

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

Ethics Committee Approval Information

This research was conducted with the approval of Hacettepe University Ethics Committee, dated 12.04.2021 and numbered E-35853172-300-00001536110.

REFERENCES

AI4K12. (2018, 20 Ekim). *The Artificial Intelligence for K-12.* 3 Şubat 2023 tarihinde https://ai4k12.org/ adresinden edinilmiştir.

Akkaş, E. & Tortop, H. S. (2015). Üstün yetenekliler eğitiminde farklılaştırma: temel kavramlar, modellerin karşılaştırılması ve öneriler. *Üstün Zekâlılar Eğitimi ve Yaratıcılık Dergisi, 2*(2), 31-44.

Almarode, J., Fisher, D., & Frey, N. (2021). *How learning works: a playbook*. Corwin Press.

Alpaydın, E. (2004). *Introduction to machine learning.* The MIT Press.

Anderson, L. W., Krathwohl, D. R., Airasian, P. W., Cruikshank, K. A, Mayer, R. E, Pintrich, P. R., Raths, J., & Wittrock, M. C. (Ed.). (2001). *A taxonomy for learning, teaching and assessing: A revision of Bloom's taxonomy.* Longman Publishing.

Antebi, L. (2021). *Artificial Intelligence and National Security in Israel*. Institute for National Security Studies. http://www.jstor.org/stable/resrep30590.8

De Jong, T. & Ferguson-Hessler, M. G. (1996). Types and qualities of knowledge. *Educational psychologist, 31*(2), 105-113.

Göksu, D. Y. (2021). Bilim ve Sanat Merkezlerinde Eğitim ve Öğretim. M. S. Köksal ve M. R. Barın (Ed.), *Özel yetenek ve BİLSEM'ler* içinde (s. 189-227). Özel Eğitim ve Rehberlik Hizmetleri Genel Müdürlüğü

Lao, N. (2020). *Reorienting machine learning education towards tinkerers and ML-engaged citizens* [Doktora tezi, Massachusetts Institute of Technology]. MIT Libraries. https://dspace.mit.edu/handle/1721.1/129264

Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel psychology, 28*(4), 563-575.

Li, L. (2020). *A Comparative Study on Artifificial Intelligence Curricula* [Master's thesis, The University of Western Ontario]. Electronic Thesis and Dissertation Repository. 7496. https://ir.lib.uwo.ca/etd/7496

Long, D. & Magerko, B. (2020). What is AI Literacy? Competencies and Design Considerations. *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, 1–16. https://doi.org/10.1145/3313831.3376727

Marland, S. P. (1972). Education of the Gifted and Talented (Report to the Subcommittee on Education, Committee on Labor and Public Welfare, US Senate). Washington, DC. https://www.valdosta.edu/colleges/education/human-services/document%20/marland-report.pdf

McCarthy, J. (2007). What Is Artificial Intelligence?, *Retrieved from Computer Science Department Stanford University*. https://www.diochnos.com/about/McCarthyWhatisAI.pdf

MEB. (2018a). *2023 Eğitim Vizyonu.* https://www.gmka.gov.tr/dokumanlar/yayinlar/2023_E%C4%9Fitim%20Vizyonu.pdf

MEB. (2018b). *Matematik dersi öğretim programı (ilkokul ve Ortaokul 1, 2, 3, 4, 5, 6, 7 ve 8. Sınıflar)*. http://mufredat.meb.gov.tr/ProgramDetay.aspx?PID=329

MEB. (2022a). *Mesleki ve Teknik Anadolu Lisesi bilişim teknolojileri alanı çerçeve öğretim programı.* http://meslek.eba.gov.tr/

MEB. (2022b). *Bilim ve Sanat Merkezleri Bilişim Teknolojileri ve Yazılım Alanı Yardımcı Ders Materyali.* https://orgm.meb.gov.tr/meb_iys_dosyalar/2023_03/28150047_BILSEM_BILISIM_TEKNOLOJILERI_VE_YAZILIM_ALANI.pdf

MEB. (2022c). *Bilim ve Sanat Merkezleri Yönergesi.* https://dhgm.meb.gov.tr/tebligler-dergisi/2022/2782_Aralik_2022.pdf

MEB. (2022d, 23 Aralık). *Milli Eğitim Bakanlığı ve Vakıfbank arasında iş birliği protokolü.* 20 Mart 2023 tarihinde https://orgm.meb.gov.tr/www/bilsemlerde-yapay-zeka-atolyeleri-yapimi-icin-bakanligimiz-ve-vakifbank-arasinda-is-birligi-protokolu-imzalandi/icerik/2172 adresinden edinilmiştir.

MEB. (2023). *İlköğretim kurumları (ilkokul ve ortaokul) haftalık ders çizelgesi.* https://tegm.meb.gov.tr/meb_iys_dosyalar/2023_09/01135104_43_sayYlY_Cizelge_e.pdf

NAIS. (2021). *Ulusal Yapay Zekâ Stratejisi 2021-2025.* https://cbddo.gov.tr/SharedFolderServer/Genel/File/TR-UlusalYZStratejisi2021-2025.pdf

Republic of Türkiye Official Newspaper. (2021). *Ulusal Yapay Zekâ Stratejisi (2021-2025) ile İlgili 2021/18 Sayılı Cumhurbaşkanlığı Genelgesi (Sayı:31574).* https://www.resmigazete.gov.tr/eskiler/2021/08/20210820-22.pdf

Sak, U. (2011). Üstün yetenekliler eğitim programları modeli (ÜYEP) ve sosyal geçerliği. *Eğitim ve Bilim*, *36*(161).

Touretzky, D., Gardner-McCune, C., Martin, F. & Seehorn, D. (2019). Envisioning AI for K-12: What should every child know about AI?. *Proceedings of the AAAI Conference on Artificial Intelligence, 33*(01), 9795-9799. https://doi.org/10.1609/aaai.v33i01.33019795

UNESCO. (2022). *K12 AI curricula: A mapping of government-endorsed AI curricula.* https://unesdoc.unesco.org/ark:/48223/pf0000380602

Veneziano, L. & Hooper, J. (1997). A method for quantifying content validity of health-related questionnaires. *American Journal of Health Behavior, 21*(1), 67-70.

Williams, R., Kaputsos, S. P., & Breazeal, C. (2021). Teacher perspectives on how to train your robot: A middle school AI and ethics curriculum. *Proceedings of the AAAI Conference on Artificial Intelligence*, *35*(17), 15678-15686. https://cdn.aaai.org/ojs/17847/17847-13-21341-1-2-20210518.pdf

Yurdugül, H. & Bayrak, F. (2012). Content validity measures in scale development studies: comparison of content validity index and kappa statics. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 264-271.

Appendix-1

CVR Values of AI subjects according to expert opinion

S.	N_G	Subjects	CVR
1	19	Introduction to Artificial Intelligence	0.90
2	18	Probability	0.80
3	18	Supervised Learning Conceptual Knowledge	0.80
4	17	Decision Trees	0.70
5	16	Unsupervised Learning Conceptual Knowledge	0.60
6	16	K-Nearest Neighbors (Knn)	0.60
7	15	Clustering	0.50
8	15	Naive Bayes	0.50
9	14	Reinforcement Learning	0.40
10	12	Linear Classification	0.20
11	11	Linear Regression	0.10
12	11	Logistic Regression	0.10
13	10	Foundations of Bayesian Network	0.00
14	9	Feature Selection	-0.10
15	9	K-Means Clustering	-0.10
16	8	Neural Networks	-0.20
17	8	Deep Learning	-0.20
18	7	Support Vector Machines	-0.30
19	7	Information Theory	-0.30
20	7	Search	-0.30
21	6	Gaussian Bayes	-0.40
22	6	Graphical Models	-0.40
23	6	Computational Learning Theory	-0.40

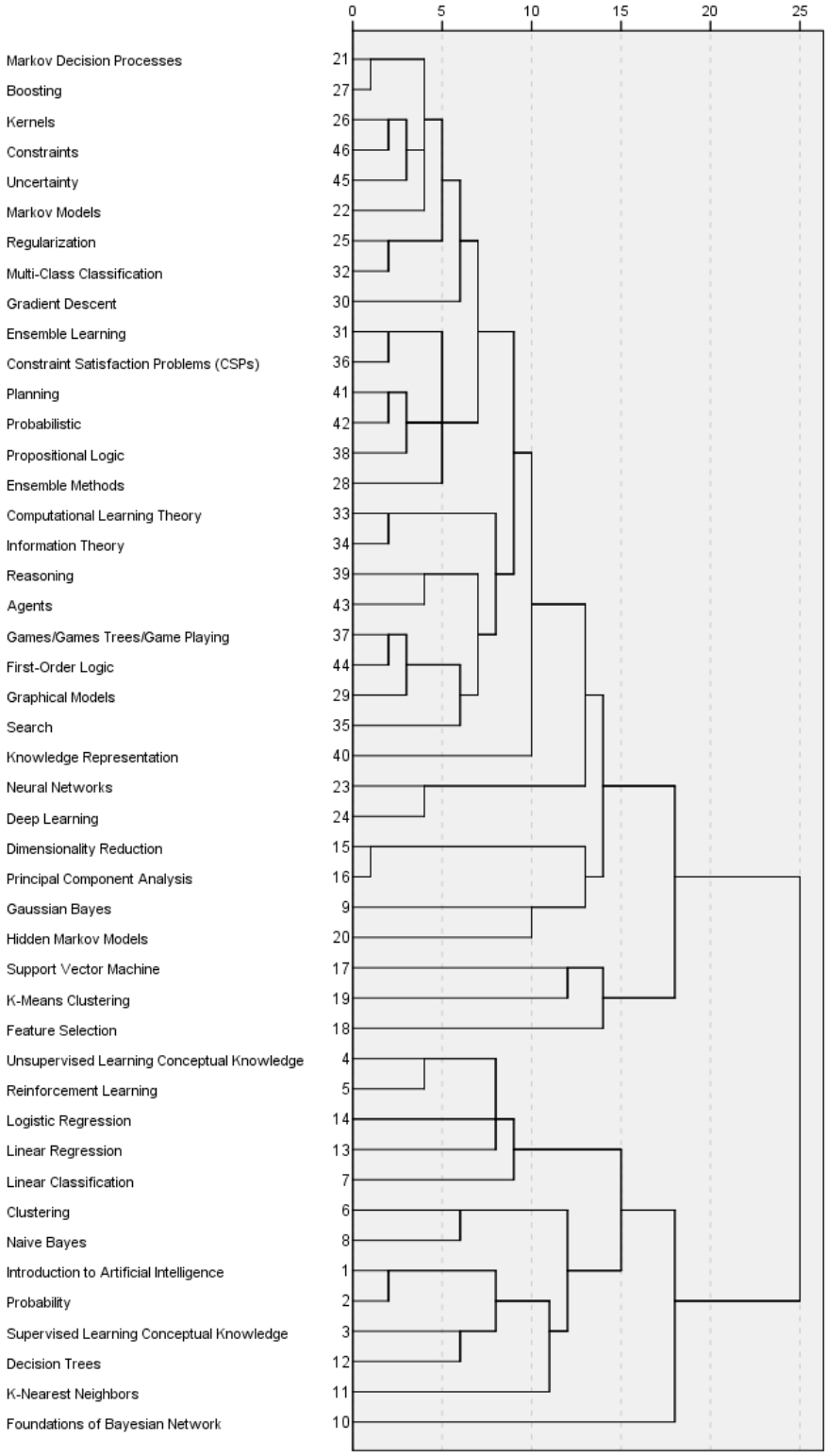
S.	N_G	Konular	KGO
30	4	Agents	-0.60
31	4	First-Order Logic	-0.60
32	3	Hidden Markov Models	-0.70
33	3	Multi-Class Classification	-0.70
34	3	Constraint Satisfaction Problems (CSPs)	-0.70
35	3	Probabilistic	-0.70
36	2	Markov Models	-0.80
37	2	Regularization	-0.80
38	2	Ensemble Methods	-0.80
39	2	Gradient Descent	-0.80
40	2	Ensemble Learning	-0.80
41	2	Planning	-0.80
42	2	Uncertainty	-0.80
43	2	Constraints	-0.80
44	1	Kernels	-0.90
45	1	Other: Fuzzy Logic	-0.90
46	1	Other: ZeroR	-0.90
47	1	Other: OneR	-0.90
48	1	Other: Artificial Intelligence and Ethics	-0.90
49	1	Other: Sequential Analysis	-0.90
50	1	Other: Association Rules	-0.90
51	1	Other: Classification	-0.90
52	1	Other: Natural Language Processing	-0.90

24	5	Games/Games Trees/Game Playing	-0.50
25	5	Knowledge Representation	-0.50
26	4	Dimensionality Reduction	-0.60
27	4	Principal Component Analysis	-0.60
28	4	Propositional Logic	-0.60
29	4	Reasoning	-0.60

53	1	Other: Image Recognization	-0.90
54	1	Other: Expert Systems	-0.90
55	1	Other: Prolog	-0.90
56	0	Markov Decision Processes/Markov Processes	-1
57	0	Boosting	-1

Appendix-2

Hierarchical clustering analysis of AI subjects according to expert opinions



Appendix-3

Learning areas, sub-learning areas and acquisitions that make up the artificial intelligence (AI) framework curriculum for gifted students

SUBJECTS	ACQUISITIONS
1. INTRODUCTION TO AI	1.1. Comprehends what AI is. 1.2. Comprehends the working areas of AI. 1.3. Analyzes the disciplines that contribute to AI. 1.4. Distinguishes between general and narrow AI. 1.5. Comprehends the ethical issues that must be followed in AI applications.
2. PROBABILITY	
2.1. The Importance of Probability for Artificial Intelligence 2.2. Probability of Simple Events 2.3. Jointly Probability 2.4. Conditional Probability 2.5. Marginal Probability 2.6. Bayes Theorem	2.1.1. Comprehends the importance of probability for AI. 2.2.1. Determines the possible situations of an event.[7] 2.2.2. Distinguishes events with "more", "equal", "less" probability.[7] 2.2.3. Calculates the probability of a simple event.[7] 2.3.1. Explains the concept of jointly probability. 2.3.2. Comprehends how to calculate the jointly probability in a given problem. 2.3.3. Calculates the jointly probability in a situation where more than one event occurs. 2.4.1. Explains the concept of conditional probability. 2.4.2. Comprehends how conditional probability is calculated in a given problem. 2.4.3. Calculates the conditional probability for a given sample situation. 2.5.1. Explains the concept of marginal probability. 2.5.2. Comprehends how marginal probability is calculated in a given problem. 2.5.3. Calculates the marginal probability for a given sample situation. 2.6.1. Explains how Bayes' rule is obtained. 2.6.2. Comprehends how to calculate probability using Bayes' rule in a given problem. 2.6.3. Performs the necessary probability calculations using Bayes rule in a given problem related to daily life.
3. SUPERVISED AND UNSUPERVISED LEARNING	3.1. Comprehends what machine learning is. 3.2. Comprehends what unsupervised learning is. 3.3. Comprehends that different methods are used in unsupervised learning. 3.4. Comprehends what supervised learning is. 3.5. Comprehends that different methods are used in supervised learning. 3.6. Explains the difference between unsupervised learning and supervised learning.
4. UNSUPERVISED LEARNING	
4.1. Similarity and Dissimilarity Calculations	
4.1.1. Similarity and Dissimilarity Calculations for Binary Measurements	4.1.1.1. Explains what the similarities and dissimilarity of entities mean. 4.1.1.2. Comprehends what quantitative measurement and binary measurement are. 4.1.1.3. Comprehends that the concepts of similarity and dissimilarity are expressed mathematically as proximity and distance. 4.1.1.4. Comprehends which distance measures are used for binary measurements. 4.1.1.5. Finds the most similar and most dissimilar entities in a given problem using binary distance measures.
4.1.2. Similarity and Dissimilarity Calculations for Quantitative Measurements	4.1.2.1. Comprehends that the concepts of similarity and dissimilarity are expressed mathematically as proximity and distance. 4.1.2.2. Comprehends which distance measures are used for quantitative measurements. 4.1.2.3. Finds the most similar and most dissimilar entities in a given problem using quantitative distance measures.
4.2. Clustering Analysis	4.2.1. Comprehends what clustering is. 4.2.2. Comprehends that there are different clustering methods. 4.2.3. Explains what the hierarchical clustering method is. 4.2.4. Comprehends the process steps of hierarchical clustering method. 4.2.5. Clusters a given sample data set using the hierarchical clustering method. 4.2.6. Gives examples of the use of clustering method in daily life.
5. SUPERVISED LEARNING	
5.1. Classification	
5.1.1. Knn (K-Nearest Neighbor) Algorithm	5.1.1.1. Explains the Knn algorithm. 5.1.1.2. Runs Knn algorithm on sample data step by step. 5.1.1.3. Gives an example of the application of Knn algorithm in daily life.
5.1.2. Naive Bayes Classifier	5.1.2.1. Explains the Naive Bayes algorithm.

[7] In writing this acquisition statement, the eighth grade mathematics curriculum of the Ministry of National Education was used (MEB, 2018b).

SUBJECTS	ACQUISITIONS
	5.1.2.2. Runs Naive Bayes algorithm on sample data step by step. 5.1.2.3. Gives an example of the application of Naive Bayes algorithm in daily life.
5.1.3. Decision Trees	5.1.3.1. Gives examples of the most commonly used algorithms for building decision trees. 5.1.3.2. Discovers that a tree-shaped classification structure is formed as a result of decision tree analysis. 5.1.3.3. Comprehends that entropy is a measure of uncertainty that addresses randomness and contingency probabilities. 5.1.3.4. Comprehends that entropy is a guide in the calculation of information gain. 5.1.3.5. Calculates entropy using the appropriate formula for a given sample situation. 5.1.3.6. Comprehends how to calculate the information gain by obtaining the entropy value. 5.1.3.7. Discovers the importance of entropy and the information gain for decision tree algorithms. 5.1.3.8. Creates the decision tree structure by performing the necessary calculations for a given sample dataset. 5.1.3.9. Gives an example of a situation where the decision tree can be used in daily life.
5.2. Prediction	
5.2.1. Linear Regression	5.2.1.1. Comprehends that in linear regression, the value of the dependent variable is the variable we want to explain and the independent variable is the explanatory variable. 5.2.1.2. Discovers that thanks to the mathematical equation to be obtained with linear regression, the level of effect of the change to be made on the independent variable on the dependent variable can be determined. 5.2.1.3. Comprehends that the equation for the line drawn in linear regression is expressed as y = a + bx. 5.2.1.4. Calculates the a value, b value and R2 value in the equation y = a + bx by using the data of the dependent and independent variable in an example given from daily life. 5.2.1.5. Interprets the equation y=a+bx and the R2 value by making the necessary calculations in a given example.
5.2.2. Knn Regression	5.2.2.1. Explains how Knn Regression works. 5.2.2.2. Runs Knn Regression on sample data step by step. 5.2.2.3. Predicts an unknown feature by exploiting the known feature of a new observation added to a real-life dataset and applying knn regression..
6. FOUNDATIONS OF BAYESIAN NETWORKS	
6.1. Configuration of Bayesian Networks	6.1.1. Comprehends that the structure showing nodes and the connections between nodes is called a graph. 6.1.2. Comprehends how the events we encounter in daily life can be shown with a causal network. 6.1.3. Discovers the relationship between causal networks and graphs. 6.1.4. Discovers that Bayesian networks are composed of variables and directional links that connect variables to each other. 6.1.5. Discovers that Bayesian networks consist of non-cyclic directed graphs. 6.1.6. Discovers serial, convergent and divergent connections in Bayesian networks.
6.2. Bayesian Calculations	6.2.1. Calculates the marginal probabilities of variables in a Bayesian network. 6.2.2. Calculates the jointly probabilities of variables in a Bayesian network. 6.2.3. Calculates the conditional probabilities of variables in a Bayesian network. 6.2.4. Comprehends what it means to make predictions in a Bayesian network. 6.2.5. Comprehends what diagnosis is in a bayesian network. 6.2.6. Comprehends that factorization is used in Bayesian networks to calculate jointly probability and that the product rule is valid. 6.2.7 Calculates the jointly probability by factorization in a Bayesian network. 6.2.8. Comprehends that marginalization is used to calculate marginal probability and that the sum rule is valid. 6.2.9. Calculates the marginal probability by marginalizing in a Bayesian network. 6.2.10. Performs probability calculations based on prediction based on variables given in a bayesian network. 6.2.11. Performs probability calculations based on diagnosis based on the variables given in a bayesian network.

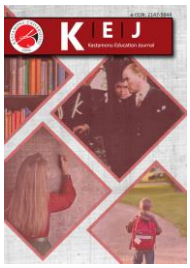
Özel Yetenekli öğrenciler için yapay zekâ öğretim programını oluşturan öğrenme alanları, alt öğrenme alanları ve kazanımlar

KONULAR	KAZANIMLAR
1. YAPAY ZEKÂYA GİRİŞ	1.1. Yapay zekânın ne olduğunu kavrar. 1.2. Yapay zekânın çalışma alanlarını kavrar. 1.3. Yapay zekâya katkı sunan disiplinleri analiz eder. 1.4. Genel ve dar yapay zekâ arasında ayrım yapar. 1.5. Yapay zekâ uygulamalarında uyulması gereken etik hususları kavrar.
2. OLASILIK	
2.1. Olasılığın Yapay Zekâ İçin Önemi 2.2. Basit Olayların Olma Olasılığı 2.3. Birleşik Olasılık 2.4. Koşullu Olasılık 2.5. Marjinal Olasılık 2.6. Bayes Teoremi	2.1.1. Olasılığın yapay zekâ için önemini kavrar. 2.2.1. Bir olaya ait olası durumları belirler.[8] 2.2.2. “Daha fazla”, “eşit”, “daha az” olasılıklı olayları ayırt eder.[8] 2.2.3. Basit bir olayın olma olasılığını hesaplar.[8] 2.3.1. Birleşik olasılık kavramını açıklar. 2.3.2. Verilen bir problemde birleşik olasılığın nasıl hesaplandığını kavrar. 2.3.3. Birden fazla olayın gerçekleştiği bir durumdaki birleşik olasılığı hesaplar. 2.4.1. Koşullu olasılık kavramını açıklar. 2.4.2. Verilen bir problemde koşullu olasılığın nasıl hesaplandığını kavrar. 2.4.3. Verilen örnek bir durumla ilgili koşullu olasılığı hesaplar. 2.5.1. Marjinal olasılık kavramını açıklar. 2.5.2. Verilen bir problemde marjinal olasılığın nasıl hesaplandığını kavrar. 2.5.3. Verilen örnek bir durumla ilgili marjinal olasılığı hesaplar. 2.6.1. Bayes kuralının nasıl elde edildiğini açıklar. 2.6.2. Verilen bir problemde bayes kuralının kullanılarak olasılık hesabının nasıl yapıldığını kavrar. 2.6.3. Günlük yaşamla ilgili verilen bir problemde bayes kuralını kullanarak gerekli olasılık hesaplamalarını yapar.
3. DENETİMLİ VE DENETİMSİZ ÖĞRENME	3.1. Makine öğrenmesinin ne olduğunu kavrar. 3.2. Denetimsiz öğrenmenin ne olduğunu kavrar. 3.3. Denetimsiz öğrenmede farklı yöntemlerin kullanıldığını kavrar. 3.4. Denetimli öğrenmenin ne olduğunu kavrar. 3.5. Denetimli öğrenmede farklı yöntemlerin kullanıldığını kavrar. 3.6. Denetimsiz öğrenme ve denetimli öğrenme arasındaki farkı açıklar.
4. DENETİMSİZ ÖĞRENME	
4.1. Benzerlik ve Farklılık Hesaplamaları	
4.1.1. İkili Ölçümler İçin Benzerlik ve Farklılık Hesaplamaları	4.1.1.1. Varlıkların benzerliklerinin ve farklılıklarının ne anlama geldiğini açıklar. 4.1.1.2. Nicel ölçüm ve ikili ölçümün ne olduğunu kavrar. 4.1.1.3. Benzerlik ve farklılık kavramlarının matematiksel olarak yakınlık ve uzaklık şeklinde ifade edildiğini kavrar. 4.1.1.4. İkili ölçümler için hangi uzaklık ölçülerinin kullanıldığını kavrar. 4.1.1.5. Verilen bir problemde ikili uzaklık ölçülerini kullanarak birbirine en çok benzeyen ve birbirinden en farklı varlıkları bulur.
4.1.2. Nicel Ölçümler İçin Benzerlik ve Farklılık Hesaplamaları	4.1.2.1. Benzerlik ve farklılık kavramlarının matematiksel olarak yakınlık ve uzaklık şeklinde ifade edildiğini kavrar. 4.1.2.2. Nicel ölçümler için hangi uzaklık ölçülerinin kullanıldığını kavrar. 4.1.2.3. Verilen bir problemde nicel uzaklık ölçülerini kullanarak birbirine en çok benzeyen ve birbirinden en farklı varlıkları bulur.
4.2. Kümeleme Analizi	4.2.1. Kümelemenin ne olduğunu kavrar. 4.2.2. Farklı kümeleme yöntemlerinin olduğunu kavrar. 4.2.3. Hiyerarşik kümeleme yönteminin ne olduğunu açıklar. 4.2.4. Hiyerarşik kümeleme yönteminin işlem adımlarını kavrar. 4.2.5. Verilen örnek bir veri kümesinde hiyerarşik kümeleme yöntemini kullanarak kümeleme yapar. 4.2.6. Kümeleme yönteminin günlük yaşamda kullanımına örnek verir.
5. DENETİMLİ ÖĞRENME	
5.1. Sınıflama	
5.1.1. Knn (K-En Yakın Komşu) Algoritması	5.1.1.1. Knn algoritmasını açıklar. 5.1.1.2. Örnek veri üzerinde Knn algoritmasını adım adım işletir. 5.1.1.3. Günlük yaşamda Knn algoritmasının uygulanmasına örnek verir.
5.1.2. Naive Bayes Sınıflandırıcı	5.1.2.1. Naive Bayes algoritmasını açıklar. 5.1.2.2. Örnek veri üzerinde Naive Bayes algoritmasını adım adım işletir. 5.1.2.3. Günlük yaşamda Naive Bayes algoritmasının uygulanmasına örnek verir.

[8] Bu kazanım ifadesinin yazımında MEB 8. sınıf matematik dersi öğretim programından yararlanılmıştır (MEB, 2018b).

KONULAR	KAZANIMLAR
5.1.3. Karar Ağaçları	5.1.3.1.Karar ağaçlarının oluşturulmasında en çok kullanılan algoritmalara örnekler verir. 5.1.3.2.Karar ağacı analizleri sonucunda ağaç şeklinde sınıflandırma yapısının oluştuğunu keşfeder. 5.1.3.3. Entropinin, rastlantısallığın ve beklenmeyen durum olasılıklarının ele alındığı bir belirsizlik ölçüsü olduğunu kavrar. 5.1.3.4. Entropinin bilgi kazancının hesaplanmasında yol gösterici olduğunu kavrar. 5.1.3.5. Verilen örnek bir durum için uygun formülü kullanarak entropiyi hesaplar. 5.1.3.6. Entropi değerinin elde edilmesi ile bilgi kazanımının nasıl hesaplanacağını kavrar. 5.1.3.7. Entropi ve bilgi kazanımının karar ağaçları algoritmaları için önemini keşfeder. 5.1.3.8. Verilen örnek bir veri kümesi için gerekli hesaplamaları yaparak karar ağacı yapısını oluşturur. 5.1.3.9. Günlük yaşamda karar ağacının kullanılabileceği bir duruma örnek verir.
5.2. Kestirim	
5.2.1. Doğrusal Regresyon	5.2.1.1. Lineer regresyonda bağımlı değişkenin değerini açıklamak istediğimiz değişken, bağımsız değişkenin ise açıklayıcı değişken olduğunu kavrar. 5.2.1.2. Lineer regresyon ile elde edilecek matematiksel eşitlik sayesinde bağımsız değişken üzerinde yapılacak değişikliğin, bağımlı değişken üzerindeki etki düzeyinin belirlenebileceğini keşfeder. 5.2.1.3. Lineer regresyonda çizilen doğruya ilişkin denklemin y=a+bx şeklinde ifade edildiğini kavrar. 5.2.1.4. Günlük yaşamdan verilen bir örnekte bağımlı ve bağımsız değişkene ait verilerden yararlanarak y=a+bx denklemindeki a değerini, b değerini ve R^2 değerini hesaplar. 5.2.1.5. Verilen bir örnekte gerekli hesaplamaları yaparak y=a+bx denklemini ve R^2 değerini yorumlar.
5.2.2. Knn Regresyon	5.2.2.1. Knn Regresyonunun çalışma şeklini açıklar. 5.2.2.2. Örnek veri üzerinde Knn Regresyonunu adım adım işletir. 5.2.2.3. Gerçek yaşamdan elde edilen veri kümesine yeni eklenen bir gözlemin bilinen özelliğinden yararlanıp knn regresyonu işe koşarak bilinmeyen bir özelliği kestirebilir.
6. BAYES AĞLARININ TEMELLERİ	
6.1. Bayes Ağları Yapılandırması	6.1.1. Düğümler ve düğümler arasındaki bağlantıları gösteren yapıya graf denildiğini kavrar. 6.1.2. Günlük yaşamda karşılaştığımız olayların nedensel ağ ile nasıl gösterilebileceğini kavrar. 6.1.3. Nedensel ağlar ile graflar arasındaki ilişkiyi keşfeder. 6.1.4. Bayes ağlarının değişkenler ve değişkenleri birbirlerine bağlayan yönlü bağlardan oluştuklarını keşfeder. 6.1.5. Bayes ağlarının devirli olamayan yönlü graflardan oluştuğunu keşfeder. 6.1.6. Bayes ağlarındaki seri, yakınsak ve ıraksak bağlantıları keşfeder.
6.2. Bayesian Hesaplamalar	6.2.1. Bir bayes ağındaki değişkenlere ait marjinal olasılıkları hesaplar. 6.2.2. Bir bayes ağındaki değişkenlere ait birleşik olasılıkları hesaplar. 6.2.3. Bir bayes ağındaki değişkenlere ait koşullu olasılıkları hesaplar. 6.2.4. Bir bayes ağında kestirim yapmanın ne olduğunu kavrar. 6.2.5. Bir bayes ağında tanı koymanın ne olduğunu kavrar. 6.2.6. Bayes ağlarında faktörleştirmenin birleşik olasılığı hesaplamada kullanıldığını ve çarpım kuralının geçerli olduğunu kavrar. 6.2.7. Bir bayes ağında faktörleştirme yaparak birleşik olasılığı hesaplar. 6.2.8. Marjinalleştirmenin marjinal olasılığı hesaplamada kullanıldığını ve toplama kuralının geçerli olduğunu kavrar. 6.2.9. Bir bayes ağında marjinalleştirme yaparak marjinal olasılığı hesaplar. 6.2.10. Bir bayes ağında verilen değişkenlerden yola çıkarak kestirime dayalı olarak olasılık hesaplamalarını yapar. 6.2.11. Bir bayes ağında verilen değişkenlerden yola çıkarak tanı koymaya dayalı olarak olasılık hesaplamalarını yapar.

Kastamonu Education Journal, 2024, Vol. 32, No:1, 38-50
doi: 10.24106/kefdergi.1426465



| Research Article / Araştırma Makalesi |

Relationship between Socio-Dramatic Play and Self-Regulation Skills in Early Childhood

Erken Çocuklukta Sosyo-Dramatik Oyun ve Öz-Düzenleme Becerileri Arasındaki İlişki[1]

Özge ÖZCAN[2], Asiye İVRENDİ[3]

Keywords

1. Self-regulation skills
2. Working memory
3. Inhibitory control
4. Attention flexibility
5. Socio-dramatic play

Anahtar Kelimeler

1. Öz-düzenleme becerileri
2. Çalışma belleği
3. Engelleyici kontrol
4. Dikkat esnekliği
5. Sosyo-dramatik oyun

Received/Başvuru Tarihi
02.03.2023

Accepted / Kabul Tarihi
09.12.2023

Abstract

Purpose: Socio-dramatic play is important for supporting self-regulation skills in early childhood, and the complexity level of socio-dramatic play may increase the need for self-regulation skills. This study examined the relationship between the self-regulation skills of 60- to 86-month-old preschoolers and the complexity of socio-dramatic play better to understand the link between socio-dramatic play and self-regulation skills.

Methodology: This study was designed as associational research to examine whether self-regulation skills based on teachers' and mothers' views relate to socio-dramatic play's aspects and complexity levels. The participants consisted of 51 preschool children attending two public schools in Turkey. Children's self-regulation skills (attention, working memory, and inhibitory control) were measured using self-regulation scales with teacher and mother forms. The socio-dramatic play was assessed using an observational tool consisting of three aspects (symbolic agent, symbolic substitution, and symbolic complexity).

Findings: Findings revealed that self-regulation skills (inhibitory control and attention) showed a statistically significant difference in favor of children who engaged in sociodramatic play with high symbolic complexity. The working memory did not differ significantly regarding symbolic complexity. The teacher and mother reports revealed that self-regulation skills' attention, working memory, and inhibitory control dimensions did not relate to the aspects of symbolic agent and symbolic substitution.

Highlights: These findings indicate that only the symbolic complexity aspect of socio-dramatic play is positively associated with preschoolers' self-regulation skills (inhibitory control and attention). Results were discussed concerning the literature on socio-dramatic play and self-regulation.

Öz

Çalışmanın amacı: Sosyo-dramatik oyun, erken çocukluk döneminde öz-düzenleme becerilerini desteklemek için önemlidir ve sosyo-dramatik oyunun karmaşıklık düzeyi, öz-düzenleme becerilerine olan ihtiyacı artırabilir. Bu çalışmada, sosyo-dramatik oyun ile öz-düzenleme becerileri arasındaki bağlantıyı daha iyi anlamak için 60-86 aylık okul öncesi çocukların öz-düzenleme becerileri ile sosyo-dramatik oyunun karmaşıklığı arasındaki ilişki incelenmiştir.

Materyal ve Yöntem: Bu çalışma, öğretmenlerin ve annelerin görüşlerine dayalı olarak öz düzenleme becerilerinin sosyo-dramatik oyunun boyutları ve karmaşıklık düzeyleri ile ilişkili olup olmadığını incelemek amacıyla ilişkisel araştırma olarak tasarlanmıştır. Katılımcılar, Türkiye'de iki devlet okuluna devam eden 51 okul öncesi dönem çocuğundan oluşmaktadır. Çocukların öz-düzenleme becerileri (dikkat, çalışma belleği ve engelleyici kontrol) öğretmen ve anne formları olan öz-düzenleme ölçekleri kullanılarak ölçülmüştür. Sosyo-dramatik oyun, üç boyuttan (sembolik araç, sembolik yerine koyma ve sembolik karmaşıklık) oluşan bir gözlemsel araç kullanılarak değerlendirilmiştir.

Bulgular: Bulgular, öz düzenleme becerilerinin (engelleyici kontrol ve dikkat), sembolik karmaşıklığı yüksek sosyo-dramatik oyun oynayan çocuklar lehine istatistiksel olarak anlamlı bir farklılık gösterdiğini ortaya koymuştur. Çalışma belleği, sembolik karmaşıklık açısından anlamlı düzeyde farklılık göstermemiştir. Öğretmen ve anne raporları, öz-düzenleme becerilerinin dikkat, çalışma belleği ve engelleyici kontrol boyutlarının sembolik araç ve sembolik yerine koyma boyutlarıyla ilişkili olmadığını ortaya koymuştur.

Önemli Vurgular: Bu bulgular, sosyo-dramatik oyunun yalnızca sembolik karmaşıklık yönü ile okul öncesi dönem çocuklarının öz-düzenleme becerileri (engelleyici kontrol ve dikkat) arasında pozitif bir ilişki olduğunu göstermektedir. Sonuçlar, sosyo-dramatik oyun ve öz-düzenleme alan yazınıyla ilişkilendirilerek tartışılmıştır.

[1] This study was produced from a part of the first author's master thesis, supported by the Scientific Research Projects Coordination of Pamukkale University. Part of this research was previously presented at the 7th International Early Childhood Education Congress, November 24-26, 2021, in Izmir, Turkey.
[2] **Corresponded Author,** Pamukkale University, Institute of Educational Sciences, Early Childhood Education Department, Denizli, TURKEY; https://orcid.org/0000-0001-8687-5956
[3] Pamukkale University, Faculty of Education, Early Childhood Education Department, Denizli, TURKEY; https://orcid.org/0000-0002-0555-9247

Citation/Alıntı: Özcan, Ö., & İvrendi, A. (2024). Relationship between Socio-Dramatic Play and Self-Regulation Skills in Early Childhood, *Kastamonu Education Journal, 32*(1), 38-50. doi: 10.24106/kefdergi.1426465

INTRODUCTION

Self-regulation (SR) is at the center of children's learning in the early years (Blair & Raver, 2015). Research shows that children who demonstrate SR skills have high mathematics (Ivrendi, 2011; Schmitt et al., 2017) and language skills (Gözüm & Uyanık-Aktulun, 2021; Skibbe et al., 2019), and higher school success in later grades (Skibbe et al., 2019). The idea that play helps children's learning and development are also widely held (Nicolopolou, 2019). For instance, playing promote SR abilities such as attention, reasoning, impulse control, and the capacity to reflect on and regulate one's thoughts and emotions (O'Sullivan & Ring, 2018; Savina, 2014). Some scholars alleged that pretend play or socio-dramatic (SD) play supports the developmental areas of the child, specifically SR (Bergen, 2002; Breedekamp, 2004). Previous research showed that this type of play creates a potential for the development of SR (Elias & Berk, 2002; Thibodeau et al., 2016).

However, Lillard et al. (2013), in their critical review, in which they evaluated whether pretend play contributed significantly to SR, asserted questionable conclusions about the role of pretend play in SR. The authors questioned whether pretend play has a causal effect on SR and whether the relationship between SR and pretend play is due to a third unmeasured or noncontrolled factor. They concluded that there is insufficient research to claim that pretend play improves SR and presented inconsistent findings from previous studies examining the association between these two concepts. According to these inconsistent correlational findings, it is hard to conclude that SR and pretend play are causally related. However, current research that shows a relationship between these two concepts is increasing (Bauer & Gilpin, 2022; White et al., 2021). At the same time, limited research findings reveal that pretend play has a causal effect on SR skills (Thibodeau et al., 2016). Nevertheless, more research is still required to learn more about the association between SR and pretend play.

Pretend play is generally associated with Vygotsky's sociocultural theory, in which pretend play involves symbolic representations in reproductions of remembered social situations. In pretend play, the child enacts the role of the mother and speaks to the doll, similar to how their parents and teachers talk with her/him about socially appropriate behaviors (Bodrova et al., 2013). The Vygotskian perspective states that pretend play evolves into SD or mature play with elaborated scenarios during preschool and kindergarten. These complex scenarios include role coordination and provide performative and verbal interaction among peers (Berk & Meyers, 2013; Bodrova et al., 2013).

Forms of play in which children pretend to mimic certain behaviors refer to symbolic play, imaginary play, pretend or make-believe play, and SD play. Although these terms are used interchangeably (Göncü, 2019; Whitebread & O'Sullivan, 2012), their meanings might vary depending on the circumstance in which they are used. Smilansky (1968) defines SD play as a type of preschoolers' voluntary social play activity characterized by various criteria. These criteria are generally the child's pretending concerning a role, object, or situation for at least 10 minutes. However, for a play to be considered SD, at least two children are verbal interactions and generally exhibit representational or make-believe actions concerning elaborated play episodes (Smilansky, 1968). In the present study, which concentrates upon the association between SD play complexity levels and SR skills, SD play is perceived as defined by Smilansky.

Self-Regulation Skills in Early Childhood

SR is widely defined as the skill of an individual to control and subsequently regulate their thoughts, feelings, and behaviors for self-purposes (McClelland et al., 2010; Vohs & Baumeister, 2004). Studies show that SR skills are essential to school readiness by supporting young children's success in both academic and social domains (Willoughby et al., 2019) and narrowing the achievement gap in school readiness levels of disadvantaged children (Finders et al., 2021; Fitzpatrick et al., 2014).

Different perspectives examine SR. For example, cognitive and neuropsychology researchers focus on cognitive processes called executive functions (EF) (Blair, 2016; McClelland et al., 2010). EF are cognitive processes that enable children to regulate their behavior (McClelland & Cameron, 2012; van der Ven et al., 2013). Behaving according to the classroom rules, waiting for a turn to play with the desired toy, completing any task, obeying the rules of the play, and so forth require using EF (Center on the Developing Child at Harvard University, 2014; McClelland & Cameron, 2012). Effective SR involves the coordination of EF (McClelland & Cameron, 2012). Research from cognitive perspective highlights three main EF: (1) attention flexibility (AF), (2) working memory (WM) and, (3) inhibitory control (IC) (Miyake et al., 2000; McClelland & Cameron, 2012).

Although these three EF mechanisms are at least partially independent of each other, research reveals that they work in conjunction with each other in young adults and childhood (Huizinga et al., 2006; Miyake et al., 2000). For instance, Miyake et al. (2000) revealed a three-factor structure as shifting (function of attentional flexibility), updating (function of WM), and inhibition (function of IC) which are moderately related to each other. AF references a person's ability to focus and pay attention to a task voluntarily, to maintain attention even in the presence of distracting stimuli, to shift attention to a different task when necessary, and to adjust behavior according to a new situation (Blair & Diamond, 2008; Blair & Ursache, 2011). WM is remembering and updating information in the learning and implementation process (Gathercole & Pickering, 2000). IC is the ability first to prevent a dominant impulsive tendency due to internal or external factors and then produce a more appropriate alternative response (Diamond, 2013).

Children who can utilize SR skills effectively have high levels of adaptation to educational environments, motivation, involvement in learning, and positive relationships with teachers and peers (McClelland & Tominey, 2015; Veijalainen et al., 2017). In their study, Veijalainen et al. (2017) found significant relationships between the SR skills of preschoolers and different

developmental areas. Children with high SR skills need less support than other children, are more easily adaptive to and flexible within the social environment, have strong social and motor skills, better communication, and learning capacities, and have greater success in peer relations and with early childhood personnel.

Socio-Dramatic Play and Self-Regulation Skills

SR skills can be learned and improved with different strategies (Schmitt et al., 2015; White et al., 2021). One of these strategies for supporting SR is SD play. (Elias & Berk, 2002). By Vygotsky's (1978) sociocultural theory, SR is one of the primary skills that result from SD play. Two critical characteristics of the SD play emphasize the development of self-regulation skills. First, using symbolic objects in imaginary scenes is based on experiences from the sociocultural environment. For example, when a child pretends that a wooden block represents a phone, the real meaning of that object changes, allowing the child to use that object in the play, regardless of the object's natural function. In this context, the creation of imaginary scenes by using symbolic objects allows the child's thoughts to be separated from concrete reality. The child, who begins to use their thoughts rather than the object's natural function, can overcome their impulses and produce alternative actions (Meyers & Berk, 2014).

Second, the child often prefers to behave by the social rules of the role rather than with the tendency to act according to their impulses. An imaginary situation in play is not an incidental reality in a child's life, and this imaginary situation already has rules on how to act. For example, a child imagines herself to be a teacher and acts out this teacher role, or a doll is acted out by the child as a teacher. In such a case, the child adheres to the rules of the teacher role since the feeling of pleasuring the play will be dominant (Vygotsky, 1967). That is, the child adopts implicit rules accepted by self or others regarding the role of the teacher, and thus the child almost always prefers to inhibit immediate impulses (Nicolopoulou, 2019).

Findings indicate that SD play is an important practice that contributes to developing SR skills (Walker et al., 2020; White & Carlson, 2021). SR skills are required, for example, in children acting in the theater-themed SD play process, to remember their roles (such as theater actors, spectators, or technical staff), to act by their roles by controlling their dominant impulses, and to think flexibly in any changing situation. İvrendi (2016a) investigated the effect of play complexity levels on children's SR skills and found that children who participated in the more complex play had greater SR skills.

Children who live in disadvantaged environments and are exposed to inadequate environmental stimuli have trouble exhibiting their attention, behavior control, and cognitive skills (Center on the Developing Child at Harvard University, 2011). It is, therefore, beneficial when caregivers and teachers support SR skills in early childhood (Savina, 2021; Walker et al., 2020).

Considering the research results discussed above, SD play is an essential context for SR skills development in early childhood. This study investigates SD play about the SR skills of five- to six-year-old preschoolers to understand the relationship between these two variables better. Toward this aim, the complexity level of SD play was assessed through play observations, and children's SR skills were assessed with teachers' and mothers' reports with the following questions in mind:

1. Do teacher-reported SR skills statistically and significantly relate to the complexity levels of SD play?
2. Do mother-reported SR skills statistically and significantly relate to the complexity levels of SD play?

METHOD/MATERIALS

Research Design

This study was designed as associational research to examine whether SR skills based on teachers' and mothers' views relate to SD play's aspects and complexity levels. In this research, SR skills based on teachers' and mothers' views are dependent variables, and SD play is the independent variable.

The Setting and Research Participants

The research occurred in seven classrooms in two public preschools in Izmir, Turkey. In the classrooms, there was one teacher and a trainee who was studying in the child development department of a vocational high school. All classrooms had learning centers such as dramatic play centers, block centers, and book centers. Learning centers are playgrounds with different materials prepared for children for free play in the classroom (Ministry of National Education, 2013). The participants consisted of typically developing children, their mothers, and teachers. The number of teacher-assessed participants was 51 preschoolers, while the number of mother-assessed participants was 48 preschoolers, as three children's mother reports of SR skills were missing.

Ages varied from 60 to 86 months (M= 68.75, SD=5.38) for the 51 preschoolers (37 girls) participating in the study. Almost half of the parents had a high school diploma, and 64.7 % of the families' average monthly income was 3104 TL (around US $516). This average monthly income was below the poverty threshold for a family of four in Turkey (Turkish Statistical Institute, 2020). Regarding preschool attendance, 72.5 % attended preschool for one year, while 27.5 % attended for two years or more.

Data Collection

The Self-Regulation Skills Scale (SRS)-Teacher Form (İvrendi & Erol, 2018)

SRS-Teacher Form was utilized to measure children's SR skills based on teachers' views. This scale is a five-point Likert scale with 22 items measuring IC (eight items), e.g., solves problems by talking to friends., attention (nine items), e.g., endeavors to fulfill a task that she has started without someone's direction., WM (five items), e.g., recollects what learned. The range of possible scores is 8-40 for IC, 9-45 for attention, and 5-25 for WM. For content validity, the 42-item form was sent to six experts (two preschool teachers with master's degrees and four field experts) to get expert opinions. Experts evaluated the items regarding appropriateness and clarity criteria and their appropriateness for the sub-dimension in which they were included. In addition, experts rated each item as "appropriate", "partially appropriate", and "not appropriate", considering the Lawshe analysis method. As to this rating, it was established that the content validity index (CVI) was 0.95. In line with the experts' opinions, adjustments were made to the items, and the form was finalized. The confirmatory factor analysis (CFA) values met the proposed criteria ($\chi 2/sd$ = 1.28, RMSEA=.046, SRMR=.068, CFI=.99). The internal consistency coefficient with Cronbach's Alpha was .94 for the total scale, .91 for the attention, .87 for the WM, and .91 for the IC. The test-retest reliability was .81 (İvrendi & Erol, 2018). In the present study, the internal consistency with Cronbach's Alpha was .96 for the total, .96 for attention, .95 for WM, and .95 for IC.

The Self-Regulation Skills Scale (SRS)-Mother Form (Erol & İvrendi, 2018)

SRS-Mother Form was utilized to measure children's SR skills based on mothers' views. This form is a five-point Likert-type scale with 20 items (six items for attention, e.g., maintains an activity to the end, five items for WM, e.g., recollects where put belongings., five items for IC-emotion, e.g., tells the causes and effects of others' emotions., five items for IC-behavior, e.g., uses different ways to control her anger). The range of possible scores is 6-30 for attention, 5-25 for WM, 5-25 for IC-emotion, and 4-20 for IC-behavior. This scale's content validity process and the index were the same as the teacher form. The CFA values met the proposed criteria ($\chi 2/sd$ = 1.91, RMSEA=.07, SRMR=.07, CFI=.91). The Cronbach's Alpha values of this form were .90 for the full scale, .89 for the attention, .82 for the WM, .77 for the IC-emotion, and .75 for the IC-behavior. The test-retest reliability was .77 (Erol & İvrendi, 2018). In the present study, the internal consistency with Cronbach's Alpha was .87 for the total scale, .71 for attention, .68 for WM, .77 for IC-emotion, and .61 for IC-behavior.

The Socio-Dramatic Play Scale (SDPS) (Hanline et al., 2008)

Karaman (2012) adapted this scale into Turkish to measure the complexity of SD play. It is an observation-based assessment tool consisting of three aspects: Symbolic agent, symbolic substitution, and symbolic complexity. Each aspect has four different levels, from low to high. The symbolic agent is about what or to whom the child directs the SD play. As the level of playing in the symbolic agent increases, the child's actions in the SD play move toward objects and peers rather than centering on the self. Symbolic substitution relates to the tangibility or abstractness of the objects used in SD play. Symbolic complexity includes the number of schemes created in the SD play and the interrelatedness of these schemes (Hanline et al., 2008). Table 1 was formed by reference to Hanline et al. (2008) and, Karaman and İvrendi (2015).

Table 1. Illustrative examples of SD play scale's aspects

Score	SA	SS	SC
Level 1	Pretending to eat pizza.	Using a real hair comb to comb a doll's hair.	Pretending to toast.
Level 2	Pretending to make a doll sleep.	Using a plastic stethoscope to examine a patient.	Pretending to feed their cat and then walks their dog
Level 3	Pretending to be a doctor.	Using little blocks instead of money.	Pretending to go to the restaurant with their peers, have dinner, and come back home.
Level 4	Directs another peer to be daddy to the child in the play.	Pretending to be police and speaking their imaginary police radio.	Pretending to take their doll off to the coiffeur, portrays a hairdresser, and cuts the doll's hair as their customer, then returns to the mommy role and goes home with their child.

Note: SA: Symbolic agent; SS: Symbolic substitution; SC: Symbolic complexity

Karaman and İvrendi (2015) found a statistically significant positive correlation between the symbolic agent ($r=0.76$; $p<0.01$), symbolic substitution ($r= 0.79$; $p<0.01$), and symbolic complexity ($r=0.71$; $p<0.01$) scores using Kendall's tau-b correlation coefficient. The correlation between test-retest scores was examined with the Spearman correlation coefficient. The correlation between the test-retest scores of the symbolic agent ($r=0.70$, $p<0.01$), symbolic substitution ($r=0.77$; $p<0.01$), and symbolic complexity ($r=0.69$; $p<0.01$) was statistically significant (Karaman & İvrendi, 2015).

Procedure

After obtaining the necessary permissions, the participants were determined on a voluntary basis. The study was conducted with the children whose parental consent was obtained. Participating teachers and mothers of the children completed the SRS forms. In the current study, following the guidelines developed by Hanline et al. (2008), a fourth-year undergraduate preschool education program student (observer) assisted the lead researcher with video recordings and independently watched and coded 25% of the videos in this study for intercoder reliability.

A seven-hour observer training consisting of theoretical explanations and examples of SD play was provided for the observer. Also, the observer read the books and articles suggested by the researcher to understand the SD play better. The observer observed the researcher during the first two days of video recording and started video recording the next day. The researcher explained the coding to the observer, watched, and coded this video record together. Then, each independently coded a SD play session to evaluate whether the observer was coding correctly. After the researcher confirmed that the observer did similar coding to the researcher (e.g., the observer and the researcher coded one minute in the video recording to the same aspect and level in the SDPS), the Kappa fit indexes were calculated (κ=.85). This fit index indicates that the interobserver agreement is at the desired level (Fraenkel et al., 2012).

Video recordings focused on the children engaged in SD play during their daily free play time. Therefore, the researcher and the observer focused on children playing socio-dramatic plays in dramatic play or block centers. The study did not include children who did not play socio-dramatic play. Video-recorded children's SD play sessions included the following criteria: imitative behavior, pretending concerning actions and situations, substituted objects, and interactions between at least two players in the framework of the play episode. It was also considered that the SD play scene should last at least 10 minutes. Recordings averaged 35 minutes per session, with sessions occurring three to five days a week for six weeks. The SD play was not interfered with during the sessions. Before video recordings, the researchers spent time getting acquainted with the children. The initial few minutes of each session were not recorded to allow the children to adapt to SD play. For each session, video recording concentrates on one participant, even if multiple participants play together. Thus, in the coding process, only one participant was coded for each session. Each participant has an equal number of sessions. Each minute of the 30 minutes of recordings was evaluated using a scale of 4 levels, with each minute recorded as one data point. Each child was placed in a group based on the most complex behavior.

When the data distribution was evaluated about the scale levels, it was found that no children were at the 1st level in the symbolic substitution, but there were instances in which children were at the 2nd level. Therefore, the level 1 and level 2 scales were merged into one group which represented the low, while level 3 represented the medium, and level 4 represented the high level. Levels 1 and 2 were scored as 1 point, level 3 as 2 points, and level 4 as 3 points. Each observed level was recorded, and then in each minute of the recordings, the levels that children reached to the highest observed levels of a symbolic agent, symbolic substitution, and symbolic complexity were scored.

Data Analysis

The Kolmogorov-Smirnov test for normality was conducted for the dependent variable data. The Z scores of the teacher-reported SR skills showed that the data of the IC and attention showed normal distribution (Z= .12; .11; p>.05), while the data of the WM did not demonstrate (Z= .17; p<.05). The Z scores of mother-reported SR skills demonstrated that the data of the attention and IC-behavior showed normal distribution (Z= .12; .11; p>.05), while the data of the WM and IC-emotion did not show (Z= .21; .15; p<.05). One-way analysis of variance (One-Way ANOVA) and Tukey HSD, one-way analysis of covariance (One-Way ANCOVA) with Bonferroni-adjusted post hoc test, Pearson's product-moment correlation coefficient (PPMCC) were utilized for normally distributed data. The Kruskal Wallis-H test (K-W Test) and Mann-Whitney U test (MW-U Test) were used for data that did not show normal distribution. SR skills based on teachers' and mothers' views are dependent variables, and SD play is the independent variable in this study.

FINDINGS

The mean scores and standard deviation of teacher-reported and mother-reported SR skills are given in Table 2.

Table 2. Mean scores and standard deviations of dependent variables

Reported self-regulation skills	Dependent variables	*n*	$\bar{x}$	*sd*
Teacher-reported SR skills	SR-IC	51	3.57	.82
	SR-A	51	3.69	.75
	SR-WM	51	4.38	.62
Mother-reported SR skills	SR-A	48	4.04	.59
	SR-WM	48	4.66	.39

	SR-IC/E	48	4.08	.66
	SR-IC/B	48	3.57	.74

Note: 1SR-IC: Self-Regulation-Inhibitory Control; SR-A: Self-Regulation-Attention; SR-WM: Self-Regulation-Working Memory; SR-IC/E: Self-Regulation-Inhibitory Control/Emotion; SR-IC/B: Self-Regulation-Inhibitory Control/Behavior

Findings Related to Research Question 1

Do Teacher-Reported SR Skills Statistically and Significantly Relate to the Complexity Levels of Socio-Dramatic Play?

A one-way ANOVA was computed to examine the relationship between the aspects of SD play and teacher-reported SR skills (IC and attention). The results are shown in Table 3.

Table 3. One-way ANOVA results of teacher-reported SR skills and aspects of SD play

Aspects of socio-dramatic play			Sum of squares	df	Mean square	*F*	*p*
SA	SR-IC	Between groups	.33	2	.17	.24	.78
		Within groups	33.54	48	.69		
		Total	33.88	50			
	SR-A	Between groups	2.18	2	1.09	1.98	.14
		Within groups	26.32	48	.54		
		Total	28.50	50			
SS	SR-IC	Between groups	.53	2	.26	.38	.68
		Within groups	33.34	48	.69		
		Total	33.88	50			
	SR-A	Between groups	.25	2	.12	.21	.80
		Within groups	28.24	48	.58		
		Total	28.50	50			
SC	SR-IC	Between groups	5.00	2	2.50	4.15*	.02
		Within groups	28.88	48	.60		
		Total	33.88	50			
	SR-A	Between groups	5.46	2	2.73	5.69**	.00
		Within groups	23.03	48	.48		
		Total	28.50	50			

Note: N=51, *=p<.05, **p=<.01; SA: Symbolic agent; SS: Symbolic substitution; SC: Symbolic complexity; SR-IC: Self-Regulation-Inhibitory Control; SR-A: Self-Regulation-Attention

As seen in Table 3, there was a statistically significant difference IC [F (2, 48)= 4.15; p<.05] and attention [F (2, 48)= 5.69; p<.01] dimensions of children's SR skills according to the symbolic complexity. The post hoc multiple comparison test, using Tukey HSD, indicated that the mean scores of children who play at a high level in the symbolic complexity aspect ($\bar{X}$=3.82, SD=.81; $\bar{X}$=3.88, SD=.75) were higher than the mean scores of children who play at a medium level ($\bar{X}$=3.11, SD=.69; $\bar{X}$=3.22, SD=.65), according to the IC and attention dimensions, respectively. However, the symbolic complexity mean scores of children who play at low and high levels were not statistically significantly different.

Two separate one-way analysis of covariance on the data has been conducted to prevent the likelihood that such a difference may have arisen by chance. In the first analysis, since children's age in the sample has a large standard deviation and wide range, age has been used as the concomitant variable, and the IC has been utilized as the dependent variable. Secondly, the monthly income variable has been utilized as the concomitant variable, and IC has been set as the dependent variable. In the current research, there is a statistically significantly low-level relationship between IC and age (r=.36, p<.5), IC and family's monthly income (r=.33, p<.05). Therefore, it seems legitimate to acknowledge the age and family's monthly income as covariates. Table 4 was given two separate one-way ANCOVA results.

Table 4. One-Way ANCOVA results of teacher-reported IC scores (age-corrected and income-corrected) and symbolic complexity

Source of variance	Sum of squares	df	Mean square	*F*	*p*
Child's Age	4.52	1	4.52	8.73	.00
SC	5.26	2	2.63	5.07	.01
Error	24.35	47	.51		
Total	684.26	51			
Monthly Income	2.16	1	2.16	3.80	.057
SC	3.44	2	1.72	3.03	.058

Error	26.72	47	.56
Total	684.26	51	

Note: SC: Symbolic complexity

As given in Table 4 the ANCOVA analysis revealed that significant relationship between IC and symbolic complexity when age was controlled [F (2, 47)= 5.07; p<.05]. That is, controlling for age did not influence this significant difference favoring children playing at a high level. The second analysis results, controlling for the family's monthly income, demonstrated a non-significant relationship between IC and symbolic complexity [F (2, 47)= 3.03; p=.058]. However, it is possible to say that this value is close to the 95% confidence interval. In addition, multiple post hoc comparisons favoring children playing at a high level did not change. That is, there is a 94.2% chance that the difference between the two levels would not occur by chance.

The relationship between aspects of SD play and teacher-reported SR abilities (WM) was examined using the K-W Test. Findings indicated that the WM dimension of SR skills was not related to the SD play aspects.

Findings Related to Research Question 2

Research Question 2: Do Mother-Reported SR Skills Statistically and Significantly Relate to the Complexity Levels of Socio-Dramatic Play?

Another one-way ANOVA was computed to examine the relationship between aspects of SD play, attention, and IC-behavior dimensions of mother-reported SR skills and presented in Table 5.

Table 5. One-Way ANOVA results of mother-reported SR skills and aspects of SD play

Aspects of socio-dramatic play			Sum of squares	*df*	Mean square	*F*	*p*
SA	SR-A	Between groups	.08	2	.04	.11	.88
		Within groups	16.51	45	.36		
		Total	16.60	47			
	SR-IC/B	Between groups	.15	2	.07	.13	.87
		Within groups	25.96	45	.57		
		Total	26.12	47			
SS	SR-A	Between groups	.07	2	.03	.09	.90
		Within groups	16.53	45	.36		
		Total	16.60	47			
	SR-IC/B	Between groups	1.70	2	.85	1.57	.21
		Within groups	24.41	45	.54		
		Total	26.12	47			
SC	SR-A	Between groups	1.17	2	.58	1.71	.19
		Within groups	15.43	45	.34		
		Total	16.60	47			
	SR-IC/B	Between groups	3.42	2	1.71	3.39*	.04
		Within groups	22.69	45	.50		
		Total	26.12	47			

Note: N=48; *=p<.05; SA: Symbolic agent; SS: Symbolic substitution; SC: Symbolic complexity; SR-A: Self-Regulation-Attention; SR-IC/B: Self-Regulation-Inhibitory Control/Behavior

Table 5 demonstrates that the IC-behavior dimension of children's SR skills held a statistically significant difference for symbolic complexity [F (2, 45)= 3.39; p<.05]. A post hoc multiple comparison test using Tukey HSD showed that the mean scores of children who played at a high level in the symbolic complexity aspect ($\bar{X}$=3.71, SD=.47) were higher than the mean scores of children who played at a low level ($\bar{X}$=2.87, SD=.74), according to the IC-behavior dimension.

The K-W Test was conducted to examine the impact of the aspects of SD play on WM and the IC-emotion dimensions of mother-reported SR skills and presented in Table 6.

Table 6. The K-W test results of mother-reported SR skills and aspects of SD play

Aspects of socio-dramatic play		Groups	*n*	Mean rank	*df*	χ^2	*p*
SA	SR-WM	LL	5	23.50	2	.04	.97
		ML	28	24.79			
		HL	15	24.30			
	SR-IC/E	LL	5	29.90	2	1.71	.42
		ML	28	25.32			
		HL	15	21.17			

SS	SR-WM	LL	2	32.50	2	1.12	.56
		ML	19	22.66			
		HL	27	25.20			
	SR-IC/E	LL	2	18.25	2	1.25	.53
		ML	19	27.00			
		HL	27	23.20			
SC	SR-WM	LL	6	15.75	2	2.90	.23
		ML	17	25.29			
		HL	25	26.06			
	SR-IC/E	LL	6	11.83	2	5.90*	.05
		ML	17	25.09			
		HL	25	27.14			

Note: *=p=.05; SA: Symbolic agent; SS: Symbolic substitution; SC: Symbolic complexity; SR-WM: Self-Regulation-Working Memory; SR-IC/E: Self-Regulation-Inhibitory Control/Emotion; LL: Low level; ML: Mid-level; HL: High level

Based on Table 6, a statistically significant difference was present for the IC-emotion dimension of children's SR skills according to symbolic complexity [$\chi^2(2)= 5.90$; p=.05)]. Possible pairs of all play levels were compared using the MW-U test to determine which groups were significantly different. The findings showed that the difference between low and mid-level was statistically significant in favor of children who played at the mid-level. Also, a statistically significant difference was present in favor of children who played at a mid-level of the symbolic complexity aspect according to the IC-emotion dimension of SR skills based on mothers' views (U=23.5, p=0.05). The difference between low and high levels was statistically significant in favor of children playing at high levels of symbolic complexity regarding the IC-emotion dimension of mother-reported SR skills (U=26.5, p<0.05). These findings demonstrate that children who played at mid and high levels of the symbolic complexity aspect have better IC-emotional skills than children who played at low levels.

PPMCC was computed to compare teacher-reported and mother-reported SR skills. Results revealed no statistically significant correlation among the two informants' reported SR skills.

DISCUSSION

Examining the teachers' views, the IC and attention dimensions of SR skills statistically significantly differed in favor of the children who played a high level of symbolic complexity. Moreover, IC showed statistically significant differences even when controlling for children's age. However, the WM did not differ significantly according to symbolic complexity. Similarly, the attention and WM dimensions of mother-reported SR skills did not differ significantly regarding symbolic complexity. The emotion and behavior sub-dimensions of IC differed significantly in favor of children who played at high levels of symbolic complexity. Additionally, teacher and mother-reported attention, WM, and IC dimensions did not relate to symbolic agent and symbolic substitution aspects.

The increased level of playing in the symbolic agent aspect requires the child to interact verbally or performative with peers or objects in SD play. Therefore, the child's actions move toward objects and peers. In their study, Pierrucci et al. (2014) reported that pretense propensity (e.g., a person other than self) was not associated with any SR skills, consistent with the findings of this study. In another study, Thibodeau et al. (2016) showed that pretend play supported children's WM and attention performance. However, this experimental study indicated that pretend play did not reveal a significant difference in IC performance, similar to these findings. This finding is also incongruent with White et al.'s (2021) study. This inconsistency may result from various reasons, such as individual (Taylor & Carlson, 1997) and cultural differences (İvrendi et al., 2019). For instance, Taylor and Carlson (1997) examined the relationship between mental ability and pretense. They concluded that each pretense assessment was related to the theory of mind performance in young children. Similarly, İvrendi et al. (2019) examined the play perceptions of Turkish and Norwegian children, teachers, and mothers' and noted that many Norwegian teachers observed children using dramatic materials, while Turkish teachers observed a preference by Turkish children to play with blocks. Consistent with İvrendi et al.'s (2019) study, our informal observations during data collection also revealed that the children who did not participate in SD play mostly preferred to play with blocks.

Another finding of this study was that attention, WM, and IC dimensions based on teachers' and mothers' views did not significantly differ from the symbolic substitution aspect of SD play. The relationship between the object and the meaning begins to separate from each other as the level of symbolic substitution, based on the tangibility or abstractness of the objects used in the play, increases. As Vygotsky (1978) states, children utilize their SR skills by attributing meanings to objects that shift from concrete to abstract. While this finding is inconsistent with the findings of some studies examining the relationship between symbolic substitution and SR skills (Carlson et al., 2014; Nader-Grosbois & Vieillevoye, 2012; Slot et al., 2017), it is consistent with other studies (Bijvoet-van den Berg & Hoicka, 2019; Hopkins et al., 2016). Bijvoet-van den Berg and Hoicka (2019) reported no relationship between symbolic substitution and IC, while Slot et al. (2017) revealed that object substitution, one of the indicators

of the quality of SD play, and cognitive SR correlated with each other. One possible reason for this discrepancy is that the level of SD play may not have developed enough to adequately address the portrayed character's perspective on life. This situation may have caused children to pretend at an immature level and the meanings attributed to the objects to remain more concrete, resulting in children playing at low levels in the symbolic agent and symbolic substitution dimensions.

Robertson (2016) examined the complexity of children's SD play behaviors and found that roughly two-thirds of the children participating in the study showed a complexity level of SD play that was at an immature level. These children exhibited short-term and repetitive play scenes that did not include enough organized play schemas, thereby producing immature role enactment and mid-level symbolic substitution with objects in their SD play.

Another finding of this study showed that teacher-reported attention and IC dimensions differed in favor of children who demonstrated a higher level of symbolic complexity in their play. This finding demonstrates that children who exhibit a high level of symbolic complexity in their play may have better IC and attention skills than those who play at a mid-level. It is important to note the difference between IC and in favor of children who demonstrated a higher level of symbolic complexity in their play held up in our study even after accounting for children's age and family's monthly income controls separately. Some studies have shown that SR skills are linked to a child's age. For example, Wanless et al. (2016) revealed rapid growth in acquiring SR skills after age five. In addition, because the children's age range was wide and the standard deviation was large in this sample, controlling for the child's age was needed. Particularly, controlling for the family's monthly income was crucial as the chronic ecological stress factors related to low income have a negative effect on children's SR skills (Raver, 2012). At the same time, when the same dimensions of mother-reported SR skills were examined, emotion and behavior IC skills differed in favor of children who played at a high level of symbolic complexity.

This finding demonstrated that children who played at a high level might have greater IC-behavior skills than their peers who played at a low level. These findings are consistent with other studies examining the relationship between IC skills and SD play (Slot et al., 2017; Thibodeau-Nielsen, Gilpin, Palermo, et al., 2020; White et al., 2021). Thibodeau et al. (2016) found that pretend play supports AF performance. Carlson et al. (2014) argue that children's SR skills play an effective role in the capacity of representational thinking and that the main factor in pretending may be the IC skill. White et al. (2021) investigated the effect of pretend play on IC, revealing that only social pretend play was a predictor of IC. This result is also consistent with the findings of this study.

When the relevant literature is examined, various findings show that increasing the levels of play supports SR skills (Bauer & Gilpin, 2022; Elias & Berk, 2002; İvrendi, 2016a). In their study, Slot et al. (2017) stated that high-level pretend play enables children to use their SR skills continuously. In another study, Bauer and Gilpin (2022) reported that the children with the complex level pretended, according to all three informants (child, teacher, and observers), also had the highest cognitive and social skills. As Vygotsky (1978) stated, complex scenarios enhance the use of SR skills. In the complex multi-level SD play, children make more plans about the roles and processes (Bodrova et al., 2013). Children use more symbolic or imaginary objects and exhibit a greater capacity for role-playing and pretend-talk. Thus, the study findings support the premise that the level of play in the symbolic agent and symbolic substitution dimensions relates to symbolic complexity.

Finally, this study did not find an association between teacher and mother ratings of SR. However, limited research comparing these two informants (parents and teachers) found a low correlation between parent-reported and teacher-reported SR skills (İvrendi et al., 2021; Zulauf-McCurdy & Loomis, 2022). The inconsistency may be due to emotionally biased reports of mothers and teachers' more objective observation of children. In addition, given their extensive developmental perspectives, teachers may have reported more objectively.

CONCLUSION, LIMITATIONS, AND FUTURE RESEARCH

Although the results of this research provided evidence as to the association between SD play and SR skills, it has limitations. First, this research is descriptive and does not present causal relationships between children's SR skills and SD play. Although empirical evidence from intervention studies suggests that SD play supports preschoolers' SR skills, these studies are limited (Thibodeau et al., 2016). Also, interventions administered in previous research have generally been implemented by experimenters. Future interventions can be implemented by preschool teachers based on teacher training for such interventions' continuity in children's naturalistic environments. In addition, future studies can be designed longitudinally to investigate potential long-term longitudinal relations between SD play and SR skills.

Second, this research was conducted with a small sample of children due to children's absenteeism and not participating in SD play. The sample is also limited to two preschools. Future research on the subject can be conducted with a larger group and include more preschools, to enhance the generalizability of this research's findings.

Finally, this study used indirect measures to assess children's SR skills. Future research may use direct measures of SR skills and employ more advanced statistical analysis techniques.

It is needed to understand better why there is no significant difference in other subdimensions of SR skills compared to aspects of SD play. Research highlights that factors (e.g., adult support, language skills, baseline SR levels) can affect whether children participate in SD play (Carlson & White, 2013; Thibodeau-Nielsen, Gilpin, Nancarrow, et al., 2020).

For example, Gmitrova (2013) found that direct participation by early childhood teachers in pretend play was more effective in developing pretend play than indirect involvement. Since advanced play is highly effective in supporting children's developmental areas and SR skills, adequate adult support may be crucial during SD play, one of the young children's most preferred types of play (Cevher-Kalburan & İvrendi, 2021). In addition, teacher-child interactions during SD play, how the teacher participates in the play, and the teacher's introduction of social roles to children are considerable. The current study focused only on the relationship between SD play and SR skills. Other studies may incorporate these factors into research to better understand the effects of SD play on SR skills or the relationship between two variables. Also, upcoming studies can be conducted only with children who play at a high level of SD play to determine the association of SD play with SR skills.

The research on SR skills and symbolic substitution appears to be limited. Considering that using symbolic or imaginary objects improves the child's metacognition, this issue can be addressed in future research. Likewise, experimental studies can be carried out to examine the effect of SD play-based intervention programs on SR skills. Research may provide evidence as to cause-effect relationships between the two variables. Based on the findings of this and previous studies, SD play relates to SR skills and should be fostered in early childhood institutions. Teachers should be supported through professional development activities that foster high levels of SD play in the classroom.

Declaration of Conflicting Interests

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

Funding

This work was supported by the Scientific Research Projects Coordination of Pamukkale University titled “Investigation of the Relationship Between Self-Regulation Skills and Socio-Dramatic Play in Early Childhood” under Grant number 2019EĞBE005.

Statements of publication ethics

We hereby declare that the study has not unethical issues and that research and publication ethics have been observed carefully. This research was conducted in compliance with all principles of the Ethical Committee of Pamukkale University. This research was conducted with approval from the Provincial Directorate of National Education.

Researchers’ contribution rate

First Author: Conceptualizing, Methodology, Data Collecting, Analysis and Interpretation of Data, and Writing-Original Draft

Second Author: Writing-Review, Supervision, and Editing

REFERENCES

Bauer, R. H., & Gilpin, A. T. (2022). Imaginative children in the classroom: Mixed-methods examining teacher reported behavior, play observations and child assessments. *Early Education and Development*. Advance Online Publication. https://doi.org/10.1080/10409289.2021.2024111

Bergen, D. (2002). The role of pretend play in children’s cognitive development. *Early Childhood: Research and Practice, 4*, 1–13.

Berk, L. E., & Meyers, A. B. (2013). The role of make-believe play in the development of executive function: Status of research and future directions. *American Journal of Play*, *6*(1), 98–110.

Bijvoet-van den Berg, S., & Hoicka, E. (2019). Preschoolers understand and generate pretend actions using object substitution. *Journal of Experimental Child Psychology*, *177*, 313-334. https://doi.org/10.1016/j.jecp.2018.08.008

Blair, C. (2016). Executive function and early childhood education. *Current Opinion in Behavioral Sciences*, *10*, 102-107. https://doi.org/10.1016/j.cobeha.2016.05.009

Blair, C., & Diamond, A. (2008). Biological processes in prevention and intervention: The promotion of self-regulation as a means of preventing school failure. *Development and Psychopathology*, *20*(3), 899-911. https://doi.org/10.1017/S0954579408000436

Blair, C., & Raver, C. C. (2015). School readiness and self-regulation: A developmental psychobiological approach. *Annual review of psychology*, *66*, 711-731. https://doi.org/10.1146/annurev-psych-010814-015221

Blair, C., & Ursache, A. (2011). A bidirectional model of executive functions and self-regulation. In K. D. Vohs & R. F. Baumeister (Eds.), *Handbook of self-regulation: Research, theory, and applications* (pp. 300–320). Guilford Press.

Bodrova, E., Germeroth, C., & Leong, D. J. (2013). Play and self-regulation: Lessons from Vygotsky. *American Journal of Play*, *6*(1), 111–123.

Bredekamp, S. (2004). Play and school readiness. In E. F. Zigler, D. G. Singer, & S. J. Bishop-Josef (Eds.), *Children’s play: The roots of reading* (pp. 159–174). Washington, DC: ZERO TO THREE (www.zerotothree.org).

Carlson, S. M., White, R. E., & Davis-Unger, A. C. (2014). Evidence for a relation between executive function and pretense representation in preschool children. *Cognitive Development, 29*, 1–16. https://doi.org/10.1016/j.cogdev.2013.09.001

Cevher-Kalburan, N., & İvrendi, A. (2021). In defense of play: children’s play preferences and thoughts about play prohibition. *International Journal of Play, 10*(3), 316-328. https://doi.org/10.1080/21594937.2021.1959228

Center on the Developing Child at Harvard University. (2011). *Building the brain's ''air traffic control" system: How early experiences shape the development of executive function* (Working Paper No. 11). Cambridge, MA: Author. Retrieved from http://www.developingchild.harvard.edu.

Center on the Developing Child at Harvard University (2014). *Enhancing and Practicing Executive Function Skills with Children from Infancy to Adolescence.* Retrieved from www.developingchild.harvard.edu.

Diamond, A. (2013). Executive functions. *Annual Review of Psychology*, *64*, 135–168. https://doi.org/10.1146/annurev-psych-113011-143750

Elias, C. L., & Berk, L. E. (2002). Self-regulation in young children: Is there a role for sociodramatic play? *Early Childhood Research Quarterly*, *17*(2), 216-238. https://doi.org/10.1016/S0885-2006(02)00146-1

Erol, A. & İvrendi, A. (2018). Developing an instrument for measuring self-regulation skills of 4-6-year-old children (mother form). *Pamukkale University Journal of Education*, *44*(44), 178-195. https://doi.org/10.9779/PUJE.2018.213

Finders, J. K., McClelland, M. M., Geldhof, G. J., Rothwell, D. W., & Hatfield, B. E. (2021). Explaining achievement gaps in kindergarten and third grade: The role of self-regulation and executive function skills. *Early Childhood Research Quarterly*, *54*, 72-85. https://doi.org/10.1016/j.ecresq.2020.07.008

Fitzpatrick, C., McKinnon, R. D., Blair, C. B., & Willoughby, M. T. (2014). Do preschool executive function skills explain the school readiness gap between advantaged and disadvantaged children? *Learning and Instruction*, *30*, 25–31. https://doi.org/10.1016/j.learninstruc.2013.11.003

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate research in education*. New York: McGraw-Hill.

Gathercole, S. E., & Pickering, S. J. (2000). Working memory deficits in children with low achievements in the national curriculum at 7 years of age. *British Journal of Educational Psychology*, *70*(2), 177–194. https://doi.org/10.1348/000709900158047

Gmitrova, V. (2013). Teaching to play performing a main role–effective method of pretend play facilitation in preschool-age children. *Early Child Development and Care*, *183*(11), 1705-1719. https://doi.org/10.1080/03004430.2012.746970

Göncü, A. (2019). *Oyunda büyümek çocuk gelişimi ve eğitimine sosyokültürel bakış.* (A. Turan, Trans.; 2nd rev. ed.). Istanbul: Koc Universitesi Yayınları. (Original work published 2007).

Gözüm, A. İ. C., & Aktulun, Ö. U. (2021). Relationship between pre-schoolers' self-regulation, language, and early academic skills: The mediating role of self-regulation and moderating role of gender. *Current Psychology*, 4718-4740. https://doi.org/10.1007/s12144-021-01699-3

Hanline, M. F., Milton, S., & Phelps, P. C. (2008). A longitudinal study exploring the relationship of representational levels of three aspects of preschool socio-dramatic play and early academic skills. *Journal of Research in Childhood Education*, *23*(1), 19–28. https://doi.org/10.1080/02568540809594643

Hopkins, E. J., Smith, E. D., Weisberg, D. S., & Lillard, A. S. (2016). The development of substitute object pretense: the differential importance of form and function. *Journal of Cognition and Development*, *17*(2), 197–220. https://doi.org/10.1080/15248372.2015.1115404

Huizinga, M., Dolan, C. V., & Van der Molen, M. W. (2006). Age-related change in executive function: Developmental trends and a latent variable analysis. *Neuropsychologia*, *44*(11), 2017-2036. https://doi.org/10.1016/j.neuropsychologia.2006.01.010

Ivrendi, A. (2011). Influence of self-regulation on the development of children's number sense. *Early Childhood Education Journal*, *39*(4), 239–247. https://doi.org/10.1007/s10643-011-0462-0

Ivrendi, A. (2016a). Choice-driven peer play, self-regulation and number sense. *European Early Childhood Education Research Journal*, *24*(6), 895–906. https://doi.org/10.1080/1350293X.2016.1239325

İvrendi, A., Cevher-Kalburan, N., Sandseter, E. B. H., Storli, R., & Sivertsen, A. H. (2019). Children, mothers, and preschool teachers' perceptions of play: Findings from Turkey and Norway. *Journal of Early Childhood Studies*, *3*(1), 32-54. https://doi.org/10.24130/eccd-jecs.1967201931119

İvrendi, A. & Erol, A. (2018, March 29-31). *Developing an instrument for measuring self-regulation skills of 4-6-year-old children (teacher form)* [Paper presentation]. 1st International Conference on Basic Education, Bursa, Turkey.

İvrendi, A., Erol, A., & Atan, A. (2022). Children's geometric skills: Any ties to self-regulation skills? *The Journal of Educational Research, 115*(1), 1-10. https://doi.org/10.1080/00220671.2021.2007043

Karaman, S. (2012). *Investigation on the relationship between the mathematical skills and sociodramatic play of 6 years old preschool children* [Unpublished master thesis]. Pamukkale University.

Karaman, S., & İvrendi, A. (2015). Okul öncesi dönem çocuklarının matematik becerileri ile onların sosyo-demografik özellikleri ve sosyo-dramatik oyunları arasındaki ilişki. *Eğitim ve Bilim*, *40*(177), 313-326. http://dx.doi.org/10.15390/EB.2015.3016

Lillard, A. S., Lerner, M. D., Hopkins, E. J., Dore, R. A., Smith, E. D., & Palmquist, C. M. (2013). The impact of pretend play on children's development: A review of the evidence. *Psychological Bulletin, 139*(1), 1–34. https://psycnet.apa.org/doi/10.1037/a0029321

McClelland, M. M., & Cameron, C. E. (2012). Self-regulation in early childhood: Improving conceptual clarity and developing ecologically valid measures. *Child Development Perspectives*, *6*(2), 136–142. https://doi.org/10.1111/j.1750-8606.2011.00191.x

McClelland, M. M., Ponitz, C. C., Messersmith, E. E., & Tominey, S. (2010). Self-regulation: Integration of cognition and emotion. In W. F. Overton & R. M. Lerner (Eds.), *The handbook of life-span development*: *Cognition, biology, and methods* (pp. 509–553). John Wiley & Sons, Inc.
McClelland, M. M., & Tominey, S. L. (2015). Stop, think, act: Integrating self-regulation in the early childhood classroom. Routledge.

Meyers, A. B., & Berk, L. E. (2014). Make-believe play and self-regulation. In E. Brooker, M. Blaise ve S. Edwards (Eds.), *SAGE Handbook of Play and Learning in Early Childhood* (pp. 43–55). Sage Publications.

Ministry of National Education (2013). Okul Öncesi Eğitim Programı (36-72 aylık çocuklar için). Retrieved from https://tegm.meb.gov.tr/dosya/okuloncesi/ooproram.pdf

Miyake, A., Friedman, N. P., Emerson, M. J., Witzki, A. H., Howerter, A., & Wager, T. D. (2000). The unity and diversity of executive functions and their contributions to complex "frontal lobe" tasks: A latent variable analysis. *Cognitive Psychology*, *41*(1), 49–100. https://doi.org/10.1006/cogp.1999.0734

Nader-Grosbois, N., & Vieillevoye, S. (2012). Variability of self-regulatory strategies in children with intellectual disability and typically developing children in pretend play situations. *Journal of Intellectual Disability Research*, *56*(2), 140-156. https://doi.org/10.1111/j.1365-2788.2011.01443.x

Nicolopoulou, A. (2019). Pretend and social pretend play: Complexities, continuities, and controversies of a research field. In P. Smith & J. Roopnarine (Eds.), *The Cambridge handbook of play: Developmental and disciplinary perspectives* (pp. 183–199). Cambridge University Press.

O'Sullivan, L., & Ring, E. (2018). Play as learning: Implications for educators and parents from findings of a national evaluation of school readiness in Ireland. *International Journal of Play*, *7*(3), 266–289. https://doi.org/10.1080/21594937.2018.1532720

Pierucci, J. M., O'Brien, C. T., McInnis, M. A., Gilpin, A. T., & Barber, A. B. (2014). Fantasy orientation constructs and related executive function development in preschool: Developmental benefits to executive functions by being a fantasy-oriented child. *International Journal of Behavioral Development*, *38*(1), 62–69. https://psycnet.apa.org/doi/10.1177/0165025413508512

Raver, C. C. (2012). Low-income children's self-regulation in the classroom: scientific inquiry for social change. *American Psychologist*, *67*(8), 681. https://psycnet.apa.org/doi/10.1037/a0030085

Robertson, N. (2016). The complexity of preschool children's dramatic play behavior and play styles in Australia: A mixed methods study. *Asia-Pacific Journal of Research in Early Childhood Education*, *10*(2), 71–92. http://dx.doi.org/10.17206/apjrece.2016.10.2.71

Savina, E. (2014). Does play promote self-regulation in children? *Early Child Development and Care*, *184*(11), 1692-1705. https://doi.org/10.1080/03004430.2013.875541

Savina, E. (2021). Self-regulation in preschool and early elementary classrooms: Why it is important and how to promote it. *Early Childhood Education Journal*, *49*(3), 493-501. https://doi.org/10.1007/s10643-020-01094-w

Schmitt, S. A., Geldhof, G. J., Purpura, D. J., Duncan, R., & McClelland, M. M. (2017). Examining the relations between executive function, math, and literacy during the transition to kindergarten: A multi-analytic approach. *Journal of Educational Psychology*, *109*(8), 1120. https://psycnet.apa.org/doi/10.1037/edu0000193

Schmitt, S. A., McClelland, M. M., Tominey, S. L., & Acock, A. C. (2015). Strengthening school readiness for Head Start children: Evaluation of a self-regulation intervention. *Early Childhood Research Quarterly*, *30*, 20- 31. https://doi.org/10.1016/j.ecresq.2014.08.001

Skibbe, L. E., Montroy, J. J., Bowles, R. P., & Morrison, F. J. (2019). Self-regulation and the development of literacy and language achievement from preschool through second grade. *Early Childhood Research Quarterly*, *46*, 240-251. https://doi.org/10.1016/j.ecresq.2018.02.005

Slot, P. L., Mulder, H., Verhagen, J., & Leseman, P. P. M. (2017). Preschoolers' cognitive and emotional self-regulation in pretend play: relations with executive functions and quality of play. *Infant and Child Development, 26*(6), 1-21. https://doi.org/10.1002/icd.2038

Smilansky S. (1968). The effects of sociodramatic play on disadvantaged children. Wiley.

Taylor, M., & Carlson, S. M. (1997). The relation between individual differences in fantasy and theory of mind. *Child Development, 68*, 436–455. https://doi.org/10.1111/j.1467-8624.1997.tb01950.x

Thibodeau, R. B., Gilpin, A. T., Brown, M. M., & Meyer, B. A. (2016). The effects of fantastical pretend-play on the development of executive functions: An intervention study. *Journal of Experimental Child Psychology, 145*, 120-138. https://doi.org/10.1016/j.jecp.2016.01.001

Thibodeau-Nielsen, R. B., Gilpin, A. T., Nancarrow, A. F., Pierucci, J. M., & Brown, M. M. (2020). Fantastical pretense's effects on executive function in a diverse sample of preschoolers. *Journal of Applied Developmental Psychology, 68*, 101137. https://doi.org/10.1016/j.appdev.2020.101137

Thibodeau-Nielsen, R. B., Gilpin, A. T., Palermo, F., Nancarrow, A. F., Farrell, C. B., Turley, D., & Boxmeyer, C. L. (2020). Pretend play as a protective factor for developing executive functions among children living in poverty. *Cognitive Development*, *56*, 100964. https://doi.org/10.1016/j.cogdev.2020.100964

Turkish Statistical Institute. (2020). *Income distribution and living conditions statistics.* https://data.tuik.gov.tr/Bulten/Index?p=Gelir-ve-Yasam-Kosullari-Arastirmasi-2019-33820

van der Ven, S. H., Kroesbergen, E. H., Boom, J., & Leseman, P. P. (2013). The structure of executive functions in children: A closer examination of inhibition, shifting, and updating. *British Journal of Developmental Psychology*, *31*(1), 70-87. https://doi.org/10.1111/j.2044-835X.2012.02079.x

Veijalainen, J., Reunamo, J., & Alijoki, A. (2017). Children's self-regulation skills in the Finnish day care environment. *Journal of Early Childhood Education Research, 6*(1), 89-107.

Vohs, K. D., & Baumeister, R. F. (2004). Understanding self-regulation: An Introduction. In R. F. Baumeister & K. D. Vohs, (Eds.), *Handbook of Self-Regulation: Research, Theory and Applications* (pp. 1-10). The Guilford Press.

Vygotsky, L. S. (1967). Play and its role in the mental development of the child. *Soviet Psychology, 5*(3), 6-18. https://doi.org/10.2753/RPO1061-040505036

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes.* Harvard University Press.

Walker, S., Fleer, M., Veresov, N., & Duhn, I. (2020). Enhancing executive function through imaginary play: A promising new practice principle. *Australasian Journal of Early Childhood*, *45*(2), 114-126. https://doi.org/10.1177/1836939120918502

Wanless, S. B., Kim, K. H., Zhang, C., Degol, J. L., Chen, J. L., & Chen, F. M. (2016). Trajectories of behavioral regulation for Taiwanese children from 3.5 to 6 years and relations to math and vocabulary outcomes. *Early Childhood Research Quarterly*, *34*, 104-114. https://doi.org/10.1016/j.ecresq.2015.10.001

White, R. E., & Carlson, S. M. (2021). Pretending with realistic and fantastical stories facilitates executive function in 3-year-old children. *Journal of Experimental Child Psychology*, *207*,105090. https://doi.org/10.1016/j.jecp.2021.105090

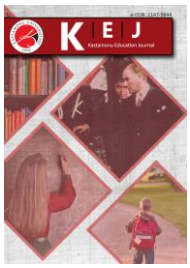
White, R. E., Thibodeau-Nielsen, R. B., Palermo, F., & Mikulski, A. M. (2021). Engagement in social pretend play predicts preschoolers' executive function gains across the school year. *Early Childhood Research Quarterly*, *56*, 103-113. https://doi.org/10.1016/j.ecresq.2021.03.005

Whitebread, D., & O'Sullivan, L. (2012). Preschool children's social pretend play: Supporting the development of metacommunication, metacognition and self-regulation. *International Journal of Play, 1*(2), 197–213. https://doi.org/10.1080/21594937.2012.693384

Willoughby, M. T., Piper, B., Oyanga, A., & Merseth King, K. (2019). Measuring executive function skills in young children in Kenya: Associations with school readiness. *Developmental Science*, *22*(5), e12818 https://doi.org/10.1111/desc.12818

Zulauf-McCurdy, C. A., & Loomis, A. M. (2022). Parent and teacher Perceptions of the parent–teacher relationship and child self-regulation in preschool: Variations by child race. *Early Childhood Education Journal*, 1-15. https://doi.org/10.1007/s10643-022-01341-2

Kastamonu Education Journal, 2024, Vol. 32, No:1, 51-70
doi: 10.24106/kefdergi.1426474



|Review Article / Derleme Makale|

A Review of Studies on School Administrators' Technology Leadership in Türkiye

Okul Yöneticilerinin Teknoloji Liderliği Üzerine Türkiye'de Gerçekleştirilen Çalışmaların İncelenmesi

İdris Arslan[1], **Mehmet Fatih Yiğit**[2]

Keywords
1. Technology leadership
2. School administrators
3. Türkiye
4. Review
5. Document analysis

Anahtar Kelimeler
1. Teknoloji liderliği
2. Okul yöneticileri
3. Türkiye
4. Derleme
5. Doküman analizi

Received/Başvuru Tarihi
24.08.2023

Accepted/Kabul Tarihi
20.11.2023

Abstract

Purpose: The swift progress in technology brings about significant digital transformations in the education system, which places a significant emphasis on the actions that school administrators will exhibit in terms of technology leadership to successfully manage and navigate this change. Based on this, the purpose of this current study is to examine the trends in research regarding the technology leadership of school administrators in Türkiye.

Design/Methodology/Approach: In this study, which examines articles originating from Türkiye on school administrators' technology leadership between 2010 and 2023, a document analysis technique was employed. A total of 64 articles were included in the review based on the eligibility criteria, and these articles were analyzed using content analysis method.

Findings: It is noteworthy that there has been an increase in studies conducted after the year 2019. It was observed that quantitative research methods dominate in studies and school administrators and teachers primarily selected through non-probability sampling methods constitute the general participant group. The data collection process significantly relied on scales, and the collected data were mostly analyzed using quantitative analysis methods. Lastly, a total of 27 different variables, mainly linked to school administrators' technology leadership, have been addressed in the studies.

Highlights: Upon examining the studies, it is recommended that researchers in this field place greater emphasis on conducting mixed-methods research in the future. Additionally, there is a need for more studies aimed at identifying the factors influencing school administrators' technology leadership and determining its impact on teachers' technology integration competencies. Furthermore, conducting future research with larger sample sizes and using probability sampling methods is considered important as it contributes to a more accurate representation of the population within the findings.

Öz

Çalışmanın amacı: Teknolojideki hızlı gelişmeler eğitim sisteminde önemli dijital dönüşümleri beraberinde getirmektedir. Bu dönüşümün başarılı bir şekilde yönetilmesi ise okul yöneticilerinin teknoloji liderliği konusundaki sergileyeceği eylemleri önemli hale getirmektedir. Buradan yola çıkılarak, mevcut çalışmada bu olgunun Türkiye'deki durumunu daha iyi anlayabilmek için okul yöneticilerinin teknoloji liderliği konusunda Türkiye'de gerçekleştirilen araştırmalardaki eğilimin incelenmesi amaçlanmıştır.

Materyal ve Yöntem: 2010-2023 tarihleri arasında okul yöneticilerinin teknoloji liderliği üzerine yapılan Türkiye menşeili makalelerin incelendiği bu çalışmada doküman incelemesi tekniği kullanılmıştır. Uygunluk kriterlerine göre tarama kapsamına 64 makale dahil edilmiş ve bu makaleler içerik analizi yöntemine göre analiz edilmiştir.

Bulgular: Gerçekleştirilen çalışmalarda 2019 yılından sonra bir artış yaşandığı dikkati çekmektedir. Çalışmalarda nicel araştırma yönteminin baskın olduğu ve daha ziyade seçkisiz olmayan örnekleme yöntemiyle belirlenen okul yöneticileri ve öğretmenlerin genel katılımcı grubunu oluşturduğu gözlenmektedir. Veri toplama sürecinde daha ziyade ölçeklerden yararlanılmış olup toplanan veriler çoğunlukla nicel analiz yöntemleri kullanılarak analiz edilmiştir. Son olarak, çalışmalarda okul yöneticilerinin teknoloji liderliği başta olmak üzere bununla ilişkili toplam 27 farklı değişken ele alınmıştır.

Önemli Vurgular: Çalışmaların incelenmesi sonucunda bu alandaki araştırmacıların gelecekte karma yöntem araştırmalarına daha fazla ağırlık vermeleri önerilmektedir. Buna ek olarak, okul yöneticilerinin teknoloji liderliği değişkenini etkileyen faktörlerin ortaya konmasını ve ayrıca bu değişkenin öğretmenlerin teknoloji entegrasyonu yeterlikleri üzerindeki etkisini saptamayı amaçlayan çalışmalara daha fazla yer verilmesi gerektiği anlaşılmaktadır. Bunun yanı sıra, araştırmacıların gelecekteki çalışmalarını geniş katılımcı sayılarıyla ve seçkisiz örnekleme yöntemi kullanarak yürütmesi araştırma sonuçlarının evreni daha iyi ve doğru temsil etmesi açısından önemli görülmektedir.

[1] Kazım Karabekir Middle School, Republic of Türkiye Ministry of National Education, Hakkari, TÜRKİYE; https://orcid.org/0009-0003-8207-8329
[2] **Corresponded Author**, Hakkari University, Faculty of Education, The Department of Educational Sciences, Hakkari, TÜRKİYE; https://orcid.org/0000-0002-3476-7619

Citation/Alıntı: Arslan, İ., & Yiğit, M.F. (2024). A Review of Studies on School Administrators' Technology Leadership in Türkiye. *Kastamonu Education Journal, 32*(1), 51-70. doi: 10.24106/kefdergi.1426474

INTRODUCTION

Recent years have witnessed rapid technological advancements that profoundly influence and reshape individuals' behaviors, habits, and overall lifestyles within society. When compared to a few decades ago, it is readily observable that nearly every society, including Türkiye, has undergone a transformation into a technology-rich and a technology-centric environment, signifying a direction wherein technology is expected to further embed itself into society in the years ahead. Indeed, when observing individuals in today's digital era, it is evident that they are becoming increasingly reliant on technology for managing daily routines, seeking entertainment, accessing information, and facilitating communication. This trend is clearly mirrored in both current national (TÜİK, 2023) and international (STATISTA, 2023) statistics.

One of the areas influenced by technology across numerous domains such as communication, healthcare, industry, finance, transportation, energy, and entertainment is education (Chua & Chua, 2017). Utilizing technology in schools offers a diverse range of instructional benefits, including providing flexibility in terms of time and space (Means et al., 2010), supporting both individual and collaborative learning (Davies, Dean & Ball, 2013; Resta & Laferriere, 2007), enhancing motivation in learning (Haefner, 2004), fostering an active learning environment (Ghavifekr & Rosdy, 2015), accommodating various learning styles (Al-Azawei, Serenelli & Lundqvist, 2016), offering lifelong learning opportunities (Sullivan et al., 2019), minimizing barriers (O'Sullivan et al., 2023) and reducing educational costs (Borup, Graham & Velasquez, 2011). Moreover, the benefits of incorporating technology in schools are not limited solely to instructional outcomes; they extend to enhancing the efficiency and functionality of administrative tasks within the school management, such as student affairs and accounting (Aktay & Çakır, 2018). In addition, educational institutions require technology, particularly the internet, to ensure uninterrupted educational activities even under adverse conditions such as unexpected events like pandemics and earthquakes, which have recently affected Türkiye as well (AlAjmi, 2022; Avcı, 2023). These mentioned factors highlight the significance of integrating technology in education. Furthermore, it is possible to come across studies in the literature that suggest the constructivist approach in education represents another potential factor that influences technology integration. A recurring theme in studies addressing this topic is that constructivist pedagogy contributes to the use of technology in classrooms, and teachers who embrace this pedagogy and develop educational beliefs in this direction are more inclined to incorporate instructional technologies into their teaching practices. (Chen, 2008; Ertmer, 2005; Kaya & Koçak-Usluel, 2011; Hermans et al., 2008; Overbay et al., 2010). Lastly, the onset of generation Z, a cohort whose lives are significantly intertwined with technology, entering education institutions has necessitated the integration of digital technologies into education due to the inadequacy of traditional teaching methods in meeting the expectations and preferences of this generation (Somyürek, 2014).

Fundamentally, technology integration, defined as the use of information and communication technologies (ICT) such as computers and the internet for educational purposes (Hew & Brush, 2007), has prompted many countries to implement high-budget projects (Apsorn, Sisan & Tungkunanan, 2019; Korumaz & Gölçek, 2021). When tracing the history of steps taken towards technology integration in Türkiye, it is possible to highlight the significance of the "Computer-Assisted Education Project" initiated by the Ministry of National Education (MoNE) in 1984. This project entailed equipping schools with computer hardware, arranging in-service training programs for teachers on computer usage, and incorporating computer courses into the curriculum (Deniz, 1992; Karadağ, Sağlam & Baloğlu, 2008). Another pivotal development in terms of technology integration is the Basic Education Project. Launched in 1998 with the support of the World Bank's $300 million funding, this project involved the establishment of information technology classrooms, the provision of extensive hardware and software support to thousands of schools, and the organization of in-service training programs to enable teachers to become digitally literate (Akbaba-Altun, 2004; Koçak-Usluel, Mumcu & Demiraslan, 2007). These initiatives for technology integration continued with the FATİH Project in 2010, allocating a budget of 1.8 billion dollars, marking it as the country's largest ICT investment into education (Uluyol, 2013). On the other hand, such large-scale projects generally remain limited to the mere acquisition of hardware and software and equipping classrooms with these tools (Cuban, 2001; Demir, 2023; Flanagan & Jacobsen, 2003). However, while providing technological resources in schools is a fundamental prerequisite, it is not sufficient alone for successful technology integration (Weng & Tang, 2014). This further necessitates not only the technical utilization and maintenance of the acquired technologies but also their seamless incorporation into the curriculum and the application of an appropriate pedagogy (Mishra & Koehler, 2006). Therefore, it can be argued that technology leadership, which is deemed crucial for instigating technological transformation in schools, requires a broad spectrum of knowledge and expertise, spanning financial and administrative domains to technical and academic fields. This understanding, grounded in the distinction between individualistic and distributed dichotomy within the leadership literature, suggests that technology leadership, while may often led by the school administrators in this context due to their role as the school's top executive, is essentially a process that requires the involvement of multiple stakeholders within the school (Petersen, 2014).

Defined as organizational decisions, policies, and actions that facilitate the effective use of ICT throughout the school (Anderson & Dexter, 2005), technology leadership stands as a critical determinant of the success or failure of ICT implementations in educational settings (Stuart, Mills & Remus, 2009; Thannimalai & Raman, 2018). Hence, given the complexity of the technology integration process, school administrators bear significant responsibilities in achieving effective technology leadership. In this context, it is expected that school administrators, rather than adhering to the individualistic leadership paradigm, collaborate and work in a sustained manner with other stakeholders within the school, including teachers and ICT managers (Seong & Ho, 2012). In other words, they are tasked with fostering an atmosphere within the school where technology leadership is distributed, as

opposed to an approach characterized by a single heroic figure (Azorin, Harris & Jones, 2020; Tan & Aloysius, 2011). This has highlighted the importance of focusing on school administrators' technology leadership practices and has consequently resulted in a plethora of studies being conducted in both national and international literature on this topic. Building upon this, the present study aims to conduct a comprehensive literature review to unveil the most up-to-date information concerning to the domain of technology leadership of school administrators at the national level. In this context, studies addressing the technology leadership of school administrators have been scrutinized, starting from the year 2010 when the FATİH project, which played a pivotal role in initiating technological transformation in Turkish schools, was launched.

Technology Leadership

Adapting to the digital age and transforming traditional schools into technology-equipped institutions by integrating technology is a significant responsibility that primarily falls upon school administrators (Karaköse, Polat & Papadakis, 2021; Yu & Darrington, 2006). Successfully fulfilling this responsibility mostly hinges on the technology leadership practices and approaches adopted by school administrators (A'mar & Eleyan, 2022; Hacıfazlıoğlu, Karadeniz & Dalgıç, 2011). Technology leadership involves guiding the effective utilization of technology to ensure the maximum benefits of it in establishing and sustaining an efficient educational system (Durnalı, 2019).

In the leadership literature, there is a clear distinction between individualistic and distributed paradigms, which also have significant implications in the context of technology leadership (Hauge & Norenes, 2015). In the individualistic leadership approach, the management of the school, the making of key driving decisions in the process, and the administrative power are handed over to a solitary individual, typically the school principal, who assumes a central, heroic and dominant role in school management (Galdames-Calderon, 2023). However, given the complexity of school organizational management and operations, along with the recognition that a single person successfully handling all of these tasks seems highly improbable, it has been widely acknowledged that the individualistic leadership approach is no longer a viable option (Arabacı, Karabatak, & Polat, 2016; Göksoy, 2015). Consequently, there has been a move away from the idea of entrusting the entire school management to a single individual (Galdames-Calderon, 2023). As a result, the individualistic leadership approach has given way to distributed leadership, one of the most innovative and widely embraced leadership models in the 21st century, where the focus shifts from specific individual behaviors to collective and participatory actions, and administrative power and authority are shared among stakeholders within the school organization (Bennett, 2008; Bolden, 2011; Bush, 2013; Spillane, Halverson, & Diamond, 2004).

Since technology integration is a multifaceted process that encompasses managerial, technological, and pedagogical dimensions, its successful initiations and sustainability necessitate collaborative efforts from individuals within the school (Petersen, 2014). Therefore, insights gleaned from individualistic and distributed leadership approaches suggest that school administrators, when leading technology integration initiatives, should align more closely with a distributed leadership approach and share technology leadership responsibilities with relevant stakeholders (Gurr, 2004; Tan & Aloysius, 2011). However, in doing so, it is also expected that school administrators possess individual competencies like possessing a solid grasp of fundamental concepts related to computers and technology, having knowledge and experience in the technical and pedagogical aspects of technology use, being open to innovation and enthusiastic about exploring and adapting to new technologies that can be used in education, developing a vision for technology use in schools, and providing financial resources for technology acquisition (Karaköse, Polat & Papadakis, 2021; Stuart, Mills & Remus, 2009; Topçu & Ersoy, 2020; Ünal, Uzun & Karataş, 2015; Yu & Darrington, 2006).

In a technology integration process guided by the distributed leadership approach, the sharing of responsibilities may reduce the school administrators' position from being the sole decision-maker and authority figure in technology leadership. Nevertheless, their role and duties in this context still hold significance. This is because it is the school administrators who will implement and disseminate the distributed leadership approach within the school (Leithwood & Mascall, 2009). In this regard, Harris (2011) emphasizes that without the support of school administrators, distributed leadership is unlikely to flourish or be sustained. Therefore, in schools where the distributed technology leadership is the prevailing model, school administrators carry essential duties, including recognizing the leadership potential of various stakeholders within the school, particularly teachers and ICT experts, assessing and enhancing their capabilities in technology integration, and providing support to others in leading innovation and driving change (Harris, 2011; Yıldırım, 2017). Moreover, the International Society for Technology in Education (ISTE) has established a set of standards outlining the expectations from a technology leader, which was initially introduced in 2002 and later revised in 2009, and once more in 2018. These standards basically address the responsibilities of school administrators as technology leaders under the following five headings (ISTE, 2018):

- "Equity and Citizenship Advocate: Education leaders use technology to increase equity, inclusion, and digital citizenship practices.
- Visionary Planner: Education leaders engage others in establishing a vision, strategic plan and ongoing evaluation cycle for transforming learning with technology.
- Empowering Leader: Education leaders create a culture where teachers and learners are empowered to use technology in innovative ways to enrich teaching and learning.
- Systems Designer: Education leaders build teams and systems to implement, sustain and continually improve the use of technology to support learning.

- Connected Learner: Education leaders model and promote continuous professional learning for themselves and others."

Upon a closer analysis of the ISTE standards listed above, the choice of terminology emphasizing collaboration and interaction with others makes it reasonable to affirm that these standards were prepared through the lens of distributed leadership. In summary, possessing technology leadership-related qualities and fulfilling the associated responsibilities by school administrators brings benefits to both instructional and managerial aspects of schools. Technology has become indispensable in various stages of educational activities. Additionally, technology is also utilized in other administrative tasks of schools, such as student affairs, accounting, and planning. Hence, it can be stated that the technology leadership of school administrators holds significance across various dimensions within the school environment.

Significance of the Study

It can be posited that the pathway to a successful technology integration lies in the technology leadership approach and practices of school administrators. Therefore, it is of paramount importance to implement practices that enable school administrators to take appropriate technology leadership actions. The underpinnings of these practical applications, however, are rooted in a thorough understanding of theoretical concepts in the field and the examination of conducted studies. Thus, this study aims to address nationally conducted research related to the topic of technology leadership of school administrators in order to comprehend its state in Türkiye. However, it is worth noting that certain limitations exist in terms of a comprehensive review of existing studies on the research regarding technology leadership in the context of school administrators. In one study, 29 national postgraduate theses conducted between 2009 and 2020 were examined (Korkmaz, Kutlu & Yavuz, 2022). In another study, 32 research carried out between 2010 and 2016 focusing on school administrators' technology leadership were reviewed (Köybaşı-Şemin, 2020). As seen, one of the existing review studies has only focused on theses, while the other has included studies up until the year 2016, and these two studies collectively cover works up to 2020. However, given the heightened number of studies, particularly due to the impact of the COVID-19 pandemic, it is important to consider the examination of research conducted after 2020 as well. Based on this consideration, this study includes a total of 64 studies conducted until 2023, thus offering a more up-to-date and comprehensive analysis. Furthermore, this study also addresses a greater number of research questions, which contributes to its originality within the literature. In addition, the significance of this study also lies in its comprehensive approach towards examining research on school administrators' technology leadership, which allows for the identification of trends and patterns in this field. Besides, this study provides insights into the types of studies conducted in the field, areas of focus within these studies, and the existing gaps in the literature, shedding light on potential future research needs to fill these gaps. For this reason, this study is believed to be significant due to the aforementioned aspects.

Purpose of the Study

The purpose of this research is to examine the trends in studies conducted on technology leadership of school administrators in Türkiye. In line with this purpose, the following research questions have been addressed:

How is the distribution of the examined studies by;

a. years?
b. published languages?
c. published journals?
d. indexes of published journals?
e. research methods and designs?
f. sample group?
g. sample size?
h. sampling methods?
i. data collection tools?
j. data analysis methods?
k. keywords?
l. examined variables?

METHOD

In this study, document analysis method was adopted to explore research related to school administrators' technology leadership in Türkiye. Document analysis is a method involving the analysis of existing written materials containing information about the subject being studied (Yıldırım & Şimşek, 2016). In this context, the present study extensively examined research within the national domain concerning the topic of school administrators' technology leadership.

Data Collection Tool

For the examination of studies, a data collection instrument was utilized in the form of a spreadsheet prepared using Microsoft Excel. This spreadsheet comprises rows listing the articles examined within the scope of the study. The columns, on the other hand, contain the evaluation criteria for each article (year, journal, research method, sample group, etc.). Accordingly, each article was scrutinized by the authors based on the specified criteria, and necessary information was entered into the cells where rows and columns intersect.

Data Collection Process

An initial search using the keyword "technology leadership" was conducted on the Google Scholar and Web of Science database between March and April 2023, with periodic updates made until its final version in October 2023. To be included in the scope of the review, accessed studies were subjected to specific eligibility criteria established by the researchers. Studies were deemed eligible for inclusion in the review if they were (i) written in the form of articles, (ii) conducted in Türkiye between 2010 and 2023, (iii) addressing technology leadership of school administrators, and (iv) accessible in full-text. On the other hand, studies were excluded from the review if they were (i) written in the form of books, conference papers, or theses, (ii) addressing technology leadership of a different sample group than school administrators, and (iii) conducted before 2010. Following the Google Scholar search, it was determined that 64 articles conformed to the defined eligibility criteria. Subsequently, an additional search was conducted in the Web of Science database to retrieve articles from journals with a high-impact factor. This search yielded 14 articles, of which 6 were found to meet the criteria. However, it was observed that these same 6 articles were already part of the initial set of 64 articles identified through the Google Scholar search. As a result, 64 articles, whose full list is provided in the Appendix, were included in the study and examined based on the research questions.

Data Analysis

The content analysis method was employed for the analysis of the collected data in the study. Content analysis involves organizing and interpreting data that are considered similar and related to one another under specific codes and themes, subsequently expressing the results in numerical terms (Yıldırım & Şimşek, 2016). Building upon this, in this study, the articles were analyzed according to the content analysis method in alignment with the objectives outlined in the research questions. The resulting outcomes were presented by calculating percentages and frequency values. During the content analysis process, two researchers were involved. Initially, the researchers independently reviewed the 64 studies and entered the required information into the Microsoft Excel spreadsheet. Afterward, the two researchers collaborated to reach a consensus on the information to be included in the spreadsheet pertaining to the examined 64 articles, thereby seeking to ensure the reliability of the analysis.

FINDINGS

This section presents the findings derived from the analysis of 64 articles conducted on school administrators' technology leadership in Türkiye, with the results presented in an organized manner under separate subheadings corresponding to each research question. The description of findings mainly includes percentages and frequency values, accompanied by the use of tables and figures for presentation.

Distribution of Articles by Years

The distribution of articles by years in which they were conducted is provided in Table 1.

Table 1. Distribution of articles by years

Years	f	%
2010	1	1,56
2011	6	9,38
2012	3	4,69
2013	2	3,13
2014	1	1,56
2015	4	6,25
2016	5	7,81
2017	2	3,13
2018	3	4,69
2019	7	10,9
2020	5	7,81
2021	6	9,38
2022	14	21,9
2023	5	7,81
TOTAL	64	100,00

As shown in Table 1, the fewest studies were conducted in 2010 (f=1) and 2014 (f=1), whereas the highest number of studies took place in 2022 (f=14). Particularly noteworthy is the increase in the number of studies conducted from 2019 onwards. Furthermore, it is observed that within the span of 14 years, 57.81% of the studies (f=37) were conducted in just the last five years.

Distribution of Articles by Published Languages

The distribution of articles by the languages in which they were published in journals is illustrated in Figure 1.

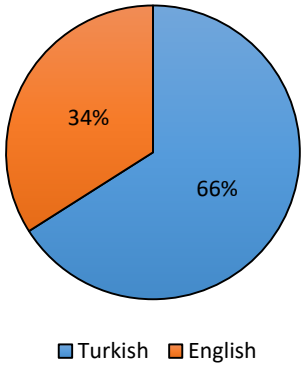


Figure 1. Distribution of articles by published languages

Upon examining Figure 1, it can be observed that out of the 64 articles, 22 of them were published in English (34%), while 42 were published in Turkish (66%).

Distribution of articles by published journals

The distribution of articles by the journals in which they were published is presented in Table 2.

Table 2. Distribution of articles by published journals

Journals	f	%
1. Academic Platform Journal of Education and Change	1	1,56
2. Anadolu University Journal of Education Faculty	1	1,56
3. Ankara University Journal of Faculty of Educational Sciences	1	1,56
4. Balkan Journal of Social Sciences	2	3,13
5. Bartın University Journal of Faculty of Education	1	1,56
6. Bilecik Şeyh Edebali University Journal of Social Sciences	1	1,56
7. Çankırı Karatekin University Faculty of Letters Journal	1	1,56
8. Croatian Journal of Education	1	1,56
9. Düzce University Journal of Social Sciences	1	1,56
10. Education	1	1,56
11. Education and Sciences	2	3,13
12. Education Quarterly Reviews	1	1,56
13. Educational Administration: Theory & Practice	2	3,13
14. Educational Policy Analysis and Strategic Research	1	1,56
15. Educational Research and Reviews	1	1,56
16. Educational Sciences: Theory & Practice	1	1,56
17. Educational Sciences: Theory and Practice	1	1,56
18. Educational Technology Theory and Practice	2	3,13
19. Gazi University Gazi Journal of Faculty of Education	1	1,56
20. Gaziantep University Journal of Social Sciences	1	1,56
21. Inonu University Journal of the Faculty of Education	1	1,56
22. International Journal of Human and Behavioral Science	1	1,56
23. International Journal of Karamanoglu Mehmetbey Educational Research	1	1,56
24. International Journal Of Social Humanities Sciences Research	1	1,56
25. International Journal on Lifelong Education and Leadership	2	3,13
26. International Journal on New Trends in Education & Their Implications	1	1,56
27. Journal of Computer and Education Research	1	1,56
28. Journal of Educational Sciences Research	1	1,56
29. Journal of Educational Sciences Research	1	1,56
30. Journal of History School	1	1,56
31. Journal of Muallim Rıfat Faculty of Education	1	1,56
32. Journal of National Education	2	3,13

33.	Journal of School Leadership	1	1,56
34.	Journal of Social Sciences of Mus Alparslan University	1	1,56
35.	Journal of Teacher Education and Lifelong Learning	1	1,56
36.	Journal of the Human and Social Science Researches	1	1,56
37.	Journal of Theoretical Educational Science	1	1,56
38.	Karadeniz International Scientific Journal	1	1,56
39.	Kırıkkale University Journal of Social Sciences	1	1,56
40.	Marmara University Atatürk Faculty of Education Journal of Educational Sciences	1	1,56
41.	Mehmet Akif Ersoy University Journal of Education Faculty	2	3,13
42.	Muğla Sıtkı Koçman University Journal of the Faculty of Education	1	1,56
43.	Participatory Educational Research	2	3,13
44.	Procedia-Social and Behavioral Sciences	1	1,56
45.	Sustainability	1	1,56
46.	The Journal of International Social Research	1	1,56
47.	The Turkish Online Journal of Educational Technology	2	3,13
48.	The Western Anatolia Journal Of Educational Sciences	1	1,56
49.	Turkish Studies	1	1,56
50.	Uluborlu Journal of Professional Sciences	1	1,56
51.	Universal Journal of Educational Research	1	1,56
52.	Uşak University Journal of Social Sciences	1	1,56
53.	Van Yüzüncü Yıl University Journal of Education	1	1,56
TOTAL		64	100,00

As evident in Table 2, the 64 articles conducted on school administrators' technology leadership have been published in a total of 53 different journals. Out of the examined studies, 9 journals had two articles each, while the remaining 44 journals featured a single study each.

Distribution of Articles by the Indexes of Published Journals

The distribution of articles by the publication year indexes of the journals is shown in Figure 2.

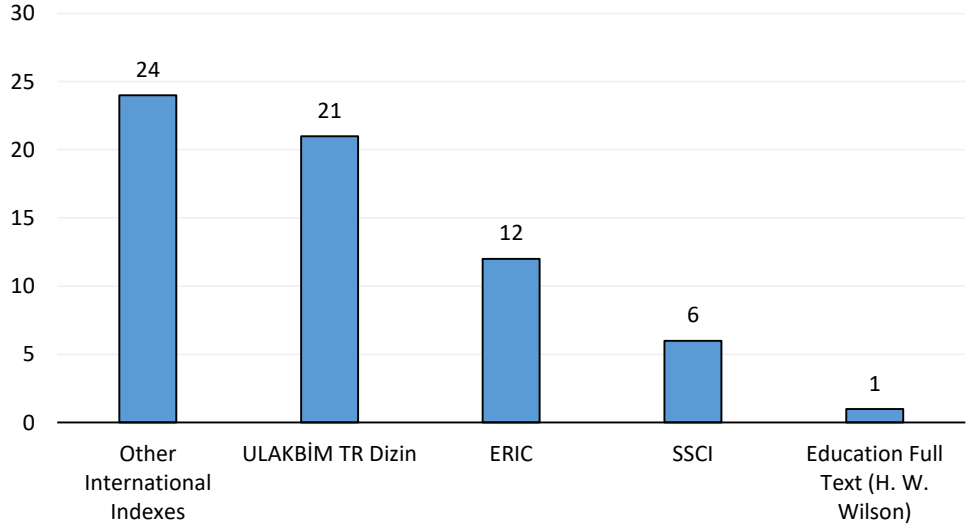


Figure 2. Distribution of articles by the indexes of published journals

When considering Figure 2, it can be seen that a substantial portion of Türkiye-originated articles related to school administrators' technology leadership are primarily indexed in other international indexes (f=24) and ULAKBİM TR Dizin (f=21). Furthermore, among the 64 examined articles, 12 are indexed in ERIC (Educational Resource Information Center), 6 in SSCI (Social Science Citation Index), and 1 in Education Full Text (H. W. Wilson).

Distribution of Articles by Research Methods and Designs

The distribution of the examined articles by research methods and designs is presented in Table 3.

Table 3. Distribution of articles by research methods and designs

Research Methods	Research Design	f	%
Quantitative	Relational Survey	22	34,38
	Survey	21	32,81
	Scale Development	3	4,69

	Meta-Analysis	2	3,13
	Causal Comparative Design	1	1,56
	Scoping Review	1	1,56
	Total	50	78,13
Qualitative	Phenomenology	4	6,25
	Case Study	2	3,13
	Document Analysis	1	1,56
	Meta-Synthesis	1	1,56
	Not Specified	3	4,69
	Total	11	17,19
Mixed	Exploratory Sequential Design	2	3,13
	Not Specified	1	1,56
	Total	3	4,69
TOTAL		64	100,00

As indicated in Table 3, it is notable that a significant proportion of articles on school administrators' technology leadership predominantly utilized quantitative research methods (f=50), followed by qualitative research (f=11), and mixed (f=3) methods studies. Furthermore, when examining the most preferred research designs in each method, it is noteworthy that within the quantitative approach, relational survey (f=22) and survey (f=21) designs stand out. In the qualitative approach, phenomenology (f=4) and case study (f=2) designs are prominent, while in the mixed methods approach, explanatory sequential design (f=2) precedes. Additionally, it can be observed that researchers seem to have shown less interest in employing meta-analysis (f=2), scoping review (f=1), and causal comparative (f=1) designs in quantitative methods, and document analysis (f=1) and meta-synthesis (f=1) designs in qualitative methods. Lastly, it was observed that the design of 3 studies in qualitative research and 1 study in mixed methods was not specified.

Distribution of Articles by Sample Group

The distribution of articles by their sample group is presented in Figure 3.

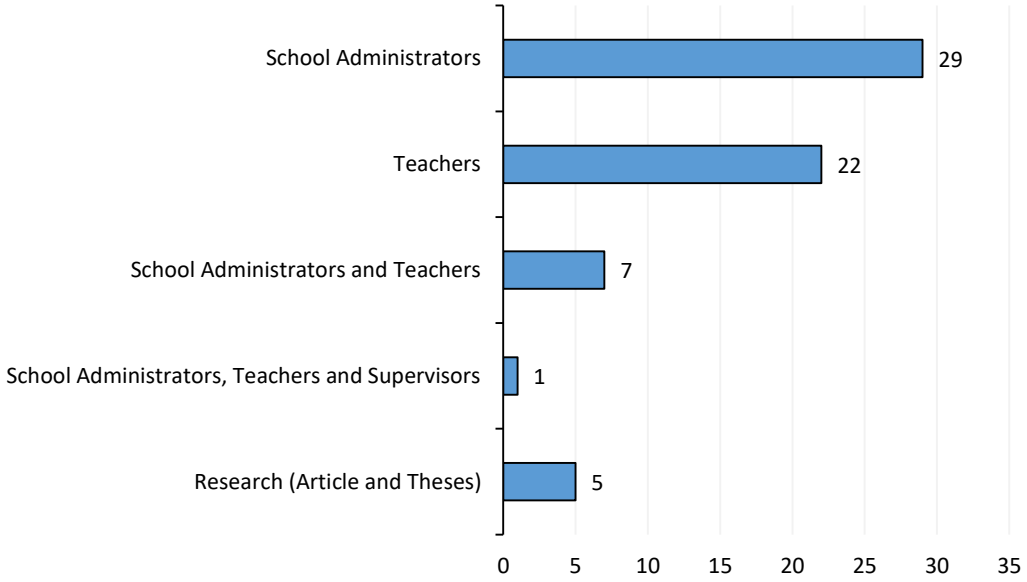


Figure 3. Distribution of articles by sample group

Upon examining the frequency values presented in Figure 3 regarding the sample group of the 64 examined articles, it is revealed that there are 5 distinct sample groups. Accordingly, in this field of research, school administrators (f=29) and teachers (f=22) are the most frequently chosen sample group. Additionally, in 7 studies, the sample consists of both school administrators and teachers, while in 1 study, the sample includes school administrators, teachers, and supervisors together. Finally, 5 studies were conducted in the form of literature reviews and meta-analyses, with 4 of them involving researchers analyzing articles and 1 involving the examination of theses.

Distribution of Articles by Sample Size

The distribution of articles by their sample size is provided in Table 4.

Table 4. Distribution of articles by sample size

Sample Size	Research Methods							
	Qualitative		Quantitative		Mixed		TOTAL	
	f	%	f	%	f	%	f	%
n ≤ 100	11	17,19	5	7,81	1	1,56	17	26,56
100 < n ≤ 200	0	0,00	13	20,31	1	1,56	14	21,88
200 < n ≤ 300	0	0,00	7	10,94	0	0,00	7	10,94
300 < n ≤ 400	0	0,00	11	17,19	1	1,56	12	18,75
400 < n ≤ 500	0	0,00	6	9,38	0	0,00	6	9,38
500 < n ≤ 1000	0	0,00	4	6,25	0	0,00	4	6,25
1000 < n ≤ 2000	0	0,00	3	4,69	0	0,00	3	4,69
n > 2000	0	0,00	1	1,56	0	0,00	1	1,56
TOTAL	11	18,03	50	78,13	3	4,69	64	100,00

The sample sizes of the studies have been presented in eight different categories encompassing specific value ranges, delving into each category's status with regards to qualitative, quantitative, and mixed methods. Accordingly, a significant portion of the studies (f=17) comprised 100 or fewer participants, primarily employing qualitative methods. Following this are studies with sample sizes between 100-200 and 300-400. Notably, the studies falling into these two categories are mostly quantitative in nature. Another considerable finding is the relatively small number of studies with sample sizes exceeding 1000 participants.

Distribution of Articles by Sampling Methods

The distribution of articles by sample size is presented in Table 5.

Table 5. Distribution of articles by sampling methods

Sampling Methods	Sampling Method Types	f	%
Probability (Random) Sampling	Simple Random Sampling	9	13,64
	Stratified Sampling	6	9,09
	Cluster Sampling	3	4,55
	Total	18	27,27
Non-Probability (Non-Random) Sampling	Convenience Sampling	28	42,42
	Maximum Likelihood Sampling	7	10,61
	Purposive Sampling	2	3,03
	Snowball Sampling	1	1,52
	Quota Sampling	1	1,52
	Total	39	59,09
Others	Census	2	3,03
	Not Specified	7	10,61
	Total	9	13,64
TOTAL		66	100,00

In the examined 64 articles, it has been revealed that three different sampling methods were utilized: probability sampling, non-probability sampling, and other methods. Among these, the most frequently used method is non-probability sampling (f=39), followed by probability sampling (f=18) and other methods (f=9) respectively. Furthermore, within the probability sampling method, the most common type is simple random sampling (f=9), whereas within the non-probability sampling method, convenience sampling (f=28) stands out. It is worth highlighting that cluster sampling, purposive sampling, snowball sampling, and quota sampling types, each occurring in 3 instances or fewer, are less prominent. Additionally, census is adopted in 2 studies, and the sampling type is not specified in 7 studies.

Distribution of Articles by Data Collection Tools

The data in Table 6 illustrates the distribution of articles by data collection tools.

Table 6. Distribution of articles by data collection tools

Data Collection Tools	f	%
Scale	48	65,75
Semi-Structured Interview Form	11	15,07
Questionnaire	4	6,85
Personal Information form	2	2,74
Written Form	2	2,74

Audio Recording	1	1,37
Not Specified	5	6,85
TOTAL	73	100,00

Table 6 reveals that a significant majority of the studies employed scales (f=48) as their data collection instrument. Following this, semi-structured interview forms were used in 11 studies, whereas audio recording emerged as the least frequently utilized data collection tool. Additionally, data collection tools were not explicitly specified in 5 studies.

Distribution of Articles by Data Analysis Methods

Table 7 provides the distribution of articles by data analysis methods.

Table 7. Distribution of articles by data analysis methods

Data Analysis Methods	Data Analysis Techniques	f	%
Descriptive Quantitative	Frequency	54	16,82
	Percentage	49	15,26
	Mean	43	13,40
	Standard Deviation	40	12,46
	Maximum - Minimum	6	1,87
	Reliability Analysis	3	0,93
	Median	2	0,62
	Mod	1	0,31
	Total	198	61,68
Inferential Quantitative	ANOVA	27	8,41
	T-test	26	8,10
	Pearson Correlation Analysis	16	4,98
	Mann Whitney U Test	9	2,80
	Kruskal Wallis H Test	8	2,49
	Regression Analysis	9	2,80
	Exploratory Factor Analysis	5	1,56
	Confirmatory Factor Analysis	5	1,56
	Tukey HSD Test	5	1,56
	Spearman Correlation Analysis	4	1,25
	Effect Size	4	1,25
	Scheffe Test	2	0,62
	Structural Equation Modeling	2	0,62
	Latent Class Analysis	2	0,62
	MANOVA	2	0,62
	Canonical Correlation Analysis	1	0,31
	Cluster Analysis	1	0,31
	Total	128	39,88
Qualitative	Content Analysis	15	4,67
	Total	15	4,67
	TOTAL	341	100,00

In the examined 64 studies, a total of 341 instances of data analysis techniques were identified under three main data analysis methods. Among these, the descriptive quantitative analysis method (f=198) is the most prevalent, followed by the inferential quantitative method (f=128) and qualitative analysis method (f=15). In descriptive quantitative analysis, frequency (f=54), percentage (f=49), mean (f=43), and standard deviation (f=40) values are extensively addressed, while mode (f=1) and median (f=2) values are less frequently included in the studies. Within the inferential quantitative analysis method, researchers most frequently rely on ANOVA (f=27), t-test (f=26), and Pearson correlation (f=16) analyses, while techniques like cluster analysis (f=1), canonical correlation analysis (f=1), and MANOVA (f=2) were rarely chosen or deemed unnecessary or not applicable in their studies. Notably, content analysis technique (f=15) seems to be consistently used in all qualitative analysis methods.

Distribution of Articles by Keywords

It was found that 64 articles include a total of 118 distinct keywords, amounting to 270 instances in total. As depicted in the network analysis in Figure 4, the most frequently used keyword in the studies is "technology leadership," occurring 41 times. Following this, in order of frequency, are the keywords "leadership" (f=16), "school administrators" (f=14), "technological leadership" (f=12), "school administrator" (f=9), "technology" (f=7), "school principals" (f=6), "NETS-A" (f=5), "teacher" (f=5), "technology integration" (f=4), "ISTE" (f=4), and "ISTE standards" (f=4).

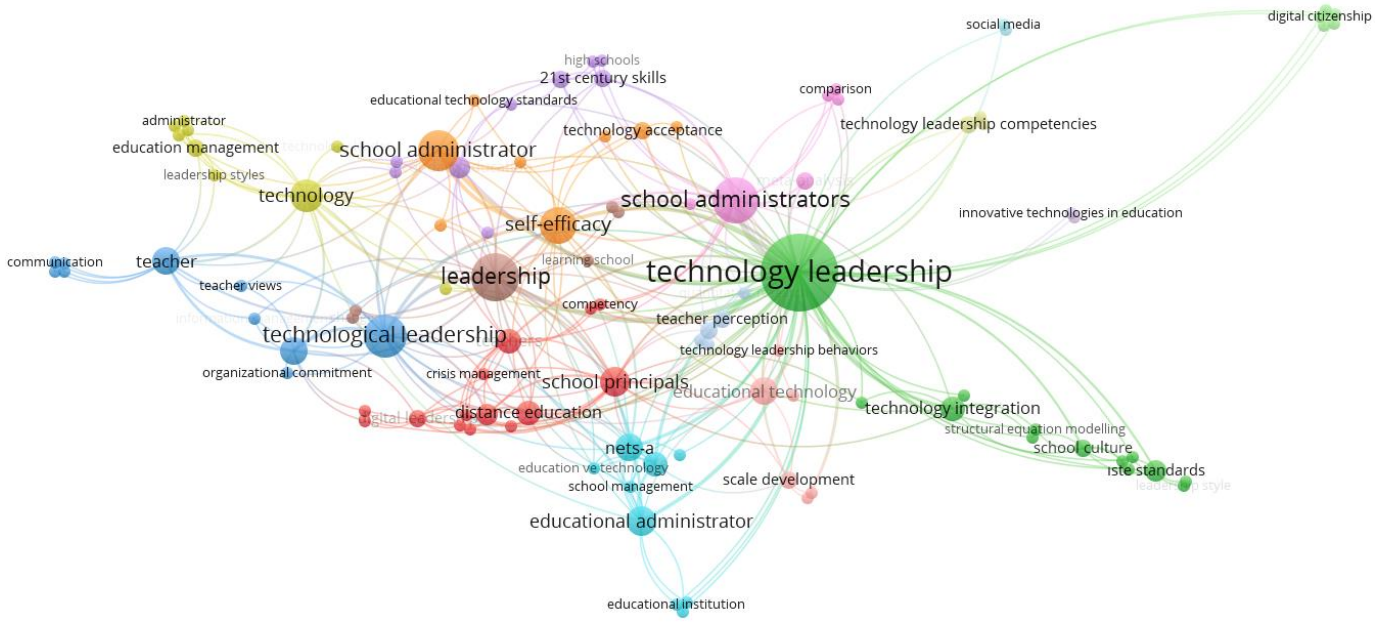


Figure 4. Distribution of articles by keywords

Distribution of Articles by Examined Variables

When exploring the variables in the articles, demographic variables (such as age, gender, educational background, professional seniority, field of study, type of school, etc.) have been excluded, directing the focus towards the other variables. According to this, the examined variables in the articles are presented in Table 8.

Table 8. Distribution of articles by examined variables

Variables		SV (f)	IV (f)	DV (f)	RV (f)
1.	School administrators' technology leadership	36	10	1	16
2.	IT teachers' technology leadership	1			
3.	School administrators' technology use efficacy	1			1
4.	School administrators' challenges in technology leadership	1			
5.	Educators' perception of a learning school			1	
6.	School administrators' 21st century skills				1
7.	School administrators' acceptance of ICT			2	1
8.	School administrators' levels of knowledge management			1	1
9.	School administrators' change management competencies				1
10.	School administrators' perceptions of carrying out educational tasks			1	1
11.	School administrators' attitudes towards technology use in education				1
12.	School administrators' personality traits				1
13.	School administrators' crisis management skills		1		1
14.	School administrators' leadership styles				1
15.	School administrators' participation in technology courses		1		
16.	School administrators' technostress levels			1	
17.	School administrators' views on distance education				1
18.	School administrators' innovation management competencies				1
19.	Teachers' attitudes towards educational technologies				1
20.	Teachers' perceptions of support services		1		
21.	Teachers' perceptions of school effectiveness			1	1
22.	Teachers' perceptions of school culture		1		
23.	Teachers' profiles of learning organization culture			1	
24.	Teachers' organizational commitment				1
25.	Teachers' technology integration competencies			1	1
26.	Teachers' attitudes towards distance education			1	1
27.	Levels of teacher-student interaction on social media			1	1
TOTAL		39	14	12	34

SV: Single Variable - IV: Independent Variable - DV: Dependent Variable - RV: Relational Variable

It can be observed in Table 8 that a total of 27 different variables are addressed in the articles. As expected, the most frequently examined variable is "school administrators' technology leadership". This variable is considered as a single variable (which refers

a variable that is only considered descriptively and not examined for its relation to any other variable or its effect on that variable) in 36 studies, as an independent variable in 10 studies, as a dependent variable in 1 study, and as a relational variable in 16 studies. In the study where "school administrators' technology leadership" is considered a dependent variable, “the school administrators' participation in technology courses” is chosen as an independent variable. Furthermore, the predictive effect of the "school administrators' technology leadership" variable has been investigated on 11 dependent variables, including school administrators’ acceptance of ICT, level of knowledge management, technostress level, attitudes towards use of technology in education, and teachers' technology integration competencies. Additionally, the relationship between this variable and 18 other variables, such as school administrators' technology use efficacy, personality traits, crisis management skills, leadership style, attitudes towards technology use in education, and teachers' perceptions of school effectiveness and attitudes towards distance education, has also been examined.

DISCUSSION AND CONCLUSION

This study aims to reveal the general trend in articles originating from Türkiye that focus on school administrators' technology leadership between 2010 and 2023. In this context, a detailed examination of 64 articles indicates that the number of studies, which was only one in 2010, started to increase in the subsequent years. This phenomenon can be ascribed to the escalating rate of implementation of the FATİH project in schools during those years, coupled with the acceleration of efforts to enhance technological infrastructure in schools. Indeed, the mentioned aspect related to the FATİH project demands school administrators' technology leadership-related actions, which, in turn, might have driven researchers to conduct studies focusing on this particular field. Another notable finding is the significant increase in the number of studies, especially from 2019 onwards. More than half of the studies have been conducted in just the last 5 years, a finding that aligns with the research by Korkmaz, Kutlu, and Yavuz (2022). In this regard, it can be argued that the significant rise in the popularity of this topic in recent years is largely attributed to the substantial role of the COVID-19 pandemic. With the transition to remote education during the pandemic, the significance of educational technologies, especially online technologies, has come to the forefront (Williamson, Eynon & Potter, 2020). Also, there has been an increased recognition of the need for school administrators to exhibit technology leadership to coordinate the use of these technologies (Aydın-Güngör & Ayar, 2022). This might have led to an increased interest from researchers in the field of school administrators' technology leadership, subsequently contributing to the growth in the number of studies in this area. This is evident as there has been a noted rise in publications regarding online and distance education during the pandemic (Avcı, 2023; Mishra, Sahoo & Pandey, 2021), which could have opened the door for the consideration of the topic of technology leadership for school administrators who bear significant responsibilities in the process of distance education.

When considering the language of publication related to school administrators' technology leadership in the national literature, it is clear that articles in Turkish have outnumbered those in English. This finding is consistent with the results of Köybaşı-Şemin (2020). Given that the research is conducted by Turkish scholars in Türkiye, it is natural and expected that a significant portion of the articles are published in Turkish language. Additionally, the fact that educators, administrators, and policymakers who would benefit from and implement the insights of these articles are likely to be Turkish citizens, and their English proficiency may not be at the desired level, could be factors contributing to researchers' preference for the Turkish language of publication to cater the local audience. Moreover, the number of articles published in English is not to be underestimated. Factors such as aiming to address the international academic audience, sharing their findings with them, and facilitating cross-country comparisons in the domain of technology leadership might have motivated Turkish researchers to turn towards English, which is universally acknowledged as the language of scholarly communication.

The examined 64 articles are dispersed across 53 different journals, indicating that articles related to school administrators' technology leadership are distributed across various journals rather than being confined to particular ones. Given the subject's relevance to the field of education, a significant portion of the articles has been published in journals specializing in education. Additionally, a majority of the journals are of Turkish provenance, with only a minority being international origin. Due to the nature of the subject matter being pertinent to Türkiye and the prevalence of articles being written in Turkish, researchers may have preferred Turkish journals as their primary choice for publication.

A significant portion of the examined articles was indexed in other international indexes and ULAKBİM TR Dizin, followed by ERIC, SSCI, and Education Full Text (H. W. Wilson) indexes, respectively. Considering that the journals primarily originate from Türkiye, this distribution can be interpreted as a natural and anticipated outcome. This is due to the fact that most journals in Türkiye are indexed in ULAKBİM TR Dizin and other international indexes, with a relatively smaller portion being indexed in more internationally-oriented indexes like ERIC and SSCI.

In studies conducted on technology leadership of school administrators in Türkiye, it has been determined that quantitative methods are predominantly utilized, followed by qualitative and mixed methods, respectively. A similar ranking in terms of the use of methods by Turkish researchers is also observed in the study by Korkmaz, Kutlu and Yavuz (2022). Similarly, Köybaşı-Şemin (2020) also identified a higher preference for quantitative methods compared to others. Not only in this specific field, but in many educational studies as well, it can be stated that the quantitative method is often favored. The ease and efficiency of data collection using standardized instruments, the reduction of researcher bias leading to more objective results, and the potential for generalization to larger populations might have prompted researchers to lean more towards quantitative methods. Furthermore, the fact that technology leadership is often treated as a quantitative variable in the literature may also have

contributed to the emergence of this result. Besides, the preference for quantitative methods may have been influenced by the quantitative nature of variables frequently investigated by researchers in the context of technology leadership of school administrators, such as their technology usage competencies, ICT acceptance, and attitudes towards technology use in education. In addition, the prevalence of descriptive aims to portray the existing state of technology leadership and the mentioned variables, along with the relationships between them, can be observed in the analyzed studies. This might explain why researchers have often deemed survey and relational survey designs appropriate for their investigations. On the other hand, in some studies, albeit to a lesser extent, researchers turned to qualitative and mixed methods. The primary reason behind this choice could be the recognition that quantitative methods and mere numerical values might fall short in fully explaining the phenomenon, leading some researchers to desire a more detailed and in-depth examination of the topic of school administrators' technology leadership (Fraenkel, Wallen & Hyun, 2009; Johnson, Onwuegbuzie & Turner, 2007). To achieve this objective, researchers have shown a preference for phenomenology and case study designs in qualitative research, while utilizing an explanatory sequential design in mixed methods studies.

The most commonly used sample group in studies related to school administrators' technology leadership consists of school administrators themselves. Given the direct relevance of the subject to school administrators, it is natural for researchers to choose them as the primary source of data in their studies. In addition, it is noteworthy that teachers are also chosen as sample group in studies almost as frequently as school administrators. The involvement of a technology leadership approach in line with the distributed perspective may have had an influence on the emergence of such a result (Tan & Aloysius, 2011). This is because teachers, who are one of the key stakeholders in the school, play a crucial role when technology leadership is shared within the school (Galdames-Calderon, 2023). Furthermore, given that teachers are the ones responsible for directly integrating technology into their teaching, it would be valid to assert that having a leadership team without their involvement or without recognizing their contributions may not be feasible. However, contrary to the findings of this study, in another research, it was determined that teachers were more prominently featured as the sample group compared to school administrators (Korkmaz, Kutlu & Yavuz, 2022). In that study, postgraduate theses conducted in Türkiye were examined. It can be stated that the general tendency and practice in theses is to reach as many participants as possible, which could have led researchers to focus on teachers who clearly outnumber school administrators in quantity. Additionally, in a small portion of the analyzed 64 articles, both school administrators and teachers were included as participants. The intention behind this might be to compare the self-assessments of school administrators regarding technology leadership performance with the evaluations of teachers or to gather data from various sources to gain a more holistic understanding of the technology leadership in the school.

It is worth to recognize that the sample sizes of the analyzed studies vary based on the adopted research methods. Accordingly, studies with 100 or fewer participants are primarily qualitative in nature. Qualitative methods, which enable researchers to delve deeply into technology leadership and access detailed information, do not necessarily require a large number of participants, unlike quantitative methods. Conducting qualitative data collection with a reasonable number of participants is sufficient to achieve the stated goals. This is because qualitative methods are often associated with small sample sizes, and beyond a certain point, adding more participants does not contribute to the analysis (Malterud, Siersma & Guassora, 2016) due to data saturation (Glaser & Strauss, 1999). On the other hand, it is noteworthy that studies with more than 100 participants are mostly characterized by a quantitative orientation. The majority of quantitative research has sample sizes ranging from 100 to 500 participants, which aligns with the findings of Korkmaz, Kutlu, and Yavuz (2022). In addition, although less common, it is also noticeable that some researchers aim to achieve sample sizes ranging from 500 to 2000 in their studies. Quantitative studies are often considered to be comparatively easier in terms of data collection. Furthermore, achieving robust statistical outcomes, enhancing external validity for improved generalizability of results, and improving the accuracy, reliability, and credibility of findings are crucial in quantitative research. Accomplishing these goals objectives requires larger sample sizes (Andrade, 2020), which could help explain researchers' intentions to attain larger sample sizes in some of the examined quantitative studies.

In studies focused on school administrators' technology leadership, non-probability sampling methods are employed significantly more often than probability sampling methods, with the latter being used approximately half as frequently. Researchers' preference for non-probability sampling, particularly the convenience sampling technique within it, can be attributed to factors like suitability, convenience, and practicality (Büyüköztürk et al., 2015). Also, researchers typically refrain from utilizing probability sampling methods in quantitative research because they aim to reach a larger number of participants. This is due to the fact that probability sampling methods often involve a more rigid participant selection process, which can complicate the attainment of the desired participant count. However, it is essential to note that while non-probability sampling methods offer convenience and ease, they come with disadvantages as well. Non-probability sampling can introduce bias and weaken the generalizability of research outcomes in quantitative research, as it may not adequately represent the population of interest. Consequently, it appears that in Turkish articles related to school administrators' technology leadership, researchers seem to prioritize increasing the number of participants over aiming for generalizability of results, leading them to prefer techniques like convenience sampling.

The prevalence of quantitative research in the analyzed studies has naturally led to the increased use of scales as data collection instruments. This is followed by semi-structured interview forms, which are commonly used in qualitative and mixed methods research, as well as surveys. This finding is consistent with the results obtained by Köybaşı-Şemin (2020). As mentioned earlier, the choice of research methods influences the selection of data collection tools. Furthermore, it can be noted that the

development of scales by Turkish researchers following the establishment of NETS-A standards by ISTE (2009) has garnered attention, leading to a rise in the number of studies employing scales. Additionally, it can be stated that the variables addressed in the research also guide the selection of appropriate data collection instruments.

It is notable that the majority of the analyzed studies heavily rely on quantitative data analysis. The adoption of a quantitative approach in these studies has naturally led to the predominance of quantitative data analysis methods, which is in parallel with the findings of Köybaşı-Şemin (2020). In the studies, the prevalence of methods like survey and relational survey research for describing the existing state of technology leadership has led to the frequent use of descriptive statistics such as frequencies, means, and percentages. On the other hand, a significant portion of researchers has also turned to inferential statistical methods like t-tests, ANOVA, correlation and regression analyses. The primary reason for this could be that researchers aim to move beyond mere description and seek to derive more meaningful insights by examining differences and relationships between data, which is achievable through inferential statistical methods. Lastly, in all studies conducted using qualitative methods, content analysis, a common qualitative analysis technique, has been employed.

In studies related to school administrators' technology leadership, a total of 118 different keywords have been used. Not surprisingly, the standout keyword among them is "technology leadership". This phrase, which forms the core of the subject matter, has been commonly chosen as a keyword by many researchers. Additionally, since the subjects of the study are school administrators, keywords such as “leadership”, “school administrators”, and “school principals” are also prevalent. Furthermore, the technological context of the subject has led to the preference for keywords like “technology”, “technology integration”, “ISTE”, and “NETS-A”.

Finally, in the examined studies, a total of 27 different variables, including school administrators' technology leadership, have been utilized. Among these, there are 36 single variables, 10 independent variables, 1 dependent variable, and 16 relational variables. It is worth noting that the variable of school administrators' technology leadership is predominantly treated as a single variable in most of the studies, with only one study considering it as a dependent variable. This suggests that the focus of these studies is often on the descriptive aspects of school administrators' technological leadership qualities rather than considering the factors that influence them.

RECOMMENDATIONS

The primary goal of conducting review studies is to illuminate potential avenues for future research after presenting the current state of the literature. Therefore, within this study that examines Turkish research on school administrators' technology leadership, it is possible to provide recommendations for future researchers by leveraging from the current literature and identifying research gaps.

To begin with, the majority of conducted studies have been quantitative in nature, often resulting in superficial evaluations of school administrators' technology leadership that tend to describe the existing state rather than delving into deeper analysis. Given the limited number of mixed methods studies, upcoming researchers might consider conducting mixed methods research to combine quantitative and qualitative data, offering a more comprehensive understanding of the phenomenon of school administrators' technology leadership.

Additionally, there is a noticeable scarcity of studies taking the technology leadership of school administrators as a dependent variable. However, given the significant role it plays on technology integration within schools, it can be argued that identifying variables that could influence technology leadership holds importance. This can be achieved through conducting research that treats school administrators' technology leadership as a dependent variable and examines independent variables that can predict it. Therefore, researchers are recommended to take this into account in their future studies and investigate the impact of variables such as technology proficiency, perceived ease of use and perceived benefits towards technology, school culture and climate, innovation management, and leadership styles on school administrators' technology leadership.

Although the literature underlines the critical role of school administrators' technology leadership in technology integration, there is limited research on this topic in Türkiye. Therefore, it is considered crucial for researchers to investigate the impact of school administrators' technology leadership on teachers' technology integration competencies.

Nearly all of the examined studies primarily focused on school administrators and teachers as the sample. However, distributed technology leadership extends beyond school administrators and teachers, involving students, parents, and other school staff (Spillane, 2006). Hence, future research could explore these stakeholders as well, allowing for a broader and more comprehensive understanding of technology leadership in the school context.

Considering the sample sizes, it turns out that most studies involved 500 or less participants. In terms of sampling methods, a significant portion of the studies appear to adopt non-probability sampling methods. However, for the sake of enabling more robust statistical analyses and better generalizations, it is advisable for future studies to aim for larger sample sizes whenever possible and, if feasible, opt for probability sampling methods to determine the sample. This approach would enhance the validity and reliability of the research outcomes.

LIMITATIONS

This review study is not without its limitations. It focuses solely on articles published between 2010 and 2023, omitting theses from consideration. Consequently, a more comprehensive approach could involve expanding the scope to include theses as well, thereby conducting a review that provides a better representation of the state of school administrators' technological leadership in Türkiye. This adjustment could result in a more holistic understanding of the subject matter.

Declaration of Conflicting Interests

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

Funding

The authors received no financial support for the research, author-ship, and/or publication of this article.

Statements of publication ethics

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

Researchers' contribution rate

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

Ethics Committee Approval Information

As this is a document analysis study, ethical committee approval is not required.

REFERENCES

A'mar, F., & Eleyan, D. (2022). Effect of principal's technology leadership on teacher's technology integration. *International Journal of Instruction*, *15*(1), 781-798. https://doi.org/10.29333/iji.2022.15145a

Akbaba-Altun, S. (2004). Okul müdürlerinin bilgi teknolojisi sınıflarına ilişkin görüşleri. *Kuram ve Uygulamada Eğitim Yönetimi, 37*, 46-71.

Aktay, S., & Çakır, R. (2018). Okul yöneticilerinin teknoloji liderliği yeterlikleri. *Karadeniz Uluslararası Bilimsel Dergi, 37*, 37-48. https://doi.org/10.17498/kdeniz.361601

AlAjmi, M. K. (2022). The impact of digital leadership on teachers' technology integration during the COVID-19 pandemic in Kuwait. *International Journal of Educational Research*, *112*, 101928. https://doi.org/10.1016/j.ijer.2022.101928

Al-Azawei, A., Serenelli, F., & Lundqvist, K. (2016). Universal design for learning (UDL): A content analysis of peer reviewed journals from 2012 to 2015. *Journal of the Scholarship of Teaching and Learning*, *16*(3), 39-56. https://doi.org/10.14434/josotl.v16i3.19295

Anderson, R. E., & Dexter, S. (2005). School technology leadership: An empirical investigation of prevalence and effect. *Educational Administration Quarterly*, *41*(1), 49-82. https://doi.org/10.1177/0013161X04269517

Andrade, C. (2020). Sample size and its importance in research. *Indian Journal of Psychological Medicine*, *42*(1), 102-103. https://doi.org/10.4103/IJPSYM.IJPSYM_504_19

Apsorn, A., Sisan, B., & Tungkunanan, P. (2019). Information and communication technology leadership of school administrators in Thailand. *International Journal of Instruction*, *12*(2), 639-650. https://doi.org/10.29333/iji.2019.12240a

Arabacı, İ. B., Karabatak, S., & Polat, H. (2016). Ortaöğretim okulu yöneticilerinin dağıtımcı liderlik rollerine ilişkin öğretmen algıları. *Kastamonu Eğitim Dergisi, 24*(3), 1015-1032.

Avcı, F. (2023). Türkiye'de pandemi sürecinde uzaktan eğitimi konu alan bilimsel araştırmaların değerlendirilmesi. *Trakya Eğitim Dergisi*, *13*(1), 401-430. https://doi.org/10.24315/tred.1035636

Aydın-Güngör T., & Ayar A. (2022). Uzaktan eğitim sürecinde okul yöneticilerinin teknoloji liderliği yeterliliklerinin öğretmen görüşlerine göre incelenmesi. *Anadolu Üniversitesi Eğitim Fakültesi Dergisi. 6*(3), 312-340. https://doi.org/10.34056/aujef.1093217

Azorín, C., Harris, A., & Jones, M. (2020). Taking a distributed perspective on leading professional learning networks. *School Leadership & Management, 40*(2-3), 111-127. https://doi.org/10.1080/13632434.2019.1647418

Bennett, N. (2008). Distributed leadership and IT. In *International handbook of information technology in primary and secondary education* (pp. 597-613). New York Springer.

Bolden, R. (2011). Distributed leadership in organizations: A review of theory and research. *International Journal of Management Reviews, 13*(3), 251-269. https://doi.org/10.1111/j.1468-2370.2011.00306.x

Borup, J., Graham, C. R., & Velasquez, A. (2011). The use of asynchronous video communication to improve instructor immediacy and social presence in a blended learning environment. In *Blended learning across disciplines: Models for implementation* (pp. 38-57). IGI Global. https://dx.doi.org/10.4018/978-1-60960-479-0.ch003

Bush, T. (2013). Distributed leadership: The model of choice in the 21st century. *Educational Management Administration & Leadership, 41*(5), 543-544. https://doi.org/10.1177/1741143213489497

Büyüköztürk, Ş., Kılıç-Çakmak, E., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2015). *Bilimsel Araştırma Yöntemleri*. Pegem Yayınevi. https://dx.doi.org/10.14527/9789944919289

Chen, Y. L. (2008). Modeling the determinants of internet use. *Computers & Education*, *51*(2), 545-558. https://doi.org/10.1016/j.compedu.2007.06.007

Cuban, L. (2001). *Oversold and underused: Computers in the classroom*. Cambridge: Harvard University Press. https://doi.org/10.4159/9780674030107

Davies, R. S., Dean, D. L., & Ball, N. (2013). Flipping the classroom and instructional technology integration in a college-level information systems spreadsheet course. *Educational Technology Research and Development*, *61*, 563-580. https://dx.doi.org/10.1007/s11423-013-9305-6

Demir, Ö. (2023). Another brick in the wall of ed-tech failures? A systematic literature review of the FATIH project in Turkey from the perspective of in-service teachers. *Learning, Media and Technology*, 1-15. https://dx.doi.org/10.1080/17439884.2023.2233424

Deniz, L. (1992). Bilgisayar destekli eğitim projesi: Aşamalar, eleştiriler, öneriler. *Marmara Üniversitesi Atatürk Eğitim Fakültesi Eğitim Bilimleri Dergisi, 4*, 45-58.

Durnalı, M. (2019). Ortaokul öğretmenlerinin görüşlerine göre okul müdürlerinin sergilediği teknolojik liderlik davranış düzeyi. *Journal of Theoretical Educational Science, 12*(2), 401-430. https://dx.doi.org/10.30831/akukeg.449484

Ertmer, P. A. (2005). Teacher pedagogical beliefs: The final frontier in our quest for technology integration? *Educational Technology Research and Development, 53*(4), 25-39. https://doi.org/10.1007/BF02504683

Flanagan, L., & Jacobsen, M. (2003). Technology leadership for the twenty-first century principal. *Journal of Educational Administration*, *41*(2), 124-142. https://dx.doi.org/10.1108/09578230310464648

Fraenkel, J. R., Wallen, N. E., & Hyun, H. (2009). *How to design and evaluate research in education*. New York: McGrow-Hill.

Galdames-Calderón, M. (2023). Distributed Leadership: School principals' practices to promote teachers' professional development for school improvement. *Education Sciences, 13*, 715-729. https://doi.org/10.3390/educsci13070715

Ghavifekr, S., & Rosdy, W. A. W. (2015). Teaching and learning with technology: Effectiveness of ICT integration in schools. *International Journal of Research in Education and Science*, *1*(2), 175-191. https://dx.doi.org/10.21890/ijres.23596

Glaser, B., & Strauss, A. (1999). *The discovery of grounded theory: Strategies for qualitative research*. New York: Aldine de Gruyter. https://dx.doi.org/10.1177/104973299129122199

Göksoy, S. (2015). Distributed leadership in educational institutions. *Journal of Education and Training Studies, 3*(4), 110-118. https://dx.doi.org/10.11114/jets.v3i4.851

Gurr, D. (2004). ICT, leadership in education and e-leadership. Discourse: *Studies in the Cultural Politics of Education, 25*(1), 113-124. https://doi.org/10.1080/0159630042000178518

Güneş, M., Baka, E., Gülgün, S., Kocakır Karaağaç, A. & Ovacık, T. (2022). Okul müdürlerinin teknoloji liderliği davranışlarının incelenmesi. *Balkan ve Yakın Doğu Sosyal Bilimler Dergisi, 8*, 10-17.

Hacıfazlıoğlu, Ö., Karadeniz, Ş., & Dalgıç, G. (2011). Eğitim yöneticileri teknoloji liderliği öz-yeterlik ölçeğinin geçerlik ve güvenirlik çalışması. *Kuram ve Uygulamada Eğitim Yönetimi*, *2*(2), 145-166.

Harris, A. (2011). Distributed leadership: Implications for the role of the principal. *Journal of Management Development, 31*(1), 7-17. https://doi.org/10.1108/02621711211190961

Hauge, T. E., & Norenes, S. O. (2015). Collaborative leadership development with ICT: Experiences from three exemplary schools. *International Journal of Leadership in Education, 18*(3), 340-364. https://doi.org/10.1080/13603124.2014.963689

Heafner, T. (2004). Using technology to motivate students to learn social studies. *Contemporary Issues in Technology and Teacher Education*, *4*(1), 42-53.

Hermans, R., Tondeur, J., Van Braak, J., & Valcke, M. (2008). The impact of primary school teachers' educational beliefs on the classroom use of computers. *Computers & Education, 51*(4), 1499-1509. https://doi.org/10.1016/j.compedu.2008.02.001

Hew, K. F., & Brush, T. (2007). Integrating technology into K-12 teaching and learning: Current knowledge gaps and recommendations for future research. *Educational Technology Research and Development*, *55*, 223-252. https://dx.doi.org/10.1007/s11423-006-9022-5

ISTE (2009). *ISTE standards for administrators*. Retrieved August 16, 2023 from https://cdn.iste.org/www-root/Libraries/Images/Standards/Download/ISTE%20Standards%20for%20Administrators%2C%202009%20(Permitted%20Educational%20Use).pdf.

ISTE (2018). *ISTE standards: Education leaders*. Retrieved October 20, 2023 from https://www.iste.org/standards/iste-standards-for-education-leaders.

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research, 1*(2), 112-133. https://dx.doi.org/10.1177/1558689806298224

Karadağ, E., Sağlam, H., & Baloğlu, N. (2008). Bilgisayar destekli eğitim [BDE]: İlköğretim okulu yöneticilerinin tutumlarına ilişkin bir araştırma. *Journal of International Social Research*, *1*(3), 251-266.

Karaköse, T., Polat, H., & Papadakis, S. (2021). Examining teachers' perspectives on school principals' digital leadership roles and technology capabilities during the COVID-19 pandemic. *Sustainability*, *13*(23), 13448. https://dx.doi.org/10.3390/su132313448

Kaya, G., & Koçak-Usluel, Y. (2011). Öğrenme-öğretme süreçlerinde BİT entegrasyonunu ve kullanımını etkileyen faktörlere yönelik içerik analizi. *Buca Eğitim Fakültesi Dergisi, 31*, 48-67.

Koçak-Usluel, Y., Mumcu, F. K., & Demiraslan, Y. (2007). Öğrenme-öğretme sürecinde bilgi ve iletişim teknolojileri: Öğretmenlerin entegrasyon süreci ve engelleriyle ilgili görüşleri. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 32*, 164-178.

Korkmaz, Ö., Kutlu, A. Ö., & Yavuz, Ş. (2022). Trends in 'technology leadership' research in education: Scoping Review. *Journal of Teacher Education and Lifelong Learning, 4*(1), 12-33. https://dx.doi.org/10.51535/tell.1088511

Korumaz, M., & Gölçek, E. (2021). BÖTE mezunu okul müdürlerinin teknoloji liderliği deneyimleri: Olgubilimsel bir araştırma. *Marmara Üniversitesi Atatürk Eğitim Fakültesi Eğitim Bilimleri Dergisi*, *53*(53), 113-140. https://dx.doi.org/10.15285/maruaebd.714794

Köybaşı-Şemin, F. (2020). Eğitim yöneticilerinin teknoloji liderliğine ilişkin araştırmalar: Bir içerik analizi. *Muallim Rıfat Eğitim Fakültesi Dergisi, 2*(1), 1-15.

Leithwood, K., & Mascall, B. (2009). Distributing leadership to make schools smarter: Taking the ego out of the system. In *Distributed leadership according to the evidence* (pp. 241-270). Routledge.

Malterud, K., Siersma, V. D., & Guassora, A. D. (2016). Sample size in qualitative interview studies: Guided by information power. *Qualitative Health Research*, *26*(13), 1753-1760. https://dx.doi.org/10.1177/1049732315617444

Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2010). *Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies*. Washington, DC: U.S. Department of Education.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, *108*(6), 1017-1054. https://dx.doi.org/10.1111/j.1467-9620.2006.00684.x

Mishra, S., Sahoo, S., & Pandey, S. (2021). Research trends in online distance learning during the COVID-19 pandemic. *Distance Education*, *42*(4), 494-519. https://dx.doi.org/10.1080/01587919.2021.1986373

O'Sullivan, K., McGrane, A., Long, S., Marshall, K., & Maclachlan, M. (2023). Using a systems thinking approach to understand teachers perceptions and use of assistive technology in the republic of Ireland. *Disability and Rehabilitation: Assistive Technology*, *18*(5), 502-510. https://dx.doi.org/10.1080/17483107.2021.1878297

Overbay, A., Patterson, A. S., Vasu, E. S., & Grable, L. L. (2010). Constructivism and technology use: Findings from the IMPACTing leadership project. *Educational Media International, 47*(2), 103-120. https://doi.org/10.1080/09523987.2010.492675

Resta, P., & Laferriere, T. (2007). Technology in support of collaborative learning. *Educational Psychology Review*, *19*, 65-83. https://dx.doi.org/10.1007/s10648-007-9042-7

Seong, D. N. F., & Ho, J. M. (2012). How leadership for an ICT reform is distributed within a school. *International Journal of Educational Management, 26*(6), 529-549. https://doi.org/10.1108/09513541211251370

Somyürek, S. (2014). Öğretim sürecinde z kuşağının dikkatini çekme: Artırılmış gerçeklik. *Eğitim Teknolojisi Kuram ve Uygulama*, *4*(1), 63-80. https://dx.doi.org/10.17943/etku.88319

Spillane, J. (2006). *Distributed leadership*. San Francisco, CA: Jossey Bass.

Spillane, J. P., Halverson, R., & Diamond, J. B. (2001). Investigating school leadership practice: A distributed perspective. *Educational Researcher, 30*(3), 23-28. https://doi.org/10.3102/0013189X030003023

STATISTA (2023). *Internet usage worldwide - statistics & facts*. Retrieved August 12, 2023 from https://www.statista.com/topics/1145/internet-usage-worldwide.

Stuart, L. H., Mills, A. M., & Remus, U. (2009). School leaders, ICT competence and championing innovations. *Computers & Education*, *53*(3), 733-741. https://dx.doi.org/10.1016/j.compedu.2009.04.013

Sullivan, R., Fulcher-Rood, K., Kruger, J., Sipley, G., & van Putten, C. (2019). Emerging technologies for lifelong learning and success: A MOOC for everyone. *Journal of Educational Technology Systems*, *47*(3), 318-336. https://dx.doi.org/10.1177/0047239518821065

Tan, S. C., & Aloysius, O. K. K. (2011). Distributed leadership for integration of information and communication technology (ICT) in schools. In G. Williams, P. Statham, N. Brown & B. Cleland (Eds.), *Changing Demands, Changing Directions*. (pp.1204-1214).

Thannimalai, R., & Raman, A. (2018). The influence of principals' technology leadership and professional development on teachers' technology integration in secondary schools. *Malaysian Journal of Learning and Instruction*, *15*(1), 201-226. https://dx.doi.org/10.32890/mjli2018.15.1.8

TÜİK (2023). *Hanehalkı bilişim teknolojileri (BT) kullanım araştırması, 2022. Türkiye İstatistik Kurumu, Ankara*. Retrieved August 12, 2023 from https://data.tuik.gov.tr/Bulten/Index?p=Hanehalki-Bilisim-Teknolojileri-(BT)-Kullanim-Arastirmasi-2022-45587.

Uluyol, Ç. (2013). ICT integration in Turkish schools: Recall where you are coming from to recognise where you are going to. *British Journal of Educational Technology*, *44*(1), 10-13. https://doi:10.1111/j.1467-8535.2012.01314.x

Williamson, B., Eynon, R., & Potter, J. (2020). Pandemic politics, pedagogies and practices: Digital technologies and distance education during the coronavirus emergency. *Learning, Media and Technology, 45*(2), 107-114. https://dx.doi.org/10.1080/17439884.2020.1761641

Yıldırım, N. (2017). Dağıtımcı liderlik: Kavramsal bir çerçeve. *International Journal of Field Education, 3*(2), 18-25. https://doi.org/10.32570/ijofe.356850

Yu, C., & Durrington, V. A. (2006). Technology standards for school administrators: An analysis of practicing and aspiring administrators' perceived ability to perform the standards. *NASSP Bulletin*, *90*(4), 301-317. https://dx.doi.org/10.1177/0192636506295392

APPENDIX

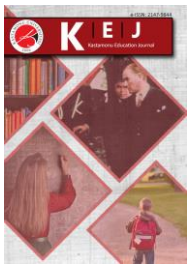
List of 64 articles included in the review

1. Akada, T., & Şahin-Fırat, N. (2022.) ISTE-A 2018 standartlarına dayalı olan okul müdürlerinin teknoloji liderliği ölçeğinin geliştirilmesi. *Batı Anadolu Eğitim Bilimleri Dergisi*, *13*(2), 1262-1289.
2. Akın-Mart. Ö., & Tulunay-Ateş, Ö. (2021). Investigation of technological leadership of the school administrators in Turkey: A meta-analysis study. *Bartın University Journal of Faculty of Education*, *10*(1), 169-186.
3. Akkoç, R., Temiz, C., Ceyhan, M., Tuğ, Ö., Dora, M., & Balaman, H. (2023). Okul yöneticilerinin teknoloji liderliği davranışlarının incelenmesi: Bağcılar ilçesi örneği. Balkan & Near Eastern Journal of Social Sciences, 9(2), 63-69.
4. Aktaş, N., & Karaca, F. (2022). The relationship between Turkish high school administrators' technology leadership self-efficacies and their attitudes and competencies towards technology use in education. *Participatory Educational Research*, *9*(5), 430-448.
5. Aktay, S., & Çakır, R. (2018). Okul yöneticilerinin teknoloji liderliği yeterlikleri. *Karadeniz Uluslararası Bilimsel Dergi, 37*, 37-48.
6. Aydın-Güngör, T., & Ayar, A. (2022). Uzaktan eğitim sürecinde okul yöneticilerinin teknoloji liderliği yeterliliklerinin öğretmen görüşlerine göre incelenmesi. *Anadolu University Journal of Education Faculty*, *6*(3), 312-340.
7. Banoğlu, K. (2011). Okul müdürlerinin teknoloji liderliği yeterlikleri ve teknoloji koordinatörlüğü. *Kuram ve Uygulamada Eğitim Bilimleri*, *11*(1), 199-213.
8. Banoğlu, K. (2012). Eğitim yöneticilerinin teknoloji liderliği yeterlikleri ölçeğinin geliştirilmesi: geçerlik ve güvenirlik çalışması. *İnönü Üniversitesi Eğitim Fakültesi Dergisi*, *13*(3), 43-65.
9. Banoğlu, K., Vanderlinde, R., & Çetin, M. (2016). Okul müdürlerinin teknoloji liderliği profillerinin okulların öğrenen örgüt kültürü ve teknolojik alt-yapısı bağlamında analizi: F@tih projesi okulları ve diğerleri. *Eğitim ve Bilim*, *41*(188), 83-98.
10. Banoğlu, K., Vanderlinde, R., Çetin, M., & Aesaert, K. (2023). Role of school principals' technology leadership practices in building a learning organization culture in public K-12 schools. *Journal of School Leadership, 33*, 66-91.
11. Beytekin, O. F. (2014). High school administrators' perceptions of their technology leadership preparedness. *Educational Research and Reviews*, *9*(14), 441-446.
12. Biçer, F. S., & Koç, M. (2019). Okul yöneticilerinin ve bilişim teknolojileri rehber öğretmenlerinin teknoloji liderlik yeterliliklerinin karşılaştırılması. *Uluborlu Mesleki Bilimler Dergisi*, *2*(1), 27-43.
13. Bülbül, T., & Çuhadar, C. (2012). Okul yöneticilerinin teknoloji liderliği öz-yeterlik algıları ile bilgi ve iletişim teknolojilerine yönelik kabulleri arasındaki ilişkinin incelenmesi. *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi*, *1*(23), 474-499.
14. Çalık, T., Çoban, Ö., & Özdemir, N. (2019). Okul yöneticilerinin teknolojik liderlik öz yeterlikleri ve kişilik özellikleri arasındaki ilişkinin incelenmesi. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi*, *52*(1), 83-106.
15. Deniz, L., & Teke, S. (2020). Okul yöneticilerinin teknoloji liderliği rollerinin öğretmen görüşleri doğrultusunda değerlendirilmesi. *Van Yüzüncü Yıl Üniversitesi Eğitim Fakültesi Dergisi*, *17*(1), 351-373.
16. Diclehan, Y., Duran, M., Karabacak, E., Işık, R., Çetiner, S., Saka-Karadeniz, G., Kor, R., & Zeybek, M. (2023). Okul müdürlerinin teknolojik liderlik davranışları ile öğretmenlerin örgütsel bağlılıkları arasındaki ilişkinin incelenmesi. *International Journal of Social Humanities Sciences Research*, *10*(97), 1565-1573.
17. Dikmen, H. (2022). Okul müdürlerinin teknoloji liderliği üzerine bir meta-sentez çalışması. *Çankırı Karatekin Üniversitesi Karatekin Edebiyat Fakültesi Dergisi, 10*(2), 279-305.
18. Dinç, H., & Göksoy, S. (2019). Okul müdürlerinin teknoloji liderliği yeterlilikleri. *International Journal on Lifelong Education and Leadership*, *6*(1), 20-35.

19. Doğu, K., & Yıldırım, A. (2023). Exploring the relationship between technological leadership self-efficacy of primary school administrators and 21st century skills. *Participatory Educational Research, 10*(4), 16-28.
20. Durnalı, M. (2019). Ortaokul öğretmenlerinin görüşlerine göre okul müdürlerinin sergilediği teknolojik liderlik davranış düzeyi. *Journal of Theoretical Educational Science, 12*(2), 401-430.
21. Durnalı, M., & Akbaşlı, S. (2020). Okul müdürleri teknolojik liderlik davranışlarının okulda bilgi yönetiminin gerçekleşme düzeyine etkisi. *Milli Eğitim Dergisi*, *49*(225), 23-54.
22. Düzgün, S. (2022). Okul yöneticilerinin teknolojik liderlik öz yeterlikleri ile uzaktan eğitime yönelik görüşlerinin ilişkisi. *Gazi Üniversitesi Gazi Eğitim Fakültesi Dergisi*, *42*(2), 1243-1274.
23. Efeoğlu, C., & Çoruk, A. (2019). The relationship between teachers' attitudes towards educational technologies and school administrators' technology leadership roles. *International Journal of Human and Behavioral Science, 5*(2), 73-82.
24. Eren, E., & Kurt, A. A. (2011). İlköğretim okul müdürlerinin teknoloji liderliği davranışları. *Uşak Üniversitesi Sosyal Bilimler Dergisi*, *4*(2), 219-238.
25. Gençay, A., & Balyer, A. (2019). İlkokul ve ortaokul yöneticilerinin teknoloji liderliğine ilişkin yeterlikleri. *Yıldız Eğitim Araştırmaları Dergisi*, *4*(1), 38-57.
26. Gençer, M. S., & Samur, Y. (2016). Leadership styles and technology: Leadership competency level of educational leaders. *Procedia-Social and Behavioral Sciences*, *229*, 226-233.
27. Göçen, A., & Temiz, E. (2022). Okul yöneticilerinin liderlik davranışları üzerine bir inceleme. *Tarih Okulu Dergisi*, *15*(57), 1249-1282.
28. Görgülü, D., Küçükali, R., & Ada, Ş. (2013). Okul yöneticilerinin teknolojik liderlik öz yeterlilikleri. *Eğitim Teknolojisi Kuram ve Uygulama*, *3*(2), 53-71.
29. Gülşen, C. (2015). Teacher views on school administrators' technology leadership competencies. *The Turkish Online Journal of Educational Technology,* 540-547.
30. Gün, F., & Çoban, Ö. (2019). Okul yöneticilerinin teknolojik liderlik öz yeterliklerinin incelenmesi. *Uluslararası Karamanoğlu Mehmetbey Eğitim Araştırmaları Dergisi*, *1*(1), 39-48.
31. Güneş, M., Baka, E., Gülgün, S., Kocakır Karaağaç, A. & Ovacık, T. (2022). Okul müdürlerinin teknoloji liderliği davranışlarının incelenmesi. *Balkan ve Yakın Doğu Sosyal Bilimler Dergisi, 8*, 10-17.
32. Gürfidan, H., & Koç, M. (2016). Okul kültürü, teknoloji liderliği ve destek hizmetlerinin öğretmenlerin teknoloji entegrasyonuna etkisi: Bir yapısal eşitlik modellemesi. *Eğitim ve Bilim*, *41*(188), 99-116.
33. Hacıfazlıoğlu, Ö., Karadeniz, Ş., & Dalgıç, G. (2010). Eğitim yöneticileri teknoloji liderliği standartlarına ilişkin öğretmen, yönetici ve denetmenlerin görüşleri. *Kuram ve Uygulamada Eğitim Yönetimi*, *4*(4), 535-579.
34. Hacıfazlıoğlu, Ö., Karadeniz, Ş., & Dalgıç, G. (2011). Eğitim yöneticileri teknoloji liderliği öz-yeterlik ölçeğinin geçerlik ve güvenirlik çalışması. *Kuram ve Uygulamada Eğitim Yönetimi*, *17*(2), 145-166.
35. Hacıfazlıoğlu, Ö., Karadeniz, Ş., & Dalgıç, G. (2011). Okul yöneticilerinin teknoloji liderliğine ilişkin algıları: Metafor analizi örneği. *Eğitim Bilimleri Araştırmaları Dergisi*, *1*(1), 97-121.
36. Karabağ-Köse, E., Yurdakul, Ö., & Onuk, H. (2017). Okul yöneticilerinin teknoloji liderliği ile sosyal medyada öğretmen-öğrenci etkileşimi arasındaki ilişkilerin incelenmesi. *Kırıkkale Üniversitesi Sosyal Bilimler Dergisi*, *7*(2), 329-344.
37. Karaköse, T., Polat, H., & Papadakis, S. (2021). Examining teachers' perspectives on school principals' digital leadership roles and technology capabilities during the COVID-19 pandemic. *Sustainability*, *13*(23), 13448.
38. Koç, K., Şengönül, M., Gelen, T., & Elçiçek, Z. (2023). Okul yöneticilerinin teknoloji liderliği rollerine ilişkin öğretmen algılarının incelenmesi. *Düzce Üniversitesi Sosyal Bilimler Dergisi, 13*(1), 75-96.
39. Kör, H., Erbay, H., & Engin, M. (2016). Technology leadership of education administrators and innovative technologies in education: A case study of Çorum city. *Universal Journal of Educational Research*, *4*(n12A), 140-150.
40. Korkmaz, Ö., Kutlu, A. Ö., & Yavuz, Ş. (2022). Trends in 'technology leadership' research in education: Scoping Review. *Journal of Teacher Education and Lifelong Learning, 4*(1), 12-33.
41. Korumaz, M., & Gölçek, E. (2021). BÖTE mezunu okul müdürlerinin teknoloji liderliği deneyimleri: Olgubilimsel bir araştırma. *Marmara Üniversitesi Atatürk Eğitim Fakültesi Eğitim Bilimleri Dergisi*, *53*(53), 113-140.
42. Köybaşı-Şemin, F. (2020). Eğitim yöneticilerinin teknoloji liderliğine ilişkin araştırmalar: Bir içerik analizi. *Muallim Rıfat Eğitim Fakültesi Dergisi, 2*(1), 1-15.
43. Minaz, Ö., Baki, Ü. M., Özel, Y., & Ay, M. (2022). The relationship between principals' technological leadership competence and school effectiveness. *Education Quarterly Reviews*, *5*(4), 39-57.
44. Ölez, D., & Kılıçoğlu, D. (2018). Okul yöneticilerinin teknoloji liderliği davranışlarının incelenmesi. *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi*, *48*, 575-601.
45. Öztaban, A., & Kıral, E. (2022). Okul yöneticilerinin teknoloji liderliği rollerini yerine getirme düzeyleri. *Muğla Sıtkı Koçman Üniversitesi Eğitim Fakültesi Dergisi*, *9*(2), 559-584.
46. Şahin, C., & Demir, F. (2015). Değişim çağında okul yöneticilerinin okullardaki eğitim teknolojilerini yönetme becerilerinin incelenmesi. *Uluslararası Sosyal Araştırmalar Dergisi*, *8*(39), 717-725.
47. Samancıoğlu, M., Bağlıbel, M., Kalman, M. & Sincar, M. (2015). The relationship between technology leadership roles and profiles of school principals and technology integration in primary school classrooms. *Journal of Educational Sciences Research,* 5(2), 77-96.

48. Sayracı, N., & Gündüz, H. B. (2018). Okul yöneticilerinin değişimi yönetme yeterlilikleri ve teknolojik liderliği. *Yıldız Journal of Educational Research*, *3*(1), 27-61.
49. Sezer, B., & Deryakulu, D. (2012). İlköğretim okul yöneticilerinin teknoloji liderliği rollerine ilişkin yeterlikleri. *Eğitim Teknolojisi Kuram ve Uygulama*, *2*(2), 74-92.
50. Sincar, M. (2013). Challenges school principals facing in the context of technology leadership. *Educational Sciences: Theory and Practice*, *13*(2), 1273-1284.
51. Sincar, M., & Aslan, B. (2011). İlköğretim okulu yöneticilerinin teknoloji liderliği rollerine ilişkin öğretmen görüşleri. *Gaziantep Üniversitesi Sosyal Bilimler Dergisi*, *10*(1), 571-595.
52. Şişman-Eren, E., & Kurt, A. A. (2011). Technological leadership behavior of elementary school principals in the process of supply and use of educational technologies. *Education*, *131*(3), 625-636.
53. Töre, E., & Kırlıoğlu, İ. (2022). Okul müdürlerinin teknolojik liderlik düzeylerinin öğretmen görüşlerine göre incelenmesi. *İnsan ve Toplum Bilimleri Araştırmaları Dergisi*, *11*(4), 2205-2221.
54. Toytok, E. H., & Güllüoğlu, K. (2022). The relationship between the technological leadership levels of school heads and the levels of learning schools. *International Journal on New Trends in Education & Their Implications*, *13*(2), 29-46.
55. Tulunay-Ateş, Ö., & Akın-Mart, Ö. (2021). Investigation of school administrators' technological leadership in terms of gender. *International Journal on Lifelong Education and Leadership*, *7*(1), 36-47.
56. Turan, S. (2020). Covid-19 sürecinde okul müdürlerinin teknolojik liderliği. *Milli Eğitim Dergisi*, *49*(1), 175-199.
57. Turan, S., & Gökbulut, B. (2022). An analysis of the technology leadership behaviours of school principals from the perspective of teachers. *Turkish Online Journal of Educational Technology*, *21*(1), 35-44.
58. Ulukaya, F., Yıldırım, N., & Özeke, V. (2017). Educational administrators' technological leadership efficacy and perceptions towards implementation levels of teaching and learning activities. *Journal of Computer and Education Research*, *5*(10), 125-149.
59. Ünal, E., Uzun, A. M., & Karataş, S. (2015). An examination of school administrators' technology leadership self-efficacy. *Croatian Journal of Education*, *17*(1), 195-215.
60. Ünver, İ. K., & Demirdağ, S. (2022). Teknolojik liderlik davranışı, kriz yönetimi ve uzaktan eğitim arasındaki ilişki: Öğretmen algıları. *Bilecik Şeyh Edebali Üniversitesi Sosyal Bilimler Dergisi*, *7*(2), 202-213.
61. Yahşi, Ö. (2020). Okul yöneticilerinin teknoloji liderliği özyeterliklerinin incelenmesi: İzmir örneği. *Akademik Platform Eğitim ve Değişim Dergisi*, *3*(2), 232-250.
62. Yahşi, Ö., & Hopcan, S. (2021). Reviewing the structural relationship among the technology leadership, technostress and technology acceptance of school administrators. *Anemon Muş Alparslan Üniversitesi Sosyal Bilimler Dergisi*, *9*(6), 1781-1797.
63. Yıldız, B. B., Tüysüz, H., & Öztürk, M. (2021). Okul yöneticilerinin teknoloji liderliği yeterlik algıları ile yenilik yönetimi yeterlikleri arasındaki ilişkinin incelenmesi. *Turkish Studies*, *16*(3), 1087-1108.
64. Yorulmaz, A., & Can, S. (2016). The technology leadership competencies of elementary and secondary school directors. *Educational Policy Analysis and Strategic Research*, *11*(1), 47-61.

Kastamonu Education Journal, 2024, Vol. 32, No:1, 71-84
doi: 10.24106/kefdergi.1426485



| Research Article / Araştırma Makalesi |

Examination of Conflict Resolution Skills of Female Administrators in Educational Organizations

Eğitim Örgütlerinde Kadın Yöneticilerin Çatışma Çözme Becerilerinin İncelenmesi

Melek GÜLÇİMEN[1] Hale GÖNENÇ[2], Şükrü ADA[3]

Keywords
1. Conflict
2. Conflict Resolution
3. Administrator
4. Female Administrator

Anahtar Kelimeler
1. Çatışma
2. Çatışma Çözme
3. Yönetici
4. Kadın Yönetici

Received/Başvuru Tarihi
03.07.2022
Accepted / Kabul Tarihi
01.09.2023

Abstract

Purpose: The main purpose of this study is to present a general picture of the attitudes and behaviors of female administrators in conflict situations in schools.

Design/Methodology/Approach: In this study, what kind of conflicts are experienced in schools, What kind of solutions women administrators adopt when resolving conflicts with higher authorities, teachers, parents and students, emotions experienced during and after the conflict and the positive and negative effects of female school administrators in conflict situations compared to male school administrators were examined in the light of the answers collected from 20 participants by semi-structured interview method.

Findings: Research results; reveals that female administrators are positive in conflict situations in the school environment and meet the expectations of teachers.

Highlights: It is thought that the effects of female managers will be positive, especially in situations that await a solution such as conflict and cause disruption of the functioning of organizations.

Öz

Çalışmanın amacı: Bu çalışmanın temel amacı, okullarda yaşanan çatışma durumlarındaki kadın yöneticilerin tutum ve davranışlarına ilişkin genel bir tablo ortaya koymaktır.

Materyal ve Yöntem: Bu çalışmada okullarda ne tür çatışmaların yaşandığı, üst makamlarla, öğretmenlerle, velilerle öğrenciler arasında meydana gelen çatışmaları yönetirken kadın yöneticilerin ne tür çözüm yollarını tercih ettiği, çatışma süresi boyunca yaşanan duygu durumlarının neler olduğu ve kadın okul yöneticilerinin erkek okul yöneticilerine göre çatışma durumlarında gözlemlenen olumlu ve olumsuz etkileri yarı yapılandırılmış görüşme yöntemi ile 20 katılımcıdan alınan cevaplar doğrultusunda incelenmiştir.

Bulgular: Araştırma sonuçları; kadın yöneticilerin okul ortamında yaşanan çatışma durumlarında olumlu ve öğretmenlerin beklentilerini karşılar nitelikte olduğunu ortaya koymaktadır.

Önemli Vurgular: Özellikle çatışma gibi çözüm bekleyen ve örgütlerde işleyişin aksamasına neden olacak durumlarda kadın yöneticilerin etkilerinin olumlu yönde olacağı düşünülmektedir.

[1] **Corresponded Author,** Bursa Uldağ University, Educational Science, Department of Educational Management Bursa, TURKEY; melekgulcimen85@gmail.com, https://orcid.org/0000-0003-4213-6056

[2] Teacher, Ministry of National Education Bursa Modern Bahçe Şehir College Bursa, TURKEY; hale.gonenc@bahcesehir.k12.tr) ORCID ID. https://orcid.org/0000-0002-4125-6446

[3] Prof. Dr. Department of Educational Sciences, Faculty of Education, Bursa Uludag University, 16059 Bursa, TURKEY; sukruada@uludag.edu.tr ORCID ID. https://orcid.org/0000-0003-3329-9494

Citation/Alıntı: Gülçimen, M., Gönenç, H., & Ada, Ş. (2024). Examination of conflict resolution skills of female administrators in educational organizations. *Kastamonu Education Journal, 32*(1), 71-84. doi: 10.24106/kefdergi.1426485

INTRODUCTION

Human is a social entity. People have chosen to live as an organization because their needs are diverse and they need others to meet a large part of these needs. For this reason, people are seen as members of various groups in all areas of social life. If we take a look at the different definitions of the word organization, Aydın (1994) defines the organization as a system in which one or more people have coordinated activities that they perform with their own will. According to Bursalıoğlu (2000), the organization is a system that has come together to achieve a specific purpose and is ready for action. Important points that stand out in the definitions of the organization; common goals, division of labor, hierarchy of responsibility (Schein, 1978) and people coming together voluntarily.

As long as people live together, no matter how understanding and tolerant they are, it is natural to have disagreements, communication problems and conflicts among them. Many times, conflicts between individuals and groups may arise due to various reasons. Some social and psychological needs may cause conflicts from time to time. If this conflict is not managed well, it can cause some damage to the organization. In such a situation, managers have a great responsibility. Managers should know how to resolve conflict in case of conflict. The task of the manager is to try to achieve positive results by eliminating the destructive effects of conflict. If the manager manages the conflict well, he can make this situation beneficial for the organization.

However, if it is not managed well, the conflict can cause serious problems within the organization. Such unmanageable conflicts in the work environment cause uneasiness. Conflict sources have been explained in different ways in research and thesis studies. According to Eren (1998), the main reasons that affect the occurrence of conflicts are intra-organizational dependencies, differences in goals and differences in perception. Kılıç (2001) describes the sources of conflict; task distribution, mutual obligations, lack of resources, position differences, communication problems, uncontrollability of the organization, differences in organizations and members, personal characteristics, unresolved conflicts and unfair competition systems for reward. Bursalıoğlu (2002), on the other hand, states that intra-organizational conflicts will be based on reasons such as giving more importance to position, attributing crime, paperwork and conservatism. Individuals are in constant interaction due to their position within groups and organizations. During this communication, disagreements and inconsistencies may occur if both parties have different choices and have different values, behaviors, beliefs and principles. On the other hand, conflict; It is a social process that can be seen as a contest for resources, power, status, beliefs, interests, and other aspirations (Karip, 2001).

Conflict situations in organizations are actually a must for the dynamic structure that keeps the organization alive. If there is no conflict or conflict in an organization, this does not mean that there is no problem in the organization. Because the inactivity of the organization also indicates a kind of problem. It is almost impossible to achieve positive change in stable organizations. For this reason, conflict situations occurring in organizations should not always be seen as negative. If the conflict can be managed well, we can say that there is a positive change for the organization.

Even if the conflicts that arise in organizations are seen as destructive, it is possible to contribute to the organization if it is managed well. According to Gedikli and Balcı (2005), organizational conflict can contribute to the change and development of individuals' cognitive perceptions, to increase their willingness to work, and thus to organizational productivity. According to the modern approach, conflict is seen as a positive force and important for effective performance, and it has been argued that it is necessary to encourage a certain level of conflict between groups and individuals for self-criticism, empathy, change and innovation (Mullins, 2002).

One of the most important duties of managers in order for organizations to achieve their goals that enable them to exist is to manage conflicts correctly, effectively and in the most beneficial way for the organization. An effective manager in this field is a manager who knows the sources of conflict and conflict resolution methods. According to Fairman and Clark (1983), one of the most important roles of the manager in the organization is to accept that there is a conflict in the organization and to deal with the conflict with a constructive approach in order to direct the problems that need to be managed in the organization in line with the goals of the organization. On the one hand, the diverse and diverse nature of conflicts, on the other hand, its contribution to organizational success and development, if well-managed; If it is not managed well, the risk of negative consequences for the organization makes conflict management important (Özmen, 1997).

If conflict is well managed, the organization and its members can reap many benefits. Karip (2001) these benefits; Establishing better relationships, increasing the maturity level of individuals, developing individuals' self-esteem, improving personal effectiveness and productivity, identifying problems and finding better solutions, providing organizational change, reducing stagnation, and creating a harmonious teamwork.

It is inevitable to experience some conflicts in educational organizations. In fact, according to educational scientists, it may even be beneficial to experience some conflicts in order to achieve school goals more effectively. The primary purpose of the school administrator should be to manage this inevitable conflict in a way that does not harm the goals of the school.

The administrator has to know the existing groups in his school, the relations of the groups with each other and with the members, and who the leaders of the groups are. In addition, the manager should aim to see the problem in the source that creates the input to the conflict by accepting the conflict situation as an output in the conflict resolution process (Açıkalın, 2002).

At this point, the importance of the school administrator and its effect on the process are striking in the management and resolution of conflict situations that occur in educational organizations. In the study, it was aimed to deal with the conflict resolution skills of female managers. Because the lack of women in managerial positions has been a controversial issue for a long time, and their scarcity in management status always draws attention. The idea that men have higher characteristics such as making decisions, using superiority, taking risks and being courageous while taking charge in these positions kept women one step behind in management.

This situation arises not only from the thoughts of men towards women, but also from the thoughts of women towards women. Some women stated that management is not a suitable position for women and stated that they cannot compete with men in this way (Arat, 1995; Tat, 2015).

However, women face many conflict situations in their daily lives and try to resolve these conflicts. For this reason, the idea whether female administrators can be effective in conflict resolution emerged and formed the basis for this study. The subject of the effects of female administrators in conflict situations that arise at school has been wondered and this study was needed. In this respect, the importance of this study is increasing. Factors such as who the parties to the conflict are, the importance of these people for the organization and their mental readiness have revealed that not every conflict can be resolved by using similar methods. Here, the characteristics that distinguish women from men, such as intuitive powers, feminine abilities, and the strength they display in coping with difficulties, come to mind. For this reason, the effects of female administrators in conflict situations were examined.

Purpose of the Research

People experience many conflict situations throughout their lives. The aim of this research is to obtain findings about how female administrators resolve conflict situations in these conflict situations, which are seen in educational organizations as in every organization. Within the scope of the purpose of this study, answers to the following research questions will be sought:

- What kinds of conflict situations do teachers encounter in schools?
- In cases of conflict between teachers and parents, what is the effect of female administrators in resolving this conflict?
- What is the effect of female administrators in resolving this conflict in situations where teachers have conflicts with their colleagues?
- In cases of conflict between teachers and students, what is the effect of female administrators in resolving this conflict?
- What is the effect of female administrators in resolving this conflict in situations where teachers have conflicts with higher authorities?
- What are the positive effects of female administrators compared to male administrators in conflict situations in schools?
- What are the positive effects of female administrators compared to male administrators in conflict situations in schools?

Importance of Research

With this research, it is aimed to examine the conflict resolution skills of female school administrators working in 4 schools, which are determined as 1 kindergarten, 1 primary school, 1 secondary school and 1 high school in Osmangazi district of Bursa, and what kind of difference is found in these conflict resolution skills compared to male school administrators is intended to reach.

In different studies, it has been frequently emphasized that women do not take enough place in managerial positions and that they remain in the background compared to men in management and decision-making processes. However, the study of Neft and Levine (1997) states that female managers establish good relations with group members and support the individuals in their team. Bass and Avolio (1994) discussed eighty different characteristics in the transformational leadership style as male and female; They found that female managers encourage their subordinates to increase their efforts more, and that female managers tend to be more sensitive, more compassionate, and more concerned than men (Owen at al., 2004). For this reason, it is important to investigate the effectiveness of female administrators in resolving and managing conflict situations that may occur at any time in educational environments and in the outcome of them in favor of the institution.

METHOD/MATERIALS

If it is desired to learn the reasons of a person's behavior and his thoughts or feelings about any situation, the most appropriate method is to get information from this person. It is possible to learn about the thoughts, feelings or opinions of the person, thanks to the free and comfortable answers to the open-ended questions directed to him. In this context, the 'interview' method stands out as a research technique that will provide data of different quality and depth compared to other methods. As a research technique, interview is a controlled verbal communication between the researcher and the person for a specific purpose (Cohen & Manion, 1994).

The universe of the study consists of teachers working in kindergarten, primary school, secondary school and high school in our country. İt is not possible to reach the universe, teachers from different branches who actively work in public schools in the Osmangazi district of Bursa province were selected as the accessible universe. The study group consisted of 5 boys, 15 working in 1 kindergarten, 1 primary school, 1 secondary school and 1 high school (Yunuseli Kindergarten, Lütfi Banuşoğlu Primary School, Erdem Beyazıt Secondary School and Bursa Anatolian Girls' High School) determined in the Osmangazi district of Bursa province in the 2021-2022 academic year. It consists of a total of 20 teachers consisting of women.

Data Collection Tools

It is about one-to-one information about the form, about the 7-item interview formula as a data collection tool, about planning for the future (Karasar, 2009). In accordance with qualitative research, open-ended questions were asked in order to enable the participants to think independently and to carry out the data collection process successfully; In this way, it was possible to ask additional questions when necessary. Care was taken to examine a different situation regarding the conflict resolution skills of female administrators for each of the interview items. In the process of developing the items in the interview form, first of all, the literature on the subject was searched, and the criteria that could guide the research were determined and draft scale items were written in accordance with the prepared specification table.

Tablo 1. Questions in the interview form

EXPRESSIONS
1- *What kind of conflicts do you experience the most in your school? Can you give 3 examples of these conflict issues?*
*
*
*
2- What do you think is the effect of your female administrator in resolving this conflict in case of conflicts with parents at your school? please specify
3- In your school's conflict situations with other teachers, what do you think is the effect of your female administrator in resolving this conflict; please specify
4- What do you think is the effect of your female administrator in resolving this conflict in case of conflicts with students at your school? please specify

EXPRESSIONS
5- What do you think is the effect of your female administrator in resolving this conflict in case of conflicts with higher authorities in your school? please specify
6- Please indicate below what are the positive effects of female administrators on conflict situations in your school compared to male administrators.
7- What are the negative effects of female administrators on conflict situations in your school compared to male administrators, please specify below.

Data Analysis

In the data collection process, firstly, one-on-one interviews were conducted with the participants and all the data collected in the light of the participants' answers were written down by the researcher in a computer environment. The obtained data were analyzed using the content analysis technique. Afterwards, the answers, which were turned into written documents by the researcher, were submitted to the control of the participants, and in this way, the feeling that the research was progressing in a "transparent and reliable" way was tried to be given to the participants. At the beginning of each interview with the participants, detailed information was given about the purpose of the research, the progress of the process and the method to be used, thus it was aimed to explain to the participants that the research was "transferable".

In order to get in-depth opinions from the participants during the interviews, "problem questions" were used by the researcher and it was aimed to enrich the data source in this way. The necessary sensitivity was paid to ensure that the participating teachers were in a suitable environment and in the presence of an audience, in line with their capacities and abilities, to be able to express themselves comfortably in line with their capacities and abilities, to evaluate the issues discussed, and to have the opportunity to prepare before the interview, in accordance with the literature. In the study, similar answers received from the participants were classified, and the frequencies of these answers in the total ratio were shown in tables. The answers given to each item were discussed and interpreted in the tables. Attention was also paid to ensure the "coder reliability" of the study.

Encoder reliability; While it can be explained as the coding action performed by different coders on the same data or the percentage of agreement between two different codings performed by the same coder at different times, category clarity is the classification made in accordance with the literature, clear and understandable (Bilgin, 2014; Sönmez & Alacapınar, 2016). For this reason, care has been taken to ensure that the codes created in order to ensure category clarity are compatible with the literature.

FINDINGS

In this section, the findings obtained as a result of the opinions received from the participants based on the questions asked in the research are included. The answers given to the research questions were arranged in line with the answers from 20 participants for each question, and some statements made by the participants were presented in quotation marks.

Findings for Research Question 1

Question 1 “What kind of conflicts do you experience the most in your school? Can you give 3 examples of these conflict issues?”

The answers to this question are presented in Table-2 according to the frequency of recurrence.

Table 2. The Most Common Conflict Types in Schools and Their Frequency of Recurrence

Subject of Conflict	Recurrence Frequency
Administration-teacher conflict	5
Teacher-parent conflict	11
Parent-parent conflict	2
School cleaning	2
Division of labor and joint decision making	12
Curriculum	5
Disciplinary events	14

14 of the 20 participants stated that they saw the most disciplinary incidents among the conflict types seen in schools. We can say that the issue of disciplining students in schools and efforts on this issue cause conflicts. While all of the high school and secondary school teachers gave priority to this issue, only one of the primary school teachers did not mention the discipline issue. None of the teachers working in the kindergarten talked about conflict situations related to disciplinary issues. Discipline, one of the conflicts seen in schools, was explained by the participants with different examples under the same title.

Findings for Research Question 2

Question 2 “In cases of conflicts with parents at your school, what do you think is the effect of your female administrator in resolving this conflict? Please specify.”

The codes for the answers given by the participants to this question are presented in Table 3.

Table 3. In cases of conflict with parents, female administrators are under the influence of this conflict.

Effects of female managers on conflict	Positive	Negative	Total
Clear and effective speech	-	1	1
Being moderate	5	1	6
Empathizing	1	-	1
Being solution oriented	5	-	5
Good communication	2	-	2
Being cautious	1	-	1

In cases of conflict with parents, the most mentioned issue by the participants about the effect of female administrators in resolving this conflict was "being moderate". Participants who expressed their opinions on this subject mostly stated that female administrators act more moderately than male administrators in conflict situations with parents, which has a positive effect on the resolution of conflict. Only 1 participant expressed a negative opinion on this issue and said that female administrators acted too moderately, which prevented them from being effective in conflict resolution. The issue of being solution-oriented stands out as another prominent female manager feature. Participants who expressed their opinions on this subject stated that women managers generally exhibit a solution-oriented attitude during conflict, and this situation has a positive effect on the resolution of the conflict.

Findings for Research Question 3

Question 3 “In cases of conflicts with other teachers at your school, what do you think is the effect of your female administrator in resolving this conflict? Please specify.”

The answers given by the participants regarding the question are presented in Table:4.

Table 4. The effect of female administrators in resolving this conflict in cases of conflict with teachers

Effects of female managers on conflict	Positive	Negative	Total
Being moderate	3	-	3
Multidimensional thinking	2	-	2
Dominant character display	-	2	-
Empathizing	3	-	3
Being fair	3	-	3
Being experienced	-	1	1
Being a mediator	2	-	2
"I know" attitude	-	1	1

In the conflict situations experienced by the teachers at school, in the participant views on the effects of female administrators on resolving this conflict, it was found that female administrators were moderate, had high empathy, and were fair when looking for a solution in case of conflict. 2 participants stated that female administrators can think multi-dimensionally in resolving conflict situations that occur between teachers, and this situation has a

positive effect on conflict resolution. Again, 2 participants stated that female managers were successful in finding creative solutions and that they could produce new solutions by looking at the problems from a different perspective.

Considering the negative opinions, 2 participants stated that they were insufficient in resolving conflicts due to the dominant character of female managers; One participant, on the other hand, stated that the female administrators were insufficient in resolving the conflict situations between the teachers because they were not as experienced as the male administrators. And One participant also stated that female administrators have an "I know" attitude and because of this attitude, they are inadequate compared to male administrators in resolving conflicts.

Findings for Research Question 4

Question 4: "In cases of conflicts with students at your school, what is the effect of your female administrator in resolving this conflict? Please specify."

The answers given by the participants regarding this question are presented in Table:5.

Table 5. The effect of female administrators in resolving this conflict in cases of conflict with students

Effects of female managers on conflict	Positive	Negative	Total
Show maternal affection	5	-	5
Communicate effectively	3	-	3
Empathizing	3	-	3
Being result oriented	2	-	2
Being polite	3	-	3
Being open to cooperation	2	-	2
Being effective	-	2	2

When asked about the effects of female administrators on the effects of teachers on resolving conflicts in conflict situations with students, the participants stated that the highest percentage of female administrators approached students with maternal affection and this had a positive effect on conflict resolution. When we look at the findings regarding the opinions, the participants also stated that female administrators provide effective communication, empathy, attention to being result-oriented and behaving politely in cases of conflict between students and teachers. These considerations show that the effects of female managers are positive in times of conflict. Two participants, who gave negative opinions, stated that female administrators were not effective enough on students in their opinions.

Findings for Research Question 5

Question 5 "In cases of conflicts with higher authorities at your school, what do you think is the effect of your female administrator in resolving this conflict? Please specify."

The findings regarding the answers of the participants regarding this question are presented in Table 6.

Table 6. The effect of female managers in resolving this conflict in conflict situations with higher authorities

Effects of female managers on conflict	Positive	Negative	Total
Acting as an ambassador	3	-	3
Being sensitive	4	-	4
Being solution oriented	5	-	5
Being constructive	3	-	3
Inactivity	-	3	-
Being a defender	2	-	2

Regarding the effects of female managers in resolving these conflicts in conflict situations with higher authorities, 5 participants stated that female managers are solution-oriented. In cases of conflict with the higher authorities, 4 participants stated that female managers behave very sensitively and sensitively. 3 participants stated that female administrators acted as ambassadors in situations of conflict with higher authorities, and they were successful in

conveying the requests and complaints of teachers to higher authorities. Three of the participants stated that female managers acted constructively. It is seen that only two participants said that female managers remained passive regarding conflict situations with higher authorities.

Findings for Research Question 6

Question 6 “What are the positive effects of female administrators compared to male administrators in conflict situations in your school? Please specify.”

The findings regarding the answers of the participants regarding this question are presented in Table 7.

Table 7. Positive effects of female managers compared to male managers in conflict situations

Positive effects of female managers compared to male managers	Recurrence Frequency
Different perspective	1
Multidimensional thinking	3
Being objective	2
Being considerate	3
Being calm	2
Being moderate	1
Pensive thinking	4
Empathizing	1
Being constructive	1
Emotional bonding	1
Positive social relationships	1

The headline that stands out as having the highest frequency of repetition in the participant views on the positive effects of female administrators on conflicts occurring in schools compared to male administrators; women managers have had more subtle thinking. Participants emphasized that female managers think more carefully than male managers, and therefore they are more successful in resolving conflicts. When we look at this issue in general, it can be said that all of the participants responded in a way that supports the positive effects. There was no participant who answered the question negatively, saying "I don't think there is a positive effect," or abstaining by saying "I don't know". The most frequently repeated answer of women's thinking more carefully shows that in conflict situations, the well-intentioned and attentive behaviors of any party will have a positive effect on the conflict. It is seen that some of the characteristics that women have in general have beneficial results if they are used in conflict situations.

Findings for Research Question 7

Question 7 “What are the negative effects of female administrators compared to male administrators in conflict situations in your school? Please specify.”

The findings regarding the answers given by the participants to this question are presented in Table 8.

Table 8. Negative effects of female managers compared to male managers in conflict situations

Negative effects of female managers compared to male managers	Recurrence Frequency
None	7
Too merciful and motherly approach	5
Sensuality	6
Inability to hide tension	1
Getting hung up on details	2
Projecting personal intimacy into conflicts	1

When the participants were asked about the negative aspects of female administrators compared to male administrators in conflict situations in schools, it was striking that 7 participants answered "no". We see that 6 participants answered this question under the code of sentimentality. The general judgment of the participants who

answered in this direction is that female managers approach the events emotionally and decide under the influence of these feelings. All three of the participants who supported the research stated that the over-compassionate and motherly approach of female administrators in conflict situations had a negative effect on conflict resolution. Two participants, on the other hand, mentioned that female administrators were obsessed with details while resolving conflicts. According to these participants, it is stated that female managers are obsessed with details as a situation that is observed more frequently compared to male managers and affects conflicts negatively. Again, 1 participant stated that female managers were not as successful as male managers in hiding their tensions, and 1 participant stated that female managers reflected their previously established personal closeness to the conflict as a negative situation.

DISCUSSION

In this study, the importance of having open communication, displaying a solution-oriented attitude, being moderate and understanding in the constructive resolution and management of conflicts occurring in school environments has been revealed once again in this study. With these features, we can say that female administrators play an active role in conflicts in educational institutions. The situations that can be considered negative regarding female managers in conflicts are stated as emotional approach, obsession with details and not being able to have the expected effect on individuals.

One of the most important limitations of the research is that the results are not "generalizable" due to the small number of participants. In addition to this situation, the fact that all of the participants were teachers provided the "groupability" of the answers, even though they were at different levels. In addition, in order to be clearer about the conflict resolution skills of female managers; In future studies, more detailed information can be consulted with questions to be prepared regarding conflict resolution processes.

After the causes of conflicts are determined, the differences between male and female managers can be handled more concretely by making a content analysis of conflict issues and clarifying the behaviors and skills of managers regarding conflict. Thus, it will be possible to reach more detailed data on the role of female administrators in conflicts in schools.

Since this research aimed to draw a general framework about the place and importance of female administrators in conflict situations seen in educational institutions, general questions were asked to the participants about the conflict resolution skills of female administrators in conflicts they experienced. However, for future research; In order to solve this issue, it can be suggested to examine in detail the differences between the styles adopted by male and female managers and the significant differences between male and female managers from the beginning to the end of the conflict process. In this way, it may be possible to organize the information obtained about the conflict process in a comparative and systematic way.

According to the results of the study, it has been concluded that many different conflict situations are seen in schools, and that female administrators have positive effects in the resolution of these conflicts, according to the opinion of the teachers. It is important for a positive school climate to be created in schools that teachers receive support from their administrators in conflict situations and that female administrators play an active role in resolving conflicts. It is obvious that women who manage to cope with many difficulties in life can also resolve conflicts that may arise in business life and at every level of management. However, more detailed studies on larger samples are needed in order to obtain more data on the attitudes of female school administrators. Undoubtedly, this study is only a preliminary study on the studies and methods that can be handled on the subject.

CONCLUSION AND RECOMMENDATIONS

As a result, managerial characteristics according to the attitudes of female administrators in conflict situations; being moderate, being solution-oriented, being compassionate and motherly, supporting employees, thinking carefully and being polite. According to Sarper (2021), individual characteristics such as being determined, willing and cautious, constantly improving oneself, and having a high perception of self-efficacy are important for the successful conclusion of all managerial processes for women. This view also supports the findings we obtained as a result of our study. In the literature research, it has been observed that there are a limited number of studies on the conflict resolution skills of female managers. However, women who are faced with a process management in all areas of life and who have to develop themselves instinctively in this area will be able to resolve the conflict situations they encounter while being a manager in the same way. In addition, it has been found that women are seen as suitable for kindergarten teacher or primary school teaching due to their motherly nature, and they are also

guided in the field of management that they are more suitable for kindergarten or primary school. (Sarper, 2021) For this reason, the positive aspects of women, who have started the work of educating children since infancy, should be considered as administrators at all levels of our schools, which are education centers.

Recommendations Based on Research Results

1. It would be right for school administrators to act by considering every conflict and to try to find a solution for every conflict.
2. It should be ensured that teachers exchange ideas in order to use conflict management strategies effectively in meetings to be held at certain intervals in schools, and mutual goodwill should be reinforced.
3. In educational organizations, it is thought that it will be beneficial for the school administrators and teachers to increase their conflict management skills with various printed publications or in-service training programs on conflict management.
4. The expectation of teachers from administrators, regardless of whether they are male or female, in conflict situations is to know that they are understood and supported. The approach of administrators to conflicts in this context will be beneficial in terms of teacher-administrator relations.
5. Developing different and effective projects and studies on disciplinary problems that cause conflict situations in schools will be effective in eliminating these problems.
6. It will be useful for school administrators to be more attentive to the division of labor among teachers and to take a middle position and to prevent negative situations that may arise in this regard.
7. It would be beneficial for female school administrators to approach conflict situations with a more professional point of view, away from emotionality.

Suggestions for Future Research

1. The research is limited to 4 schools in Osmangazi district of Bursa province. For this reason, it is recommended to be repeated in different provinces and with different samples. In addition, it is thought that it will be useful to apply the research subject in public schools to private schools and to compare the data obtained..
2. A study can be conducted to compare the conflict resolution skills of female and male school administrators.
3. A study can be conducted to increase the awareness of school administrators about conflict resolution.
4. A study can be conducted to investigate the effects of teachers' conflicts in schools on their performance and motivation.
5. A study can be conducted on the effects of female school administrators on the formation of a positive school climate.

Declaration of Conflicting Interests

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

Funding

The authors received no financial support for the research, author-ship, and/or publication of this article

Statements of publication ethics

We hereby declare that the study has no unethical issues and that research and publication ethics have been observed carefully.

Researchers' contribution rate

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

REFERENCES

Abacıoğlu, M. (2005). *Okul müdürlerinin çatışma yönetimi stilleri ile okul kültürü arasındaki ilişkinin incelenmesi* [Yayımlanmamış Yüksek Lisans Tezi]. Yıldız Teknik Üniversitesi Sosyal Bilimler Enstitüsü, İstanbul.

Açıkalın, A. (2002). *İnsan kaynağının yönetimi geliştirilmesi*. Pegem.

Akçakaya, M. (2003). Çatışma Yönetimi ve Örgüt Verimliliğine Etkisi. *Kamu-İş İş Hukuku ve İktisat Dergisi.* 7, 225-249

Akgün, E. (2009). *Örgütlerde çatışma ve yabancılaşma sorunlarının yönetimde etkili bir araç olarak yönetime katılma*. İ.Ü. İşletme Fakültesi.

Alpay, M. Ü. (2019). *Ortaokul yöneticilerinin liderlik stillerinin okul iklimi açısından incelenmesi* [Yüksek Lisans Tezi]. Uşak Üniversitesi, Sosyal Bilimler Enstitüsü, Uşak.

Arat, N., (1995). *Türkiye'de kadın olgusu*. Say Yayınları.

Arıkal Gönül, Ö. (2013). *Örgütsel çatışma çözme yöntemleri: A-tipi kişilik, kontrol odağı ve özgeci davranış* [Yayımlanmamış yüksek lisans tezi]. Ankara Üniversitesi, Sosyal Bilimler Enstitüsü. Ankara.

Arslantaş, H. İ., & Özkan, M. (2012). İlköğretim okullarında görev yapan öğretmenlerin görüşlerine göre okul müdürlerinin çatışma yönetimi yaklaşımlarının incelenmesi. *Kastamonu Eğitim Dergisi, 20*(2), 555-570.

Aydın, M. (1994). *Eğitim yönetimi*. Hatipoğlu Yayınevi.

Bal, D. (2008). *İlköğretim okulu yöneticilerinin öğrenci çatışmalarını yönetmede kullandıkları çatışma yönetim stratejileri* [Yüksek Lisans Tezi]. Süleyman Demirel Üniversitesi, Eğitim Bilimleri Enstitüsü, Isparta.

Bayar, A. (2015). Bir örgüt olarak okulda meydana gelen çatışma nedenleri ve çözüm yollarına yönelik okul müdürlerinin görüşleri. *Sakarya University Journal of Education, 5*(3), 130-141.

Bakioğlu, A., & Özcan, K. (2001). İlköğretim okul yöneticilerinin kariyer gelişimleri. *Kuram ve Uygulamada Eğitim Bilimleri,* 1(1), 39-57.

Bass, B. & Avolio, B.(1994). *İmproving organizational effectiveness through transformational leadership.* CA: Thousand Oaks.

Bilgin, N. (2014). *Sosyal bilimlerde içerik analizi: teknikler ve örnek çalışmalar.* Siyasal Kitabevi.

Bursalıoğlu, Z. (2002). *Okul yönetiminde yeni yapı ve davranış*. Pegem.

Bozkurt, Ö. & Ergun, T. (1998), *Kamu yönetimi sözlüğü*, Sezen, S. (Ed.).TODAİE Yayınları.

Can, H. (1997). *Organizasyon ve yönetim*. Siyasal Kitapevi

Çatakdere, K. (2014). *Öğretmen algılarına göre ilköğretim kurumları (ilkokul-ortaokul) yöneticilerinin çatışma yönetimi stratejileri ile örgüt iklimi arasındaki ilişki (izmir ili bayındır-tire ilçeleri örneği*) [Yüksek Lisans Tezi]. Okan Üniversitesi, Sosyal Bilimler Enstitüsü, İstanbul.

Çepni, S. (2005). *Araştırma ve proje çalışmalarına giriş*. Üçyol Kültür Merkezi.

Çiftci, D. Ö., & Erkanlı, H. (2020). Liderlik yönelimlerinin çatışma çözme stratejileri üzerindeki etkisi. *İşletme Araştırmaları Dergisi, 12*(4), 3930-3946.

Demir, Y. (2008, Mart 12). *İşletmelerde çatışma süreci ve bu sürecin örgütsel yapı açısından değerlendirilmesi*. http://paribus.tr.googlepages.com/y_demir.rtf

DiPaola, M. F. & Hoy, W. K. (2001). Formalization, conflict, and change: Constructive and Destructive Consequences in schools. *International Journal of Educational Management.* Vol. 15 No. 5, pp. 238-244. https://doi.org/10.1108/EUM0000000005512

Düzyol, S. & Ada, Ş.(2004). Öğretmenlerin politik becerileri ile çatışma yönetimi stratejilerini kullanımları arasındaki, ilişki. *Iğdır Üniversitesi Sosyal Bilimler Dergisi, 1*(28), 452-469.

Erden, N. S. (2017) Çatışma olgusuna genel bakış: Nitel bir araştırma. *ASOSJOURNAL The Journal of Academic Social Science (Uluslararası Sosyal Bilimler Dergisi),* Vol. 5, 59-76.

Eren, E. (1998). Örgütsel davranış ve Yönetim Psikolojisi. Beta Basım Yayım, Genişletilmiş Beşinci Baskı, İstanbul.

Erdoğan, İ. (2008). *Eğitim ve okul yönetimi* (7. b.). Alfa.

Etzioni, A. (1964). *Modern Organizasyonlar*. Englewood Cliffs, NJ: Prentice-Hall.

Everard, K. B., Morris G. and Wilson, I. (2004). *Effective school management.* Paul Chapman Publishing.

Fairman, M. & Clark, E. (1983). Commonsence strategies for managing conflicts. *National Association of Secondary School Principals Bulletion, 67*(9) 93-102.

Fırat, S. (2010). *Öğretmen algılarına göre ortaöğretim okul müdürlerinin kullandıkları çatışma yönetimi stratejilerinin bazı değişkenlere göre incelenmesi*, [Yüksek Lisans Tezi]. Ege Üniversitesi, İzmir.

Gedikli, N. ve Balcı, V. (2005). Doğa sporları kulüplerinde örgütsel çatışmanın nedenleri ve kullanılan çatışma yöntemi stratejileri. *Spormetre Beden Eğitimi ve Spor Bilimleri Dergisi, 3* (1), 35–45.

Günbayı, İ. & Karahan, İ. (2006). İlköğretim Okulu öğretmenlerinin kurum içi çatışmaları yönetim biçimleri. *Afyon Kocatepe Üniversitesi Sosyal Bilimler Dergisi, 8 (1), 531-548*

Gümüşeli, A. İ. (2001). İlköğretim okulu müdürlerinin çatışma yönetim stilleri ile öğretmenlerin iş doyumu arasındaki ilişki. *Akdeniz Üniversitesi Eğitim Fakültesi Dergisi, 53(3), 1023-1050.*

Izgar, H. (2016). Okul yöneticilerinin çatışma çözme stilleri üzerinde bir inceleme. *Bayburt Eğitim Fakültesi Dergisi, 8*(2), 107-122.

Johnson, D.W., Johnson, R. (2001). Teaching Students to Be Peaceful: Results from Twelve Years of Research, Paper Presented at the Annual Meeting of the American Educational Research Association., *Seattle, WA, 10-14 April.*

Jonkman, N. (2006). Conflict management by principals in selected soshanguve secondary schools. [Unpublished master's thesis]. Tshwane University of Technology

Kahn, R. L., & Boulding, E. (1964), Power and conflict in organizations, London

Karasar, N. (2009). *Bilimsel araştırma yöntemi.* Nobel.

Karip, E. (2000) *Çatışma yönetimi*, Pegem.

Kgomo, S.M., (2006). *Conflict management of women principals in primary schools in hammanskraal, gauteng* [Master Thesis]. University of South Africa.

Kılıç, M. (2001). Yönetim ve Organizasyon, Güney, S. (Ed.). Nobel.

Kılınç, T. (1985) Örgütlerde çatışma mahiyeti ve nedenleri. *İstanbul Üniversitesi İşletme Fakültesi Dergisi, 1*(11) s.103–124.

Kırel, Ç., Özkalp, E., (1996). *Örgütsel davranış*. Anadolu Üniversitesi Eğitim Sağlık ve Bilimsel Araştırma Çalışmaları Vakfı Yayınları.

Koçel, T. (1998). *İşletme yöneticiliği*. Beta Yayınları.

Korkmaz, S. (1994). Çatışma yönetimi ve verimlilik. *Verimlilik Dergisi, 1*(1), 77-94

Kütükcü, A. (2017). Türkiye'de kadın liderlik alanında yapılan lisansüstü tezlerin incelenmesi. *Kadın Araştırmaları Dergisi, 1*(15), 26-47.

Maral, M. (2016). Okul yöneticilerinin liderlik stilleri ile çatışma çözme stratejileri arasındaki ilişki (Master's thesis, Sakarya Üniversitesi).

Metin, G. (2020). *Kadın okul yöneticilerinin liderlik stilleri ile okul iklimi arasındaki ilişki* [Yüksek Lisans Tezi]. KMÜ, Sosyal Bilimler Enstitüsü, Eğitim Bilimleri Ana Bilim Dalı, Karaman.

Mullins, J. L. (2002). *Management and organisational behaviour*. Sixth Edition Harlow: FT Prentice Hall.

Msila, V. (2012). Conflict management and school leadership. *Journal of Communication, 3*(1), 25-34.

Neft, N., & Levine, A. D. (1997). Where women stand: an international report on the status of women in 140 countries, 1997-1998. Random House, New York.

Nural, E., Ada, Ş. & Çolak, A. (2012). Öğretmen algılarına göre okul müdürlerinin kullandıkları çatışma yönetimi yöntemleri. *Atatürk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 16*(3), 197-210.

Oğuz, Y. (2007). *Okul müdürlerinin demografik değişkenler ve kişilik özellikleri ile çatışma yönetimi stili tercihleri arasındaki farklılıklar ve ilişkiler*, [Yüksek Lisans Tezi]. Yıldız Teknik Üniversitesi Sosyal Bilimler Enstitüsü,İstanbul.

Owen, H., Hodgson, V., & Gazzard, N. (2004). *The leadership manual: Your complete practical guide to effective leadership*. Pearson Education.

Öner, U. (2004). İlköğretimde rehberlik. Yıldız Kuzgun (Ed.), *Çatışma Çözme ve Arabuluculuk Eğitimi* (ss. 189-227). Nobel .

Özel, H. (2019). Kadın okul yöneticilerinin iş-aile ve aile-iş çatışmalarına ilişkin algıları.

Özgan, H., (2006). *İlköğretim okulu öğretmenlerinin çatışma yönetimi stratejilerinin incelenmesi (gaziantep örneği),* [Yayınlanmamış Yüksek Lisans Tezi]. Gaziantep Üniversitesi Sosyal Bilimler Enstitüsü, Gaziantep.

Özmen, F. (1997). *Fırat ve inönü üniversitelerinde örgütsel çatışmalar ve çatışma yönetimi yaklaşımları* [Yayınlanmamış Doktora Tezi] Fırat Üniversitesi, Sosyal Bilimler Enstitüsü, Elazığ.

Özmen, F., Aküzüm, C. & Aküzüm, L. (2011). Yönetici görüşlerine göre, okul mensuplarının okullardaki çatışma sonuçlarına yönelik tavır alışları. *Dicle Üniversitesi Ziya Gökalp Eğitim Fakültesi Dergisi, 1*(16), 86-100.

Övün, Y. (2007). *Okul müdürlerinin algılanan çatışma yönetim stilleri ve öğretmenlerde oluşturduğu stres düzeyi (gebze örneği.* [Yayımlanmamış Yüksek Lisans Tezi]. Yeditepe Üniversitesi Sosyal Bilimler Enstitüsü, İstanbul.

Patton, M. Q. (2014). *Nitel araştırma ve değerlendirme yöntemleri.* (Çev. Bütün, M. ve Demir, S.B.). Pegem.

Rahim, M. A., Antonioni, D., & Psenicka, C. (2001). A structural equatıons model of leader power, subordınates'styles of handlıng conflıct, and job performance. *International journal of conflict management.* 2(3):191-211.

Rahim, M. A., Magner, N. R., & Shapiro, D. L. (2000). Do justice perceptions influence styles of handling conflict with supervisors? What justice perceptions, precisely? *International Journal of Conflict Management.* 11(1):9-31

Rahım, M.A., (2002). Toward a Theory of managing organizational conflict. *The İnternational Journal Of Conflict Management, 13* (3), s.206-235.

Sabuncuoğlu, Z. ve Tüz, M. (2021). *Örgütsel psikoloji.* Ezgi Kitabevi.

Sarper Adıgüzel, A. *Kadın okul yöneticilerinin yönetici olma süreçlerine ilişkin görüşleri.* [Yayımlanmamış Yüksek Lisans Tezi]. Akdeniz Üniversitesi, Eğitim Bilimleri Enstitüsü, Antalya

Sarpkaya, R. (2002). Eğitim örgütlerinde çatışma yönetimi ve bir örnek olay. *Kuram ve Uygulamada Eğitim Yönetimi Dergisi, 31*, 414-429.

Sönmez, V. & Alacapınar, F.G. (2016). *Sosyal bilimlerde ölçme aracı hazırlama*. Anı Yayıncılık.

Süküt, S. (2008). *İlköğretim okulu yönetici ve öğretmenlerinin çatışma çözme stratejilerinin karşılaştırılması (pendik ilçesi örneği)* [Yayınlanmamış yüksek lisans tezi]. Yeditepe Üniversitesi, Sosyal Bilimler Enstitüsü, İstanbul.

Şahan, İ. (2006). *Okul müdürlerinin çatışma yönetim stilleri ve bunun öğretmen stres düzeylerine etkisi* [Yayımlanmamış Yüksek Lisans Tezi]. Yeditepe Üniversitesi, Sosyal Bilimler Enstitüsü, İstanbul.

Shakeshaft, C. (1989). *Women in educational administration*. Newbury park, CA: Sage

Schein, E. (1978). *Örgüt psikolojisi*. TODAİE Yayınları.

Şimşek, M. Ş. (2002) Yönetim ve organizasyon, Günay Ofset Yayınları.

Şimşek N. (2019) *İlkokul ve ortaokul yöneticilerinin çatışma çözme stilleri hakkında öğretmen görüşleri* [Yüksek Lisans Tezi]. Okan Üniversitesi, Sosyal Bilimler Enstitüsü, İstanbul.

Şimşek, Y. (2014). Okul müdürlerinin iletişim becerileri ile okul kültürü arasındaki ilişki (Eskişehir Örneği) (Doctoral dissertation, Anadolu University (Turkey)).

Tat, F. (2015). *Kadın yöneticilerle çalışan öğretmenlerin ve yöneticilerin kadın yöneticilerin yeterliklerine ilişkin görüşleri* [Yüksek lisans tezi]. Fırat Üniversitesi, Eğitim Bilimleri Enstitüsü, Elazığ.

Taymaz, H. T. D., & Gümüşeli, A. İ. Y. *İzmir ortaöğretim okulları yöneticilerinin öğretmenler ile aralarındaki çatışmaları yönetme biçimleri* [Doctoral dissertation]. Ankara Üniversitesi Sosyal Bilimler Enstitüsü, Ankara.

Thomas, K.W., (1977) Toward multi-dimensional values in teaching: The example of conflict behaviors, The Academy of Management Review, 2(3).

Tüzel, E. (2014). *Eğitim örgütlerinde kadın yöneticilerin kariyer engellerinin incelenmesi [*Ankara ili örneği). Yayınlanmamış doktora tezi]. Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara.

Yatkın, A. (2008). *Örgütsel çatışmanın ve performans değerlemenin işgören performansına etkileri*. *Fırat Üniversitesi Doğu Araştırmaları Dergisi, 6*(2), 6-18.

Yıldırım, A. (2005). *Empati ve çatışmalar*. Yargı Yayınevi.

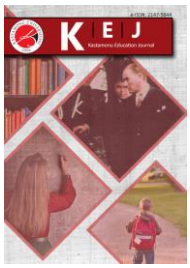
Yıldırım, A ve Şimşek, H (2006). *Sosyal bilimlerde nitel araştırma yöntemleri*. Seçkin Yayıncılık.

Yıldırım, G., & Bozkurt, A. T. (2019). Yıldırma (Mobbing) Kavramına İlişkin Kadın Okul Yöneticilerinin Görüşlerinin İncelenmesi. Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi, (50), 413-426.

Yılmaz, K.Ö. (2015) *İlkokul yöneticilerinin ve sınıf öğretmenlerinin çatışma çözme becerileri ile stresle başa çıkma yöntemleri arasındaki ilişki* [Yüksek Lisans Tezi]. İstanbul Sabahattin Zaim Üniversitesi Sosyal Bilimler Enstitüsü, İstanbul.

Yılmaz, S. (2014). Okul yöneticilerinin çatışmayı yönetme stilleri ile müzakere becerileri arasındaki ilişki [Doctoral dissertation], Harran Üniversitesi Sosyal Bilimler Enstitüsü, Şanlıurfa.

Kastamonu Education Journal, 2024, Vol.32, No:1, 85-96
doi: 10.24106/kefdergi.1426493



| Research Article / Araştırma Makalesi |

Analysis of The Quantum Leadership Behavior of School Principals Through Metaphor

Metafor Yoluyla Okul Müdürlerinin Kuantum Liderlik Davranışlarının Analizi

Methi Çelik[1], **Şefika Şule Erçetin**[2]

Keywords
1.Metaphor
2.Quantum
3.School Principal
4.Leadership

Anahtar Kelimeler
1.Metafor
2.Kuantum
3.Okul müdürü
4.Liderlik

Received/Başvuru Tarihi
17.10.2022

Accepted / Kabul Tarihi
30.11.2023

Abstract

Purpose: This research aims to reveal the perceptions of school principals working in different school types about their quantum leadership behavior through metaphors.

Design/Methodology/Approach: This study was prepared by analyzing the data obtained by using qualitative research patterns to determine the current situation. Qualitative research methods were used to collect, analyze and interpret the data obtained during the research process. The study group of the research consists of a total of 40 public schools and 42 volunteer teachers from preschools, primary schools, secondary schools, and high schools in Çankaya district of Ankara in the 2020-2021 academic year.

Findings: The teachers in the study group were asked to complete the sentence in writing as "The school principal is like ..., because ..." as a quantum leader, together with the information form that was prepared in advance and included "quantum leadership behaviors". Participants were also asked to write down their gender, type of school they work at, branch, and professional seniority.

Highlights: As a result of the research, it was seen that school principals, unlike in other fields, created more *"interaction areas in the leader-tracker dilemma* " and produced the most metaphors in this direction.

Öz

Çalışmanın amacı: Bu araştırma ile farklı okul türlerinde görev yapan okul müdürlerinin kuantum liderlik davranışı sergileme durumlarına ilişkin öğretmen algılarının, metaforlar aracılığı ile ortaya çıkarılması amaçlanmıştır.

Materyal ve Yöntem: Bu çalışma, mevcut durumun belirlenmesi amacıyla nitel araştırma desenleri kullanılarak elde edilen verilerin analiz edilmesiyle hazırlanmış bir araştırmadır. Araştırma sürecinde elde edilen verilerin toplanması, bunların analizi ve yorumlanmasında nitel araştırma yöntemleri kullanılmıştır. Araştırmanın çalışma grubu; 2020-2021 eğitim-öğretim yılında Ankara'nın Çankaya ilçesine bağlı okul öncesi, ilkokul, ortaokul ve liselerden toplam 40 devlet okulu ve burada görev yapan 42 gönüllü öğretmenden oluşmaktadır.

Bulgular: Önceden hazırlanan ve *"kuantum liderlik davranışlarının"* yer aldığı bilgi formuyla birlikte çalışma grubundaki öğretmenlerden bir kuantum lider olarak *" Okul Müdürü ... ya benzer. Çünkü …."* şeklinde verilen cümleyi yazılı olarak tamamlamaları istenmiştir. Katılımcılardan ayrıca, cinsiyetleri, görev yaptıkları okul türü, branş ve meslekteki kıdemlerini yazmaları istenmiştir.

Önemli Vurgular: Araştırma sonucunda okul müdürlerinin diğer alanlardan farklı olarak daha çok *"lider-izleyen ikileminde etkileşim alanı"* oluşturdukları, en fazla metaforu bu yönde ürettikleri görülmüştür.

[1] **Corresponded Author,** Milli Eğitim Bakanlığı, Ankara, TÜRKİYE; https://orcid.org/ 0000-0003-3806-4985
[2] Hacettepe University , Faculty of Education, Ankara, TÜRKİYE; https://orcid.org/0000-0002-7686-4863

Citation/Alıntı: Çelik, M., & Erçetin, Ş.Ş. (2024). Analysis of The Quantum Leadership Behavior of School Principals Through Metaphor. *Kastamonu Education Journal, 32*(1), 85-96. doi: 10.24106/kefdergi.1426493

INTRODUCTION

It is generally accepted that schools can be efficient if school administrators have necessary qualities and communication skills. It is also stated that students at such schools have the desired education and can be successful. Schools have been the places where younger generations acquire all types of knowledge, skills and values. It is school administrators who manage all procedures at schools. Therefore, their significance in the functioning of schools cannot be neglected. Based on this fact many countries have set up several competency areas which are must for the school administrators. These areas are taken into consideration in the selection of school administrators. Educational administration, which is an unique part of public administration, is the process of conducting educational activities under the supervision and control of the state. The school administration, which is a sub-unit of educational administration, has been established to realize the education policies of the state and the general and specific objectives set by the authorized bodies within the framework of these policies. (Kaya, 1991, p. 43). It is possible to argue that the efficiency of school administrators is closely related to their performance both in school and out of school. The school administrators have the highest responsibility in ensuring the procedures in the legal ground in schools. Bursalıoğlu argues that administration in the content of schools include the following: (1982, p. 54) (a) development of the major policies towards the main objectives of education, (b) development of the policies related to practice, (c) technical and business aspects of these policies and (d) making use of administrative processes. Given that changes will affect schools in future (Yavuz, 2016, p. 4) school administrators cannot be excluded from this change and transformation process. They are also regarded as the leaders of schools, and when they focus on their tasks and have a clear understanding of their tasks they have an opportunity to improve their schools as a result of the changes (Schlechty, 2005, p. 4). School management is an important task that requires keeping up with the current conditions of the period and prioritizing professionalism. Although it has been defined as a secondary job in addition to teaching in the regulations of the Ministry of National Education (MEB) which caused its deterioration, it should be redefined to make it a primary job (Bursalıoğlu, 1991, p. 15) which is needed for the development of society. In addition to the legal tasks school administrators have there are also unwritten expectations from them. Bergman (1998) argues that the major task of school administrators is that of being an education leader. Therefore, it can be stated that they have very significant effects on the improvement of schools, their culture and on the student achivement in addition to other points. Although all school principals are given the same level of legal authority and responsibility, it is possible to encounter different processes, practices and results at schools. Responsibility becomes active at the moment of action and is independent of one's moral qualities. When analyzed in terms of values, the leaders character in the organization is directly related to their charisma and organizational morality or moral climate. If organizations are moral orders, they are so because of the moral values of their leaders (Hodgkinson, 2008, p. 220). Based on these statements it is possible to argue that "*the key to success is school principals."* School principals are also the leaders of the stakeholders around them and also, of the schools. Both employees and students and all other people in the school's ecology have many expectations from the school principal in regard to the effectiveness, efficiency and success of the schools. It is the responsibility of the school principals to operate the education management process in the school in the most reasonable way. They are expected to exhibit many leadership types such as moral leader, instructional leader, ethical leader, transformational leader, educational leader and so on. New findings and evaluations and new analyzes are needed in the third millennium with the new paradigm that emerged as a result of the disruption and depression process. As a result of the acceptance of the necessity of being connected to a paradigm due to the nature of ordinary science (Kuhn, 2018, pp. 184-193), it seems inevitable to make evaluations using a Quantum contemporary perspective, where many paradoxical issues can be explained much more easily than the classical leadership understandings which are based on the Newtonian principles. There are significant changes in our perspectives on management and, accordingly, on educational administration In terms of school principals, new leadership approaches have emerged as a result of the needs that are different from the classical leadership types. One of such contemporary approaches is quantum leadership (Erçetin et. al. 2018, p. 110). Many problems can be explained more easily using a quantum point of view of which the basic principle is uncertainty and probability after Newton's process in which events and phenomena were handled with a precise and predictable understanding of the laws of nature and mechanically and mathematically (Taslaman, 2008, Erçetin, 2000 Serway, 1996, Crease and Goldhaber, 2016, pp. 16-22). The Newtonian structures of classical organization concepts are seen as an important obstacle in the development and transformation of organizations (Yavaş and Polat, 2013). Therefore, management scientists have developed concepts such as quantum system, quantum organization, quantum thinking and quantum leadership following the assumptions based on quantum physics. The concept of quantum leadership has been developed as a type of leadership behavior in order to cope with the chaos, complexity and crisis situations that arise in organizations with scientific methods and to cope with uncertain and unpredictable events and phenomena (Turan, 2017). There are relatively less studies on the quantum leadership. These studies are as follows: Çelik (2021), Kosa (2020), Tufan (2019), Üzüm and Uçkun (2019), Erçetin, Çevik and Çelik (2018), Şenses and Temoçin (2018), Turan (2017), Keskinkılıç Kara (2013) and Kayman (2008). It is planned to provide much more insight about the topic to the existing findings. Given that qualitative analysis was used in the study the findings are significant. Schools lay the foundations of the socialization and development of the society and can fulfill the missions they undertake if they are run with the scientific and effective management.

School principals have acquired contemporary management skills and internalized them and should manage schools with these skills. It is thought that the management styles that school principals exhibit while managing the schools affect the views and work of students, teachers and parents, who are important elements of the school. This effect can be determined by revealing how their management styles are perceived by the teachers working at the schools. Metaphors, which are applied to enrich perceptions in educational phenomenology and emerge as a creative result of theoretical thinking, can be used as a tool to determine how principals are perceived (Cerit, 2008, p. 5). In this study, teachers' perceptions of the quantum leadership behavior exhibited by the school principals are analyzed through metaphors. Quantum leadership was evaluated through the following four dimensions developed by Erçetin (2000) based on the basic assumptions regarding quantum physics.

1. Leadership is the **interaction between leaders and followers**.
2. Leadership **cannot be structured and predicted.**
3. Leadership phenomenon is **interrupted**.
4. The impact of leadership is **based on interaction**.

A school principal who exhibits quantum leadership is more likely to achieve the goals set and achieve a desired organizational ecology at the school. Therefore, these principals are more likely to be a wanted and desired administrator. They are expected to exhibit behaviors similar to those given below:

- ✓ They work with the others having a team spirit for the success of the school and convince all school stakeholders for this purpose.
- ✓ They see themselves as a member of the school community and share the leadership with their followers.
- ✓ They regard the leadership as an area of interaction and create common values.
- ✓ At school they focus on values such as unity, togetherness, integrity and cooperation.
- ✓ They provide opportunities for teachers to use initiative.
- ✓ They encourage solving problems by following untested ways.
- ✓ They create opportunities for the success of the schools from uncertainties.
- ✓ They avoid using definite statements and instead, refer to possibilities.
- ✓ They provide the opportunities for others to develop solutions for unexpected complex situations that may occur at school.
- ✓ They provide colleagues with an opportunity to evaluate their own performance.
- ✓ They have a flexible administrative approach.
- ✓ They make use of their legal authority at the minimum level to run the business..
- ✓ They improve the morale and motivation of teachers and students through their speech (Erçetin, Potas, Açıkalın and Turan 2017).

The dictionary of the Turkish Language Society defines metaphors as figurative expressions (TDK 2021). Metaphors can be defined as a way to define an unfamiliar entity using a much more familiar entity with similar qualities (Cambridge Dictionary, 2020). Metaphor is a semantic field that is constructed between terms or concepts and acquire a creative meaning with the emergence of many important features as a result of the analysis. Metaphors are both important and weird, and the importance of metaphors is weird and their weirdness is also important (Cornelissen, 2005, p. 751). Morgan (1998, p. 14) defines the metaphor as an entity which is used to comprehend any element of experience with another element of experience, as a rhetoric to embellish what we say and a way of seeing and thinking that permeates our understanding of the world. Metaphors are part of society and culture which one of the basic elements of language (Furunes and Mykletun, 2007, p. 986). Through metaphors people can understand the nature and environment and make sense of objects. Therefore, they make the people's perspectives and experiences meaningful (Yıldırım and Şimşek, 2006, p. 208). Metaphors that we use to explain an abstract and ambiguous object, phenomenon or event and their purposes are an inseparable part of our lives. Although metaphors are widely used in scientific research, literature, and everyday life, surprisingly little is known about their origin and psychological background (Gentner et. al. 2001, p. 199). We can read, understand and explain events, facts, concepts and perceptions of individuals from a wider perspective

with the help of metaphors. There are quantitative studies on revealing the level of quantum leadership behavior of school principals. In this study, the perceptions of teachers about the school principals' quantum leadership behavior were analyzed through metaphors using qualitative research methods.

Aim of the Study

In this study it is aimed to reveal teachers' perceptions about the school principals' quantum leadership behavior through metaphors.

METHOD

This study analyses the data obtained using a qualitative research design in order to determine the current situation about the study topic. Qualitative research methods were used in the collection, analysis and interpretation of the data. Using the phenomenological pattern the data were analyzed through the content analysis approach based on the approaches suggested by Wolcott concerning the analysis of qualitative data (Yıldırım and Şimşek, 2006, pp. 70-227).

Cerit, argues that people generally use metaphors when they attempt to explain a situation of which concepts and terminology are not familiar to them or are less known by them. Because metaphors can uncover unfamiliar events and facts through familiar ones (Yıldırım et. al. 2011, p. 99). It is expected to present a different perspective on this concept as a result of revealing teacher perceptions regarding the concept of quantum leadership by using metaphors, which has not been studied in detail.

Participants

The participants of the study are teachers working at public schools in Çankaya district of Ankara during the school year of 2020-2021 who participated in the study voluntarily. Ethical permissions were taken from Hacettepe University's Ethical Committee dated 28.12.2020 and nr. 1376855. A further ethical permission was taken from Ankara Provincial Directorate of National education dated 11.02.2021 and nr 20545768 in regard to the data collection. At the beginning of the selection of the participants a total of 40 schools was chosen. The teachers were selected among those who were working at these schools.

Data Collection

The participants were given an information form covering the "*behavior of quantom leaders".* They were asked to fill the blanks in the following statement: **As a quantom leader** *"school administratırs are like ... . Because …."*. Participants were also asked to write down their gender, type of school they were working at, their teaching field and professional experience. Due to the Covid-19 pandemic experienced all over the world, the data were collected through the electronic data collection tools.

Data Analysis

As stated earlier the data were collected using the qualitative methods and examined in accordance with the following four-step content analysis(Yıldırım and Şimşek, 2006, p. 227). These steps are given as follows:

(1) Since there was no opportunity for face-to-face communication and data collection due to the pandemic, the information form and questionnaire form were sent to the teachers on Google Forms working at schools in Çankaya district and who wanted to participate in our study. A total of 86 form were returned. The statements were analysed, and metaphors detected were coded. The statements were excluded if they did not include any metaphor or did not provide a justification. Those which were repeated or did not refer to the qualities of school administrators were also excluded from the sample. At the end 42 data sets were taken into analysis, and 40 metaphors were found. Each of these metaphors were coded using the gender, schools, teaching field and Professional experience of the participants. In the coding process male participants were coded as (M) and female participants (F). Coding of the Professional experience was as follows: 1) for 1-5 years of professional experience, 2) for 6-10 years of professional experience, 3) for 11-15 years of professional experience, 4) for 16-20 and 5) for 21 years or more years of professional experience. Teaching levels of the participants were coded as follows: PS for pre-school, PriS for primary schools, ScS for secondary schools and HS for high schools.

(2) The analysis of the metaphors produced six themes. Following this reliability and validity analyses were carried out. Concerning the validity the data obtained were reported, and the results of the data analysis were given in detail. To obtain valid results from the data obtained and to ensure consistency, it is necessary to use reliable classification procedures. Independent and different individuals should be able to code the same texts in the same way (Weber, 1990). Concerning the reliability the percentage of agreement among the encoders/classifiers developed by Stemler (2001) was

calculated. For this purpose, the classification of metaphors about school principals as quantum leaders was repeated by two faculty members from Hacettepe University and Hacı Bayram Veli University. As a result of the analysis it is found that there is an intercoder reliability at the level of 95%.

(3) Metaphors found, the related themes and their correlations are given in Tables. The frequency of the metaphors is also presented. Direct quotations are also given in the discussion of the findings. In addition, the teaching field, school type and Professional experience of the participants are added to the quotations.

(4) The discussion about the metaphors and themes is given using the related previous findings.

FINDINGS

In this section, first, the information about metaphors produced by teachers about school principals and the information about related themes are given.

Table 1. Demographical characteristics of the participants

Gender	*Female*	30	71,4
	Male	12	28,6
Professional experience	1-5 years	1	2,4
	6-10 years	2	4,8
	11-15 years	8	19,0
	16-20 years	7	16,7
	21 years or more	24	57,1
Teaching level	Pre-school	6	14,3
	Primary school	10	23,8
	Secondary school	12	28,6
	High school	14	33,3
Teaching field	Physical training, chemistry	2	6,9
	Biology, Religious Culture and Ethics, Literature, Science, Visual Arts, Music, Counselor, Social Studies	1	3,4
	Foreign languages	4	13,4
	Mathematics	8	27,6
	Classroom teaching	3	10,3
	History, Turkish language	5	17,2
	Physics	6	20,7
	Pre-school		
Total	42 teachers	40	Metaphors

Metaphors about school administrators:

The metaphors produced by the participants about school administrators were categorized under the following themes. These metaphors are about those who were reported to exhibit the *quantom leadership.*

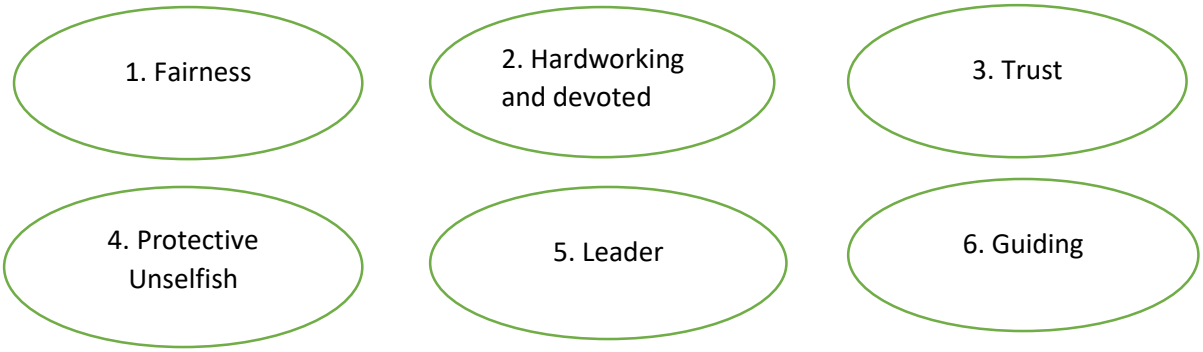


Figure 1. Themes

Table 1 presents the details of these metaphors produced by the participants about school administrators are given in Table 2.

Table 2. Metaphors produced about school principals as a quantum leader

Themes	Source of the metaphors	Metaphors	Frequency
1. Fairness		Libra (2), Judge, Mirror, Rainbow, Prophet	5
2. Hardworking-devoted		Ant, Marathon runner, Race Car	3
3. Trust		Unbreakable steel rope, Sycamore tree	2
4. Protector-unselfish	Teachers	Parents, Lion, herbalist, Mother, Pine tree	5
5. Leader		Conductor (2), Vessel, Eagle, Atmosphere, Referee, Locomotive, Migratory Bird, Queen Bee, Penguin, Dancer, Steel Chain, Coach, Politician, Heart, Brain, Captain, Engine Cerebellum, GSM Operator and Eye of RA.	20
6. Guiding		Compass, Lighthouse, Gardener, Book	5
Total	**42 teachers**	**40 Metaphors**	

A discussion of the metaphors and related themes are as follows:

1. Theme: *Fairness*

The fairness metaphors are found to include five concepts: Libra, Judge, Mirror, Rainbow, and Prophet. The concept of justice, which is expected to exist in the quantum leader behavior pattern, has been highlighted by the teachers here. We can say that the school principal are expected to prioritize values such as unity, solidarity, integrity and cooperation, to be at an equal distance to everyone and to showa fair behavior pattern towards all employees.

- ✓ A Turkish language teacher (M.5.ScS.) stated that the school administrators who have quantom leadership qualities like judges: "*They provide unity and solidarity among teachers with the justice.*"
- ✓ A mathematics teacher and a classroom teacher (F.4.ScS. and F.5.PriS., respectively) stated that the school administrators who have quantom leadership qualities like a libra. The former stated "*they attempt to create a balance.*" The latter stated*"They not only treats everyone equally and fairly, but also does the right things by being aware of the importance of her work, and establishes a good balance between her work and relations.*"
- ✓ A visual arts teacher (F.5.HS.) stated that the school administrators who have quantom leadership qualities like a "*rainbow*" and that "*They embrace everyone equally."*
- ✓ A physical training teacher (M.2.ScS) stated that the school administrators who have quantom leadership qualities like a "mirror" arguing "*they reflect their energy, fariness and vision to their collegaues*."
- ✓ A history teacher (M.5.HS.) employed the metaphor of "*prophet*" arguing that "*they are very fair and indulgent.*"

2. Theme: *Hardworking-Devoted*

The theme of "*hardworking-devoted*" is found to include three metaphors: marathon runner, ant and race car. The concepts of industriousness and selflessness as an indicator of quantum leader behavior pattern are expected from school principals. These qualities were brought to the fore by the teachers. A school principal who works having a team spirit for the success of the school and convinces all school stakeholders to believe in this means that he has adopted the characteristics of quantum leadership.

- ✓ A mathematics teacher (F.4.ScS.) employed the metaphor of marathon runner arguing "*because it is necessary for them to run on this road without stopping in order to move their school forward. They also need to be followed by students, teachers and parents*."
- ✓ A classroom teacher (F.3.HS.) employed the metaphor of "*ant"* fort he school administrators and argued "*Because like ants, they work non-stop by planning ahead, and just like ants make preparations for winter, they make all their preparations in advance for each academic year and work non-stop.*"
- ✓ A chemistry teacher (F.5.HS.) employed the metaphor of "*race cars"* arguing *"because they have a lot of work to get done. They spend a lot of time at work."*

3. Theme: *Trust*

The theme of trust is found to include two metaphors: "Unbreakable Wire Rope and Sycamore Tree". A school principal who has internalized the quantum leadership behavior has exemplary behaviors. Such behaviors include "*They regard themselves as part of the school community and share the leadership with their followers; they provide their colleagues with an opportunity to evaluate their own performance and they have a flexible administrative approach*.*"* These lead to mutual trust at schools.

- ✓ A pre-school teacher (F.5.PS.) employed the metaphor of "*Unbreakable Wire Rope*" and stated "*because all stake holders are attached to this rope.."*
- ✓ Another pre-school teacher (F.4.PS.) likened the school administrators to a "*Sycamore Tree*" and argued "*because they embrace all people at the schools (students, teachers, personnel, parents...); they warm them in the cold and keeps them cool in the heat."*

4. **Theme: *Protector-Unselfish***

The theme of protector-unselfish is made up of five metaphors: parents, lion, herbalist, mother, and pine tree. If school administrators improve the morale and motivation of teachers and students and consider themselves as part of school community creating common values, it can be argued that they have the qualities of quantom leadership.

- ✓ A social studies teacher (F.5.ScS.) likened school administrators to *parents* and argued "*because they have a large family. They guide the students and embrace them. They are always with them. All students, teachers and other personnel at schools are their children."*
- ✓ The literature teacher says(M.5.HS.), "because it protects the region it is in. It patrols its territory every day. It owns its school" using the metaphor of a "lion".

- ✓ A classroom teachers (F.5.PriS.) employed the metaphor of mother and stated the following: "*because, just like a mother, they are aware of everything and take precautions against problems. They make things right without hurting anyone. They can empathize and most importantly, they are impartial. They are practical. They are successful and knowledgeable in their field. They have a giving and constructive temperament. This is the desired principal model for me."*

- ✓ A history teacher (M.3.HS.) used the metaphor of *herbalist* for the school administrators. He provided the following justification for his metaphor: "*because school principals almost do not let all scents or spices lose their essence and allow them to remain hidden in bottles*."

- ✓ A classroom teacher (F.3.PriS.) employed the metaphor of "*pine tree*" for school administrators and provided the following explanation: "*because school principals can remain positive regardless of the season or conditions and support us in all circumstances to increase our motivation.*"

5. **Theme: *Leader***

The theme of leader includes the following twenty metaphors: Conductor, Vein, Eagle, Atmosphere, Referee, Locomotive, Migratory Bird, Queen Bee, Penguin, Dancer, Steel Chain, Coach, Politician, Heart, Brain, Captain, Engine, Cerebellum, GSM Operator and Eye of RA. If the school administrators exhibit the following actions, it can be said that they have the characteristics of quantum leadership: they consider leadership as an area of interaction; they share the phenomenon of leadership with the followers; they encourage solving problems by following untried ways; they create opportunities for the success of the school from uncertainties; they always consider the possibilities that may occur at school; they give an opportunity to others to produce solutions for unexpected complex situations and an opportunity to his colleagues to evaluate their own performance.

- ✓ A pre-school teacher (F.5.PS.) used the metaphor of *"vein"* fort he school administrators giving the following justification: "*because, like veins, school principals carry blood and oxygen in the blood to all organs. In this way, they direct the regular functioning of the organs.*"

- ✓ A science teacher (M.5.ScS.) likened the school administrators to "*eagles"* and argued "*they can predict all types of risks and advantages in advance."*

- ✓ A music teacher (F.3.ScS.) and a physics teacher (F.5.HS.) both used the metaphor of "conductor" and gave the following justifications: "*If the conductor misses the metronome (rhythm), the orchestra will sound messy."* and "*school principals manage different kinds of instruments in the most harmonious way, creating a magnificent work."*

- ✓ A guidance teacher (M.3.HS.) used the metaphor of "*atmosphere*" arguing "*because they are inclusionary.*"

- ✓ A classroom teacher (M.5.HS.) employed the metaphor of *referee* adding "*Because school principals should consider not only the football players on the field, but also the technical committee, the reserve players, the light of the stadium, the suitability of the ground for football, the safety of the athletes and whether the wages they receive for such a stressful job are sufficient and make the right decision. Most of the time, their heads are not even aware of this situation."*

- ✓ A classroom teacher (F.2.HS.) used the metaphor of "*locomotive"* arguing *"because it is the school administrator who is the leader of the school and the person who achive the stated goals."*

- ✓ A chemistry teacher (F.5.HS.) employed the metaphor of "*migratory birds"* stating "*because school principals change their leaders situationally and join forces. In this way, school principals are the best example of acting in nature in a targeted manner and synergy."*

- ✓ A mathematics teacher (M.4.ScS.) used the metaphor of "*queen bee*" giving the following justification "*because school administrators are leaders in addition to their administrative tasks."*

- ✓ A physics teacher (F.5.HS.) employed the metaphor of "*Penguen"* stating *"because school principals know that unity is strength. They have no ego and are not selfish. They are leaders and guides. They value their team's thoughts and ideas and know how to benefit from their team."*

- ✓ A physics teacher (F.4.HS.) employed the metaphor of "*dancer"* and stated "*because school principals have to dance in different styles in accordance with different music rhytms that are constantly changing."*

- ✓ A Turkish language teacher (F.5.ScS.) used the metaphor of "*steel chain"* arguing "*because they bind the teachers and protect them. They keep teacher, student and parent together."*

- ✓ A physical training teacher (F.5.Scs.) likened the school administrators to "*coachs*" arguing "*because they think fast, focus on solutions and attach importance to team work.*"
- ✓ A history teacher (M.4.HS.) employed the metaphor of "*politician*" and gave the following justification: "*Because school principals are trying to protect our values in an environment where there is insecurity and social balances are disturbed. They must be good politicians to try to protect justice and national values in the educational environment by trying to stand up among the administrators, who, like most administrators, owe their position to someone or a group."*
- ✓ A biology teacher (F.5.HS.) employed the metaphor of "*heart"* arguing "*because education is a system consisting of students, teachers and other personnel. The functioning of the system depends on the functioning of the heart. If there is no heart, the system is dead."*
- ✓ A physics teacher (F.5.HS.) used the metaphor of *"brain*" and stated *"By evaluating and parsing incoming signals and messages, comparing them with the old information in the memory, establishing new connections between the information, it ensures that all necessary work and operations are carried out in place, on time, and also under control.*"
- ✓ A religious culture and ethics teacher (M.5.HS.) likened the school administrators to "*captains*" stating "*because school principals continue on their way by following the rules in a disciplined way and protecting their staff in order to reach their goal."*
- ✓ A physics teacher (F.5.HS.) employed the metaphor of "*engine*" and argued "*because the engine is the most important part of a vehicle and machine, regardless of the area in the air, on the land or in the sea. School principals are the most important elements that enable the school to gain momentum in terms of education, equipment, merit, vision, idealism, keeping up to date, and administrative justice."*
- ✓ A classroom teacher (E.5.HS.) employed the metaphor of "*cerebellum"* and gave the following justification: "*because principals are the balance center of the schools. They should provide coordination between students, parents and teachers, and their analytical and strategic thinking skills should be developed."*
- ✓ A preschool teacher (K.5.ScS.) used the metaphor of "*GSM operator"* arguing "*because they provide communication and coordination."*
- ✓ A preschool teacher (F.5.ScS.) employed the metaphor of "*the eye of RA*" stating "*because school administrators can see all pieces and the whole through observation*."

6. Theme: G*uiding*

The theme of guiding is found to contain five metaphors: compass, lighthouse, gardener, books, and navigation. If school principals who manage schools give their teachers an opportunity to use initiative, employ untested ways to solve the problems encountered, offer alternatives to employees with a flexible understanding, and always draw attention to possibilities, it can be said that they have some qualities of the quantom leadership

- ✓ A mathematics teacher (F.3. ScS.) emplyed the metaphor of "*compass*" stating "*because the school principal is responsible for making sure that the school is in the right direction."*
- ✓ A Turkish language teacher (F.1.ScS.) likened the school administrators to a "*lighthouse*" giving the following justification "*because they guide the people. They are forward-thinking, helpful and resilient."*
- ✓ A foreign languages teacher (F.3.HS.) used the metaphor of "*gardener"* and argued "*because school principals keep students, teachers and parents with different characteristics together by providing suitable conditions so that they can work together efficiently*."
- ✓ A pre-school teacher (F.3.ScS) likened school administrators to "*books"* giving the following justification "*because school principals enlighten, inform and guide teachers."*
- ✓ A classroom teacher (F.3.PriS.) used the metaphor of "*navigation"* arguing "*because with the right guidance and a motivating approach, school principals make the school successful."*

CONCLUSION AND DISCUSSION

Metaphors can be considered as a tool to have insights about perceptions of people about certain events. In this sense, metaphors are important in terms of revealing the perceptions in our mental infrastructure and reflecting them as a form of expression. Metaphors that reveal our perception about the environment, people and concepts also affect and reflect the way they are understood in our minds and support us to understand any event, phenomenon or concept. In this study, by giving preliminary information about the concept of quantum leadership, it was attempted to reveal the perceptions of school principals about exhibiting quantum leadership behavior. Therefore, the metaphors produced represent both the present and the future situation. In other words, it can be stated that it also points to school principals who are expected to exhibit quantum leadership behavior in the upcoming period. In this research, it is aimed to reveal teacher perceptions of school principals' quantum leadership behavior through metaphors. In the light of the data obtained 40 (forty) metaphors related to the behavior of the school principals which are expected to be followed within the quantum leadership behavior pattern were determined. These metaphors were gathered under six themes. The theme with the highest number of metaphors is "Leader". Under this title, there are 20 metaphors. There are five (5) metaphors each under the themes of "Justice", "Protector-Unselfish" and "Guiding". There are three (3) metaphors under the theme of "Hard-working-devotedd" and two (2) under the theme of "Trust".

The results of the analysis are given as follows:

1- Since the most produced metaphor is under the theme of leader, it is possible to claim that school principals, as a quantum leader, create an interaction area in the leader-follower interactions. In addition, the metaphors found under the theme of hardworking-devoted show that school principals create this area of interaction.

2- It can be said that school principals, who exhibit quantum leadership behavior qualities, give confidence to the employees as a guide and leader regarding their leadership behavior. They also follow a flexible path and try to manage the process by taking into account the events with an unstructured and unpredictable nature.

3- As can be clearly seen in the metaphor of migratory birds, leadership at schools is interrupted. In other words, leadership can change hands in the school environment and pass to other employees when and where necessary.

4- As a quantum leader, it can be argued based on the analysis of the metaphors under the themes of justice and protective-altruistic that school principals interact adequately with all stakeholders.

There are many studies on the metaphorical perceptions related to any event, phenomenon or situation. In the qualitative study conducted by Çobanoğlu and Gökalp (2015), it was aimed to reveal the metaphorical perceptions of student teachers about school principals. In the aforementioned study, it was concluded that the participants mostly used the metaphors of father, lion, mother, dictator and shepherd regarding school principals and that they mostly focused on the aspects of management, leadership, power, negativity and protection concerning the tasks of school principals. In the study similar metaphors were used which are also found in the current study. In the study carried out by Pesen et al. (2015), undergraduate students' perceptions of school principals were examined. The research findings indicated that there were 46 metaphors related to the concept of school principals. The most commonly used metaphors are found to be mother, lion, flower, dictator, wall, ghost, ant, parsley, angel, idol, sugar and cat. It is observed that the metaphors produced in this study, which show similarities with our findings, point to the positive and negative aspects of school principals. In the study conducted by Tüzel and Şahin (2014), the perceptions of primary school students about school administrators were revealed through the pictures they drew and the metaphors they used. In their study carried out by Özdemir and Orhan (2019), teachers' perceptions about the concepts of schools, school administrators and parents were investigated through metaphors. The participants produced 120 metaphors about schools, school administrators and parents, and the most frequently produced metaphors about school administrators are found to be father, brain, president, captain, commander, leader, moderator, orchestra conductor, boss, guide, driver, and director. In the study by Cerit (2008), it was aimed to analyze the perceptions of students, teachers and administrators regarding the concept of school principals through metaphors. According to the results of the study school principals were perceived as researchers, controllers, consultants, education specialists, directors, coaches, conductors and leaders by teachers and administrators. The findings of the study are consistent with the present findings. Akan et al. (2014) tried to determine teachers' perceptions about school administrators through metaphors. They found that the participants produced 24 metaphors about school principals. The major metaphors produced by them were "commander, soldier, computer, pen, manager, father, conductor". The metaphors produced in this study are similar to those found in the current study. In the research conducted by Özçetin (2018), the metaphors used by teachers and administrators regarding teacher leadership were investigated. Hacifazlioglu et al. (2011) aimed to determine the perceptions of school administrators regarding the concept of technology leadership through metaphors. The metaphors produced are listed as "chameleon, brain, sun, bee, sea, cow, commander and pole star". In the study carried out by Korkmaz and Çevik (2018), it was aimed to reveal the perceptions of secondary school teachers about the concept of school principals through metaphors. It is

found that the participants developed 96 different metaphors about school principals which were classified in 11 categories under different themes. These metaphorical perceptions of teachers about school principals were positive. These findings are consistent with the current findings. In the study conducted by Şahin and Sabancı (2018), it was aimed to evaluate the perceptions of the students receiving pedagogy certificate about school administrators and teachers. They found that the most frequent metaphors produced included father, tree, grandfather, Prime Minister, President, leader, commander, captain, conductor, boss, lion and shepherd. These findings are similar to those of the current study.

SUGGESTIONS

In this study, it was aimed to reveal the perceptions of the teachers about the quantum leadership behavior of the school principals by giving them information concerning this specific type of leadership. The following suggestions can be stated based on the findings of the study:

- ✓ Similar studies may be carried out in different provinces.
- ✓ Future studies may analyse other types of leadership at schools.
- ✓ The differences between the perceptions of the current school principal and the school principals who have adopted different leadership type behaviors can be investigated.
- ✓ Further qualitative and quantitative studies can be carried out to have more detailed insignts about the quantom leadership.

Declaration of Conflicting Interests

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

Funding

The authors received no financial support for the research, author-ship, and publication of this article.

Statements of publication ethics

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

Researchers' contribution rate

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

Ethics Committee Approval Information

The ethical approval was received from Ethical Commission of Hacettepe University on December 28, 2020 with the number of 1376855.

REFERENCES

Akan, D., Yalçın, S., & Yıldırım, İ. (2014). *Okul müdürü kavramına ilişkin öğretmenlerin metaforik algıları.* İlköğretim Online, 13(1), 169-179.

Akın Köstereliоğlu, M. (2014). *Öğretmen adaylarının okul yöneticisi kavramına ilişkin metaforik algıları. Zeitschrift für die Welt der Türken/Journal of World of Turks*, 6(3), 115-133.

Bursalıoğu, Z. (1982). *Okul Yönetiminde Yeni Yapı ve Davranış* (6. b.). Ankara: Ankara Üniversitesi Eğitim Fakültesi Yayınları.

Cerit, Y. (2008). Öğrenci, öğretmen ve yöneticilerin müdür kavramı ile ilgili metaforlara ilişkin görüşleri. *Eğitim ve Bilim,* 33(147), 3-13.

Cornelissen JP (2005) Beyond compare: Metaphor in organization theory. *Academy of Management Review*, 30, 751–764.

Crease, R.P., Goldhaber, A.S. (2016). *Kuantum Dönemi. Planck, Bohr, Einstein ve Heisenberg Belirsizliği Sevmeyi Bize Nasıl Öğretti?.(Arı, V.).* İstanbul Bilgi Üniversitesi Yayınları. İstanbul.

Çelik, M. (2021). Okul yöneticilerinin kuantum liderlik davranışlarının yönetim tarzlarına ve öğretmenlerin örgütsel bağlılık düzeyine etkisi (Yayımlanmamış Doktora Tezi). *Hacettepe Üniversitesi Eğitim Bilimler Enstitüsü*, Ankara.

Çobanoğlu, N.&Gökalp, S. (2015). Öğretmen Adaylarının Okul Müdürüne İlişkin Metaforik Algıları. *Mustafa Kemal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi.* Cilt.12. Sayı.31. (s.279-295)

Döş, İ. (2011). Okul paydaşlarının metaforlar yardımıyla okul örgütlerini algılama biçimlerinin değerlendirilmesi (Yayımlanmamış Doktora Tezi). *Fırat Üniversitesi Sosyal Bilimler Enstitüsü*, Elazığ.

Erçetin, Ş. Ş. (2000). *Lider Sarmalında Vizyon (2. b.).* Ankara: Nobel Yayın Dağıtım.

Erçetin, Ş.Ş., Çevik, M.S., Çelik, M.(2018). Okul Müdürlerinin Kuantum Liderlik Davranışlarını Gerçekleştirme Düzeyleri. *Uluslararası Liderlik Çalışmaları Dergisi.* Cilt. 1. Sayı 2. (109-124)

Furunes, T., Mykletun, R.J., (2007). Why diversity management fails: metaphor analyses unveil manager attitudes. *International Journal of Hospitality Management* 26 (4), 974–990 (DOI: 10.1016/j.ijhm.2006.12.003)

Gentner D, Bowdle B, Wolff P, & Boronat C (2001) Metaphor is like analogy. In: Gentner D, Holyoak KJ, & Kokinov BN (Eds.), *The analogical mind: Perspectives from cognitive science* (pp. 199–253). Cambridge, MA:MIT Press.

Hacıfazlıoğlu, Ö.& Karadeniz, Ş. & Dalgıç, G. (2011). Okul Yöneticilerinin Teknoloji Liderliğine İlişkin Algıları: Metafor Analizi Örneği. *Eğitim Bilimleri Araştırmaları Dergisi. (Uluslararası E-Dergi).* Cilt.1, Sayı.1, (s.97-121).

Hodgkinson, C. (2008). *Yönetim Felsefesi. Örgütsel Yaşamda Değerler ve Motivasyon (1 b.).* (İ. Anıl, & B. Doğan, Çev.) İstanbul: Beta.

Kaya, Y. K. (1991*). Eğitim Yönetimi. Kuram ve Türkiye'deki Uygulama (4. b.).* Ankara: Bilim Yayınları.

Kayman, E. A. (2008). Türkiye'deki Mesleki Eğitim ve Öğretimin Güçlendirilmesi Projesi (MEGEP) İçindeki Yaygınlaştırıcı Okul Yöneticilerinin, Kuantum Liderlik Davranışlarını Gerçekleştirme Düzeyleri. Yayımlanmamış Yüksek Lisans Tezi. *Hacettepe Üniversitesi, Sosyal Bilimler Enstitüsü,* Ankara

Keskinkılıç Kara, S. B. (2013). Yeni Bilim ve Liderlik. *Uluslararası Hakemli Sosyal Bilimler E-Dergisi*(34), 1-13.

Korkmaz, M. & Çevik, M. S. (2018). Ortaokul öğretmenlerinin müdür kavramına ilişkin metaforik algıları. *Kuramsal Eğitimbilim Dergisi [Journal of Theoretical Educational Science]*, 11(4), 973-1002.

Morgan, G. (1998). *Yönetim ve Örgüt Teorilerinde Metafor (İmages of Organization Sage Publication).* (G. Bulut.) İstanbul: BZD Yayınları.

Özçetin, S. (2018). Okul Müdürü ve Öğretmenlerin Öğretmen Liderliğine İlişkin Ürettikleri Metaforlar. *Amasya Üniversitesi Eğitim Fakültesi Dergisi,* 7(1), 1-20.

Özdemir, S., & Akkaya, E. (2013). Genel lise öğrenci ve öğretmenlerinin okul ve ideal okul algılarının metafor yoluyla analizi. *Kuram ve Uygulamada Eğitim Yönetimi Dergisi,* 19(2), 295-322.

Özdemir, T. Y., & Orhan, M. (2019). Öğretmenlerin okul, okul yöneticisi ve öğrenci velisi kavramlarına yönelik metaforik algıları. *Kuramsal Eğitimbilim Dergisi [Journal of Theoretical Educational Science],* 12(2), 701-726.

Saban, A. (2008). Okula ilişkin metaforlar. Kuram ve Uygulamada Egitim Yönetimi Dergisi, *14*(3), 459-496.

Schlechty, P. C. (2005). *Shaking Up The Schoolhouse. Okulu Yeniden Kurmak.* (Y. Özden.) Ankara: Nobel Yayın Dağıtım.

Şahin, A., &Sabancı, A.(2018). Pedagojik Formasyon Eğitimi Öğrencilerinin Okul Yöneticileri İle Öğretmenlere İlişkin Algıları: Metafor Çalışması. *E-Uluslararası Eğitim Araştırmaları Dergisi*. Cilt:9, Sayı:1 (s.83-101).

Şenses, B. Ve Temoçin, P.(2018). An Interdisciplinary Study: Quantum Leadership and Hybrid Leadership. (Ed. Ş. Ş. Erçetin). *Chaos, Complexity and Leadership 2016*,

Taslaman, C. (2008). *Kuantum Teorisi Felsefesi ve Tanrı.* İstanbul: İstanbul Yayınevi.

Turan, S. (2017). Okul Yöneticilerinin Kuantum Liderlik Davranışlarının Örgütsel Zekâ Düzeyine Etkisi (Zonguldak ili örneği). (Yayımlanmamış doktora tezi). *Hacettepe Üniversitesi, Eğitim Bilimleri Enstitüsü*, Ankara.

TDK (2021). *http://www.tdk.gov.tr* (Erişim Tarihi: 15/02/2021).

Üzüm, B., Uçkun, S., (2019). Post Modern Bir Metafor: Kuantum Organizasyonlar Ve Kuantum Liderlik. *The Journal of Social Science* , 3 (5) , 80-90 . DOI: 10.30520/tjsosci.487853

Weber, R. P. (1990). *Basic content analysis (2. baskı).* CA: Newbury Park

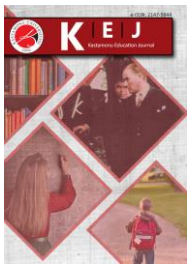
Yalçın, M., & Erginer, A. (2012). İlköğretim okullarında okul müdürüne ilişkin metaforik algılar. *Journal of Teacher Education and Educators,* 1(2), 229-256.

Yavuz, M. (2016). (Ed.) *Yeni Nesil Okul. Araştıran Okul*. Konya. Eğitim Kitabevi.

Yıldırım, A., Şimşek, H. (2006). *Sosyal Bilimlerde Nitel Araştırma Yöntemleri* (5. baskı.). Ankara: Seçkin Yayıncılık.

Yıldırım, A., Ünal, A., Çelik, M. (2011). Öğretmen kavramına ilişkin öğretmen, yönetici ve müfettiş algılarının analizi. *Uluslararası İnsan Bilimleri Dergisi. Cilt.8. Sayı.2 (s. 92-109).*

Kastamonu Education Journal, 2024, Vol. 32, No:1, 97-112
doi: 10.24106/kefdergi.1426726



| Research Article / Araştırma Makalesi |

Effects of Lifelong Learning on the Readiness for Online Learning

Yaşam Boyu Öğrenmenin Çevrimiçi Öğrenmeye Hazırbulunuşluk Üzerindeki Etkileri1[1]

Serkan TORUNLAR [2], Melih ENGİN [3]

Keywords
1. Online learning
2. Readiness
3. Lifelong learning

Anahtar Kelimeler
1. Çevrimiçi öğrenme
2. Hazırbulunuşluk
3. Yaşam boyu öğrenme

Received/Başvuru Tarihi
17.12.2022

Accepted / Kabul Tarihi
14.11.2023

Abstract

Purpose: Technological advancement, which started with the Industrial Revolution, accelerated by the end of the 20th century. These developments created radical changes not only in working life but also in our social and cultural lives. The need for people to constantly learn new things in order to keep up with these changes created the concept of lifelong learning. In addition, the concept of distance education has been in our lives in various forms for many years. Especially after the 2000s, internet-based distance education, ie., online education, has become quite common. Readiness for online learning emerged as one of the important factors affecting the efficiency of online learning. In this study, the relationship between lifelong learning and readiness for online learning was examined.

Design/Methodology/Approach: For this purpose, Lifelong Learning and Online Learning Readiness scales were administered to university students. In total, 390 students from different universities and departments participated in the research.

Findings: With the data obtained, it was tried to determine if lifelong learning had a significant effect on the sub-dimensions of readiness for online learning. In addition, determining if the gender and the type of education program had a significant effect on these two concepts constitutes the sub-objective of the research.

Highlights: The findings showed that there was a significant and positive relationship between the sub-dimensions of readiness for online learning and lifelong learning. On the other hand, it was observed that women were better than men and postgraduate students were better than other students in terms of both readiness for lifelong learning and online learning.

Öz

Çalışmanın amacı: Sanayi devrimiyle başlayan teknolojik gelişmeler 20.yüzyılın sonlarında iyice hızlanmıştır. Bu gelişmeler sadece çalışma hayatında değil sosyal ve kültürel hayatımızda da köklü değişikliklere neden olmuştur. İnsanların bu değişimlere ayak uydurabilmek için sürekli yeni şeyler öğrenmeleri gerekliliği yaşam boyu öğrenme kavramını ortaya çıkarmıştır. Ayrıca uzaktan eğitim kavramı da uzun yıllardır çeşitli şekillerde hayatımızda yer almaktadır. Özellikle 2000'li yıllardan sonra internet tabanlı uzaktan eğitim bir başka deyişle çevrimiçi eğitim oldukça yaygın bir hale gelmiştir. Çevrimiçi öğrenmeye hazırbulunuşluk da çevrimiçi öğrenmenin verimini etkileyen önemli unsurlardan biri olarak ortaya çıkmıştır. Bu çalışmada yaşam boyu öğrenme ve çevrimiçi öğrenmeye hazırbulunuşluk arasındaki ilişki incelenmiştir.

Materyal ve Yöntem: Bu amaçla Yaşam Boyu Öğrenme ve Çevrimiçi Öğrenmeye Hazırbulunuşluk ölçekleri üniversite öğrencilerine uygulanmıştır. Araştırmaya farklı üniversite ve bölümlerden 390 öğrenci katılmıştır.

Bulgular: Elde edilen verilerle yaşam boyu öğrenmenin çevrimiçi öğrenmeye hazırbulunuşluk alt boyutları üzerinde anlamlı etkisi olup olmadığı belirlenmeye çalışılmıştır. Ayrıca cinsiyet ve eğitim alınan program türünün bu iki kavram üzerinde anlamlı etkisinin olup olmadığını belirlemek de araştırmanın alt amaçlarını oluşturmaktadır.

Önemli Vurgular: Bulgular yaşam boyu öğrenmenin çevrimiçi öğrenmeye hazırbulunuşluk alt boyutların arasında pozitif ve anlamlı bir ilişki olduğunu göstermiştir. Öte yandan kadınların erkeklere göre, lisansüstü eğitim görenlerin de diğer öğrencilere göre hem yaşam boyu öğrenme hem de çevrimiçi öğrenmeye hazırbulunuşluk açısından daha iyi olduğu görülmüştür.

[1] This study was produced from the master's thesis prepared by Serkan TORUNLAR under the supervision of Dr. Melih ENGİN.

[2] **Corresponded Author,** Teacher, Tophane Vocational and Technical Anatolian High School, Information Technologies, Türkiye, storunlar@outlook.com, https://orcid.org/0000-0002-6023-9852

[3] Assoc. Prof., Bursa Uludağ University, İnegöl Faculty of Business Administration, Management Information Systems, Türkiye, melihengin@uludag.edu.tr, https://orcid.org/0000-0002-4953-6119

Citation/Alıntı: Torunlar, S., & Engin, M. (2024). The Effects of Lifelong Learning on Readiness for Online Learning. *Kastamonu Education Journal, 32*(1), 97-112. doi: 10.24106/kefdergi.1426726

INTRODUCTION

Together with the rapid advancements in technology, economic, social, and cultural changes gained speed throughout the 20th century. From the aspect of individuals' adaptation to these changes, it became a necessity for learning to continue lifelong and for individuals to improve themselves constantly. This necessity caused the concept of "lifelong learning" to be discussed much in the literature.

"Lifelong learning was brought to the agenda in the last quarter of the last century and started to be discussed frequently in Turkey in the 2000s (…) Lifelong education is a regulation aiming to re-construct the current education system and improve the complete potential related to the education, besides the formal education system and it is a comprehensive concept incorporating all formal and non-formal education activities" (Güleç, Çelik, and Demirhan, 2012).

Within this context, studies were carried out in order to measure the individuals' self-efficacy to learn lifelong and to determine the factors affecting those competencies.

On the other hand, together with the advancements in technology, distance education became a concept, which is frequently discussed, in parallel with the concept of lifelong learning. "Distant learning, due to its nature, is based on a planned education process, which requires specific managerial and organizational arrangements, specific course design and teaching methods, and communication through various technologies and in which teachers and students participate from different places" (Moore and Kearsley, 2005).

Online distant learning has become the most commonly used distance education modality in recent years. Thanks to the Internet, technology-supported educational practices were introduced to educational life via synchronous and asynchronous applications. Thanks to the online distance education activities conducted through synchronous modalities, it became possible to develop new experiences and competencies for educators and students, who gather via the Internet non-spatially. In many studies, as in the present study, the distance education activities carried out through the Internet were called online learning, while some studies named them "e-learning".

Online distance education activities, differing from the traditional learning environments of students, refer to a learning process, in which students can access many different resources at the same time and interact in different ways. "In technology-based distance education programs, as online interaction instruments, the video-conference, computer conference, Internet TV, written or verbal posts, or electronic chat applications allow teachers and students to become closer" (Engin, 2013).

Online distance education, which became a very popular type of education in recent years and has been actively used in various certificate programs and associate and undergraduate programs in universities in particular, has started to be used as an alternative education medium in all the programs of universities, including the undergraduate programs, and even at all levels of education including primary schools, secondary schools, and high schools in the year 2020 after the global COVID-19 pandemic. Considering the knowledge gained through this compulsory experience and the rapid advancement in information and communication technologies (ICT), it is quite likely that online distance education would be involved in our lives at a much higher level than before even when the pandemic conditions will disappear in the future.

Within this context, infrastructure works have gained momentum to eliminate the technical deficiencies in online distance education. At the same time, pedagogical and scientific studies to measure and increase the efficiency of online education have increased. One of the factors influencing the success in distance education is the readiness level of students in online learning. In order for online learning, which offers many advantages in order to color up the course via access to various resources and multimedia, to be efficient, students should be ready to the online learning, besides teachers being capable of using these advantages effectively.

Especially for students experiencing the online learning for the first time, it is not always easy to adapt to this new learning environment. Together with the popularization of online distance learning, the number of studies examining the online learning readiness of students also increased.

Although there are studies separately related to the lifelong learning and online learning readiness concepts, no study examining the relationship between these two concepts could be found. Çavuşoğlu and Acar (2020), in their study, aimed to determine if there was a relationship between lifelong learning levels and opinions on distance education. In their study, they used the Questionnaire for Opinions on Distance Education developed by Yıldırım et al. (2014) and including 18 items under four factors (Personal Suitability, Effectiveness, Instructiveness, and Familiarity) and LLL (Lifelong Learning) scale, which was adapted to the Turkish language by Engin, Kör, & Erbay (2017). At the end of their study, considering the relationship between students' opinions on distance education, effectiveness, and familiarity and their scores on the lifelong learning scale, the authors revealed a positive relationship between these factors.

Objective and Significance of the Study

In the present study, the lifelong learning and online learning readiness scales were administered to university students at the same time. Analyzing the data obtained, it was aimed to determine if lifelong learning had any effect on the subdimensions of online learning readiness. Besides that, the other objective of the present study is to determine if the demographic variables such

as gender and the type of program, in which the participant is enrolled, have a significant effect on lifelong learning and online learning readiness.

In parallel with these objectives, the hypotheses tested in the present study are as follows:

H1: There is a significant difference between the lifelong learning mean scores by gender.

H2: There is a significant difference between online learning readiness mean scores by gender.

H3: There is a significant difference between lifelong learning mean scores by the type of program the participant is enrolled in.

H4: There is a significant difference between online learning readiness mean scores by the type of program the participant is enrolled in.

METHOD/MATERIALS

Research Pattern

In the present study, in order to determine the effects of lifelong learning self-efficacy of university students on their online learning readiness, the Online Learning Readiness Scale (Yurdugül and Sarıkaya, 2013), which is a quantitative data collection instrument, and Lifelong Learning Scale (Engin et al., 2016) were administered to the students at the same time. Quantitative studies begin with hypotheses asserting claims about the relationships between variables. They aim to prove or disprove those hypotheses. "If one wants to quantify the current diversity on any phenomenon, situation, problem, or subject, if the data are mainly collected using the quantitative variables, and if the analysis is conducted in order to determine the dimensions of the diversity, then the research is named quantitative" (Kumar, 2005).

In the present study, it was aimed to explain if there is any relationship between lifelong learning and online learning readiness. The objective of explanatory research is to understand and explain how or why some events or phenomena occur. It is aimed to determine if there are relationships between the variables related to the phenomena in such studies. Explanatory research aims to explain by establishing a cause-and-effect relationship between social phenomena.

Universe and Sample

The universe of this study consists of university students studying in associate, undergraduate, or postgraduate programs. Given the data obtained from the Council of Higher Education (YÖK), in the educational year 2021-2022, there were 8,296,959 students (3,114,623 in associate degree programs, 4,676,657 in undergraduate programs, 343,569 in master's degree programs, and 106,148 in doctoral programs) (Higher Education Information Management System, 2021).

Assuming that the universe was not homogeneous and aiming to ensure a reliability level of 95%, the sample size was determined to be 384 participants. Since it would be difficult to directly reach such a high number of individuals, the snowball sampling method was preferred. "In this method, after reaching an individual from the universe, then another member whose name was obtained from the previous member is reached and the process is continued until reaching the sufficient sample size" (Saruhan & Özdemirci, 2020:204).

As seen in Table 1, of 390 students participating in the present study, 58.2% were female and 41.8% were male. Of the participants, 24.1% were aged between 18 and 20 years, 46.7% between 21 and 25 years, 11.8% between 26 and 30 years, and 17.4% were older than 30 years. Of the students participating in this study, 7.9% were associate students, 67.2% were undergraduate students, and 24.9% were postgraduate students.

Table 1. Demographic Characteristics of Participants

Demographic Characteristic	Values	N	Percentage
Gender	Female	227	58.2
	Male	163	41.8
Age	18-20	94	24.1
	21-25	182	46.7
	26-30	46	11.8
	30+	68	17.4
Type of Education Program	Associate Degree	31	7.9
	Undergraduate	262	67.2
	Postgraduate	97	24.9

Data Collection Instruments

The measurement tool used in the present study consists of 3 parts. In the first part, there were items about the demographic characteristics of students such as gender, age, type of education program, and university. In the second section, the Turkish adaptation of the "Lifelong Learning Scale for Studying and Assessing the Education and Curriculum Efficacy" developed by Wielkiewicz and Meuwissen (2014) was used. In the literature, two Turkish adaptation studies related to this scale could be found. The first one of them was the study carried out by Boztepe and Demirtaş (2016), whereas the other one was the one carried out

by Engin, Kör, & Erbay (2017). This scale was preferred because the target audience of the present study was university students, this scale was developed by administering it to university students, and it was found to have perfect reliability. Since the reliability level of the adaptation made by Engin, Kör, & Erbay (2017) was higher than the other adaptation, it was decided to use this adaptation consisting of 15 items. The scale is rated using a 5-point Likert scale as (1) never, (2) rarely, (3) sometimes, (4) frequently, and (5) always. The items constituting the form are presented in Annex 1. In the third part, the form of Online Learning Readiness Scale (OLRS), which was developed by Hung et al. (2010) and consists of 18 items under 5 factors, adapted into the Turkish language was used. This scale, which was developed by Hung et al. (2010), became one of the most accepted and used scales in the literature. The study carried out by Yurdugül and Sarıkaya (2013) aiming to establish the Turkish form of OLRS (Online Learning Readiness Scale) developed by Hung et al. (2010) has been one of the most widely cited adaptation studies. Five different dimensions in the original form of OLRS were defined as Self-driven Learning (OzGud), Motivation for Learning (OgrMot), Learner Control (OgrKont), Computer and Internet Self-Efficacy (BI-OY), and Online Communication Self-Efficacy (CI-OY). These factors have 3, 5, 3, 4, and 3 items, respectively, and there are 18 items in total.

The scale is rated using a 5-point Likert scale: (1) I absolutely disagree, (2) I disagree, (3) I neither disagree nor agree, (4) I agree, and (5) I absolutely agree. The items are provided in Annex 2.

Data Collection Process

The process of distributing the questionnaire to university students, who were studying in different universities, different cities, different types of education programs, and different departments, via the Internet was initiated on 26th March 2022. Then, on 24th April 2022, the process was completed by obtaining the responses of 390 students.

Data Analysis

The reliability and frequency analyses of the present study aiming to determine the effects of lifelong learning competencies on online learning readiness were carried out using the IBM SPSS Statistics 26 program. Demographic characteristics were analyzed using frequency analysis. Kolmogorov-Smirnov test, Mann-Whitney-U test, Kruskal Wallis-H test, One-Way ANOVA, and t-test were used in analyzing the differences by demographic variables. The reliability values of scales were determined by calculating Cronbach's Alpha coefficients. Confirmatory factor analysis was conducted in order to determine the factor structures separately for LLS and OLRS by using Amos 24 program and path analysis was conducted to test the hypotheses.

Validity and Reliability

"The reliability of a research is expressed using the Cronbach's Alpha coefficient, which is a measure of the inner consistency of the items. Cronbach's Alpha coefficient is described as follows by stating that the items in the scale having a high Alpha Coefficient are consistent with each other and measure the same characteristic:

0 < R2 < 0.40 means not reliable

0.40 < R2 < 0.60 means low reliability

0.60 < R2< 0.80 means very reliable

0.80 < R2 < 1.00 means highly reliable" (Yıldız & Uzunsakal, 2018: 19)

Reliability analysis of the Lifelong Learning Scale revealed a value of 0.883 as presented in Table 2. It means that the data obtained from the scale have high reliability.

Table 2. Reliability Analysis of the Lifelong Learning Scale

Number of Items	Cronbach's Alpha
15	.883

Table 3 presents the results of the reliability analysis conducted for the Online Learning Readiness Scale (OLRS). Since OLRS scale has five subdimensions as Computer/Internet self-efficacy (BI-OY), self-driven learning (OzGud), student control (OgrKont), motivation for learning (OgrMot), and online communication self-efficacy (CI-OY), separate reliability analyses were conducted for these subdimensions.

Examining the reliability analysis results presented in Table 3, since Cronbach's alpha coefficients of OzGud, OgrKont, and CI-OY subdimensions were in the range 0.60 < R2< 0.80, it can be stated that the results obtained from these factors were very reliable. Since the Cronbach's alpha coefficients of BI-OY and OgrMot subdimensions were in the range of 0.80 < R2 < 1.00, it was determined that these factors offered high reliability. Moreover, it was also found that the data obtained from all 18 items of the Online Learning Readiness Scale in total had a Cronbach's Alpha coefficient of 0.907 Cronbach's Alpha, which suggests a very high level of reliability.

Table 3. Reliability Analysis of Online Learning Readiness Scale

Factor	Number of Items	Cronbach's Alpha Value
BI-OY	3	0.838
OzGud	5	0.751
OgrKont	3	0.737
OgrMot	4	0.807
CI-OY	3	0.770
Total	18	0.907

"Normality tests are a prerequisite for many statistical tests because the assumption of parametric tests such as t-test, ANOVA, and Pearson's Correlation Test is that data exhibited normality" (Ölmez, 2019). For this reason, before the factor analysis, the normality analyses were conducted. Since the scale used in this study employ a Likert-type assessment, normality analyses were conducted based on the skewness and kurtosis values.

Table 4 represents the normality analysis results for Lifelong Learning Scale and Table 5 represents the results for Online Learning Readiness Scale.

Table 4. Normality Analysis Results for Lifelong Learning Scale

Items	Mean	Skewness	Kurtosis	Min.	Max.
YBO1	4.33	-.988	.897	1	5
YBO2	4.29	-.953	.090	2	5
YBO3	4.18	-.795	-.195	1	5
YBO4	4.33	-1.222	1.156	1	5
YBO5	3.64	-.336	-.799	1	5
YBO6	2.86	.226	-.838	1	5
YBO7	3.82	-.738	-.190	1	5
YBO8	3.28	-.174	-1.157	1	5
YBO9	3.75	-.556	-.451	1	5
YBO10	3.82	-.590	-.296	1	5
YBO11	4.00	-.865	.320	1	5
YBO12	4.32	-1.068	.823	1	5
YBO13	4.11	-.788	-.191	1	5
YBO14	4.55	-1.301	1.245	2	5
YBO15	3.74	-.527	-.679	1	5

Given the results represented in Table 4, it can be seen that the kurtosis and skewness values of all the items ranged between -1.5 and +1.5.

Table 5. Normality Analysis Results for Online Learning Readiness Scale

Items	Mean	Skewness	Kurtosis	Min.	Max.
BIOY1	3.80	-.756	-.331	1	5
BIOY2	3.66	-.435	-.785	1	5
BIOY3	4.18	-.976	.416	1	5
OZGUD1	4.03	-.827	.016	1	5
OZGUD2	3.90	-.604	-.544	1	5
OZGUD3	3.41	-.325	-.725	1	5
OZGUD4	4.03	-.836	.204	1	5
OZGUD5	4.25	-1.045	.674	1	5
OGRKONT1	3.95	-.670	-.107	1	5
OGRKONT2	3.10	-.082	-1.182	1	5
OGRKONT3	3.86	-.645	-.304	1	5
OGRMOT1	4.29	-1.057	.851	1	5

OGRMOT2	4.00	-.873	.320	1	5
OGRMOT3	4.07	-.983	.769	1	5
OGRMOT4	3.72	-.519	-.662	1	5
CIOY1	3.86	-.769	-.271	1	5
CIOY2	4.04	-.876	.038	1	5
CIOY3	3.84	-.626	-.511	1	5

Given Table 5, it can be seen that the kurtosis and skewness values of the items in all the subdimensions were within the range ± 1.5. "Kurtosis and Skewness values between -1.5 and +1.5 suggests normal distribution" (Tabachnick & Fidell, 2007).

FINDINGS

This section represents the data obtained from the research, the descriptive statistics, and the results obtained from the analyses of these data.

Item and factor mean values refer to the mean values obtained by item and factor as a result of the responses of participants in accordance with the range specified in the Likert scale (between 1 and 5 for 5-Point Likert and between 1 and 7 for 7-Point Likert). This result provides some clues about the participants' tendencies by items and factors.

Table 6 represents the descriptive statistics on the items of the Lifelong Learning Scale. Accordingly, considering the averages of the responses to items with a 5-point Likert-type scale, it can be seen that they were generally higher than 3, which means they were positive. Only the average value of the responses to Item 6 (writing is one of my regular activities) was 2.86 and negative. Considering the general average of the responses to the items of the scale, the mean value was found to be 3.9337 and it suggests that participating university students' tendencies toward lifelong learning skills were positive.

Table 6. Item and Factor Averages in LLS

Items	Min.	Max.	Mean	Std. Deviation
LLS1	1	5	4.33	.763
LLS 2	2	5	4.29	.836
LLS 3	1	5	4.18	.885
LLS 4	1	5	4.33	.872
LLS 5	1	5	3.64	1.104
LLS 6	1	5	2.86	1.229
LLS 7	1	5	3.82	1.107
LLS 8	1	5	3.28	1.330
LLS 9	1	5	3.75	1.069
LLS 10	1	5	3.82	1.025
LLS 11	1	5	4.00	.987
LLS 12	1	5	4.32	.815
LLS 13	1	5	4.11	.939
LLS 14	2	5	4.55	.646
LLS 15	1	5	3.74	1.144
LLS Average	1.80	5.00	3.9337	.61574

Considering the standard deviation values, it can be seen that they were generally close to 1. It suggests that the data were close to the average. The item with the smallest standard deviation (0.646) was Item 14 "I like learning new things".

The item with the highest standard deviation (1.33) was Item 8 "I visit libraries and bookstores to find interesting books and journals". In other words, while participating students' responses to Item 14 were closest to each other, their responses to Item 8 were relatively more different.

Descriptive statistics on the Online Learning Readiness Scale (OLRS) are shown in Table 7. Similarly, it can be seen that all the averages of responses to items with a 5-Point Likert scale were higher than 3 and, in other words, they were positive.

Table 7. Item and Factor Averages on OLRS

Items	Min.	Max.	Mean	Std. Deviation
BIOY1	1	5	3.80	1.176
BIOY2	1	5	3.66	1.155
BIOY3	1	5	4.18	.912
OZGUD1	1	5	4.03	1.011
OZGUD2	1	5	3.90	1.055
OZGUD3	1	5	3.41	1.167
OZGUD4	1	5	4.03	.968

OZGUD5	1	5	4.25	.874
OGRKONT1	1	5	3.95	.964
OGRKONT2	1	5	3.10	1.362
OGRKONT3	1	5	3.86	1.041
OGRMOT1	1	5	4.29	.821
OGRMOT2	1	5	4.00	1.000
OGRMOT3	1	5	4.07	.928
OGRMOT4	1	5	3.72	1.153
CIOY1	1	5	3.86	1.151
CIOY2	1	5	4.04	1.026
CIOY3	1	5	3.84	1.123

Given the standard deviation values, similar to the LLS scale, it can be seen that the standard deviation was generally close to 1. It means that the data were distributed close to the average.

"Although there is a consensus among researchers about reporting χ2/sd in structural equation research studies (Mulaik et al., 1989), different researchers suggested different opinions about which one(s) of other fit indices to be reported. McDonald and Ho (2002) recommended CFI, GFI, NFI, and NNFI (TLI), whereas Garver and Mentzer (1999) recommended RMSEA, CFI, and NNFI (TLI), Brown (2006) recommended RMSEA, SRMR, CFI, and NNFI (TLI), and Iacobucci (2010) recommended CFI and SRMR fit indices. Gerbing and Anderson (1992) stated that, depending on the objective of researchers, different fit indices might be reported" (İlhan & Çetin, 2013). Within this context, among the abovementioned fit indices, the present study reports CMIN/df, CFI, TLI, RMSEA, and SRMR.

Although there are different opinions about what the threshold for the model fitness values should be, these values are accepted within certain limits. "Calculated χ2/df ratio being 5, GFI and AGFI values being higher than 0.90, and RMR and RMSEA values being lower than 0.05 suggest a model-data fitness. Besides that, GFI higher than 0.85, AGFI higher than 0.80, and RMR and RMSEA values lower than 0.10 are considered as the lower threshold for the model-data fitness" (Engin, Kör, & Erbay, 2017).

"NFI value ranges between 0 and 1 and, as a threshold, the value of 0.90 is considered to refer to a good fit (…) In literature, there are different opinions about the TLI threshold value. Besides the threshold values such as TLI>0.80, there also are high threshold values such as TLI>0.95" (Yaşlıoğlu, 2017).

CFI is a criterion that is influenced by the degree of freedom and the sample size. This value is desired to be close to 1. CFI values higher than .90 refer to a good fit and those higher than .95 refer to a perfect fit (Uğurlu & Arslan, 2019).

"Model's fit increases as SRMR values become closer to 0. A model is considered to have a good fit if it has an SRMR value lower than 0.05 and an acceptable fit if it has an SRMR value between 0.05 and 0.10" (Özabacı, 2011).

In the light of these data, the goodness of fit and sufficient fit values accepted in the literature are presented in Table 8.

Table 8. Goodness of Fit Criteria

	CMIN/df	CFI	NFI-TLI	RMSEA	SRMR
Perfect	<2.5	>0.95	>0.95	<0.05	<0.05
Sufficient	<5	>0.90	>0.80	<0.08	<0.10

The CFA model, which was established using the data obtained from 390 participants the Lifelong learning scale was administered to, was analyzed by using the AMOS 24 program. The goodness of fit values obtained and the acceptable goodness of fit values are presented in Table 6. Given the results in Table 6, it was determined that the model didn't meet the required "goodness of fit" values other than the SRMR value.

Table 9. LLS Goodness of Fit Values

	CMIN/df	CFI	TLI	RMSEA	SRMR
Sufficient Goodness of Fit Values	<5	>0.90	>0.80	<0.08	<0.10
Goodness of Fit Values of the First Model	5.837	.799	.765	.112	.0698
Goodness of Fit Values of the Corrected Model	3.340	.908	.886	.078	.0551

In order to improve the goodness of fit values, the modification indices were checked first and then covariances were defined between YBO12-YBO14, YBO9-YBO10, YBO1-YBO5, YBO2-YBO9, and YBO5-YBO8, respectively (Figure 1). Then, the goodness of fit values were found to be higher than the sufficient level, as seen in Table 9.

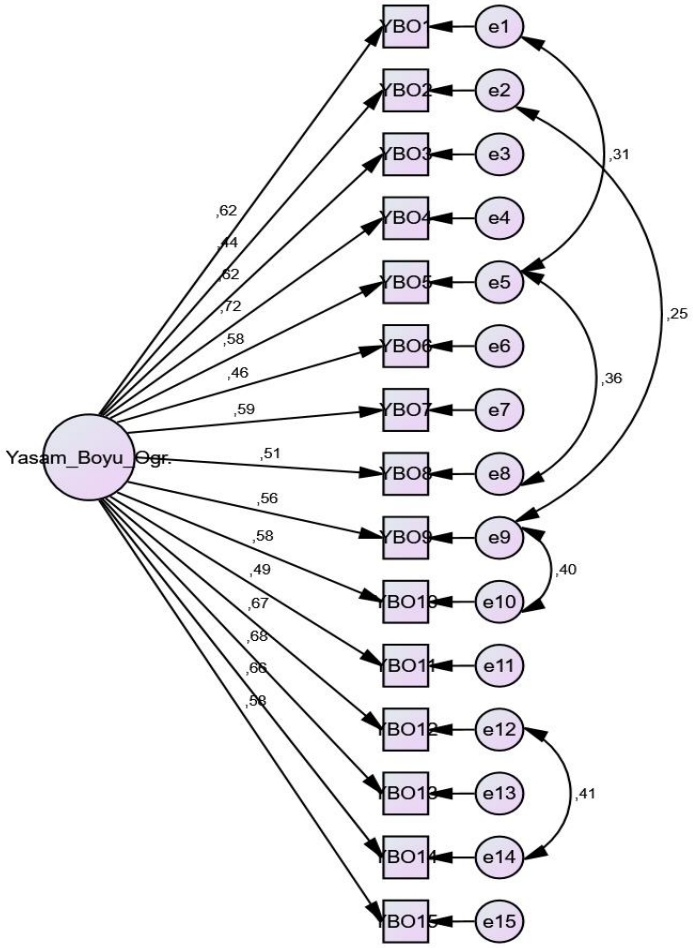


Figure 1. Lifelong Learning Scale CFA Model

Table 10 represents the standardized regression coefficients obtained from the analysis of the model. In confirmatory factor analysis, these values show the factor loads. To be considered significant, factor loads should be at specific levels. "Increasing number of samples decreases the acceptable factor load. While loads higher than 0.3 can be considered significant for a sample size of 350 individuals, this value increases to 0.4 when the number of samples decreases to 200, it increases to 0.5 when the sample size decreases to 120, and it increases to 0.6 when the sample size decreases to 85. The acceptable value for the sample size of 50 is 0.75. Factor analysis is not recommended for sample sizes lower than 50" (Hair et al., 2010).

Table 10. LLS Standardized Regression Coefficients

Item	Scale Item	Coefficient
LLS1	(Lifelong_Learning1)	.624
LLS2	(Lifelong_Learning2)	.444
LLS3	(Lifelong_Learning3)	.620
LLS4	(Lifelong_Learning4)	.717
LLS5	(Lifelong_Learning5)	.576
LLS6	(Lifelong_Learning6)	.457
LLS7	(Lifelong_Learning7)	.593
LLS8	(Lifelong_Learning8)	.509
LLS9	(Lifelong_Learning9)	.556
LLS10	(Lifelong_Learning10)	.578
LLS11	(Lifelong_Learning11)	.490
LLS12	(Lifelong_Learning12)	.666
LLS13	(Lifelong_Learning13)	.683
LLS14	(Lifelong_Learning14)	.656
LLS15	(Lifelong_Learning15)	.577

Since the sample size in the present study was 390, load values higher than 0.3 can be considered significant. As seen in Table 10, the coefficient of Item LLS2 having the lowest one was 0.444 and that of Item LLS4 having the highest one was 0.717. Thus, it can be stated that all the items have acceptable factor loads.

Online Learning Readiness Scale was administered to 390 students together with the Lifelong Learning Scale. The model established for CFA in Amos software is presented in Figure 2. In Table 11, the goodness of fit values obtained from the model are presented together with the acceptable goodness of fit values. Given the values, it can be seen that CMIN/df, TLI, and SRMR values were good enough but CFI and RMSEA values were outside the expected limits.

Examining the modification indices, covariances were defined for OZGUD3-OZGUD5, CIOY2-CIOY3, OZGUD1-OZGUD5, OGRMOT1-OGRMOT2, and OGRMOT2-OGRMOT3, respectively. Then, as seen in Table 8, the goodness of fit values increased to higher than the sufficient levels.

Table 11. OLRS Goodness of Fit Values

	CMIN/df	CFI	TLI	RMSEA	SRMR
Sufficient Goodness of Fit	<5	>0.90	>0.80	<0.08	<0.10
Goodness of Fit for the First Model	3.926	.888	.863	.087	.0635
Goodness of Fit for the Corrected Model	3.287	.916	.893	.077	.0547

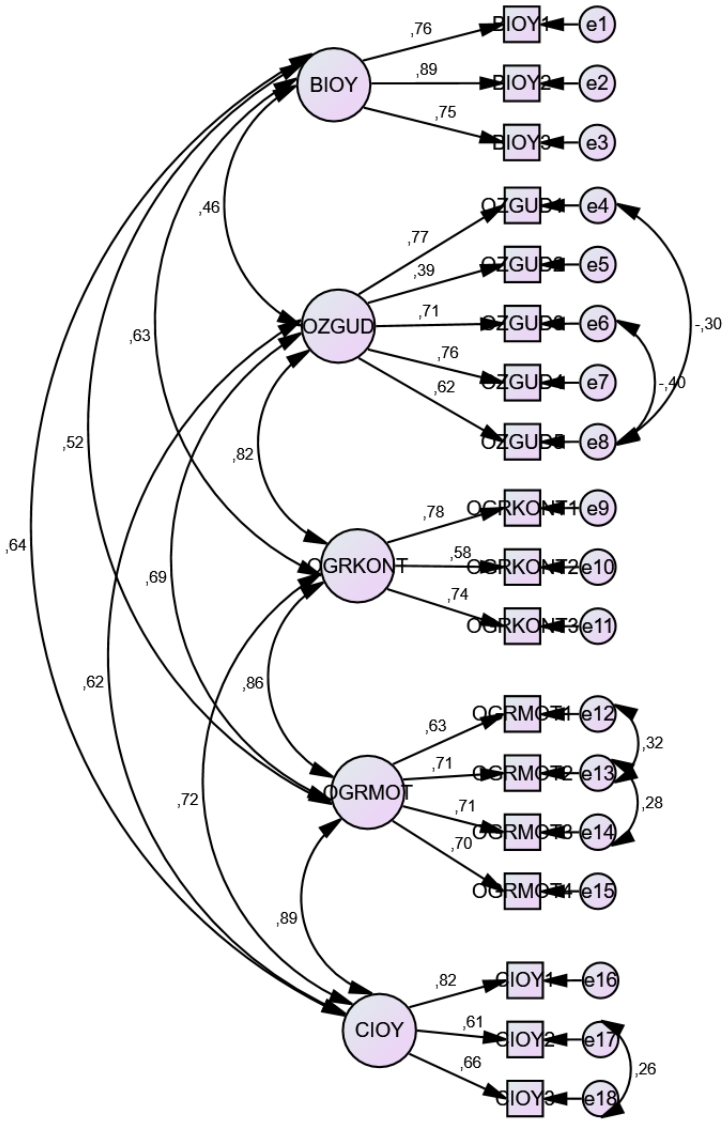


Figure 2. Corrected CFA Model for the Online Learning Readiness Scale

Table 12 presents the standardized regression coefficients obtained from the analysis of the OLRS model. Given these values, it can be seen that the item "Self-Driven Learning 2" had the lowest value (0.395). Hence, coefficients of all the items were higher

than the acceptable values. On the other hand, it can also be seen that the item “Computer and Internet Self-Efficacy 2” had the highest coefficient (0.894).

Table 12. OLRS Standardized Regression Coefficients

Scale Item		Coefficient
BIOY1	(Computer and Internet Self-Efficacy 1)	.765
BIOY2	(Computer and Internet Self-Efficacy 2)	.894
BIOY3	(Computer and Internet Self-Efficacy 3)	.752
OZGUD1	(Self-Driven Learning 1)	.767
OZGUD2	(Self-Driven Learning 2)	.395
OZGUD3	(Self-Driven Learning 3)	.713
OZGUD4	(Self-Driven Learning 4)	.759
OZGUD5	(Self-Driven Learning 5)	.616
OGRKONT1	(Student Control 1)	.784
OGRKONT2	(Student Control 2)	.578
OGRKONT3	(Student Control 3)	.738
OGRMOT1	(Motivation for Learning 1)	.629
OGRMOT2	(Motivation for Learning 2)	.712
OGRMOT3	(Motivation for Learning 3)	.714
OGRMOT4	(Motivation for Learning 4)	.698
CIOY1	(Online Communication Self-Efficacy 1)	.820
CIOY2	(Online Communication Self-Efficacy 2)	.607
CIOY3	(Online Communication Self-Efficacy 3)	.656

Mean scores on Lifelong Learning by the gender subgroups are presented in Table 13.

Table 13. Mean Scores on LLS and OLRS by Gender Subgroups

	Gender	N	Mean	Std. Deviation
LLS_Mean	Female	227	4.0250	.60573
	Male	163	3.8065	.60877
OLRS_Mean	Female	227	3.9053	.66995
	Male	163	3.8334	.67423

The results of the normality test for the mean scores on Lifelong Learning by gender subgroups are presented in Table 14.

Table 14. LLS and OLRS Normal Distribution by Gender

	Gender	Kolmogorov-Smirnov		
		Statistic	df	Sig.(p)
LLS_Mean	Female	0.074	227	0.005
	Male	0.072	163	0.04
OLRS_Mean	Female	0.055	227	0.093
	Male	0.046	163	.200*

Given the results presented in Table 14, since the coefficient was not higher than .05, it can be stated that there was no normal distribution. Thus, the Mann-Whitney-U test was used in order to examine if there was a difference between the groups in terms of mean scores on the Lifelong Learning Scale. The results obtained from this test showed that there was a statistically significant difference between women and men in terms of the mean scores on the Lifelong Learning Scale (U=14445, p=.000). It suggests that Hypothesis H1 was accepted. As seen in Table 13, the mean rank of women was 4.03, whereas that of men was 3.80. It shows that the lifelong learning mean scores of women participants were higher than those of men participants.

The result of the normality test between the online learning readiness mean scores of genders is presented in Table 14. Given these results, it can be seen that there was a normal distribution since p>.05. t-Test was used in order to determine if there was a difference between online learning readiness mean scores of women and men. It was found that there was a statistically significant difference between the mean scores of women and men on the Online Learning Readiness Scale [t(388)=0.092, p=0.001]. This finding suggests that Hypothesis H2 was accepted. In Table 13, it can be seen that the online learning readiness mean score of women ($\bar{X}$=3.91) was higher than those of men ($\bar{X}$=3.83).

Table 15. Descriptive Statistics of LLS and OLRS Mean Scores by the Type of Education Program

Score	Type of education program	N	Mean	Std. Deviation	Std. Error	Reliability Range for the Average of 95 Lower Limit	Upper Limit	Min.	Max
LLS_Mean	Associate Degree	31	3.8473	.84243	.15130	3.5383	4.1563	1.80	5.00
	Undergraduate	262	3.8593	.59048	.03648	3.7875	3.9311	2.00	5.00
	Postgraduate	97	4.1622	.54432	.05527	4.0525	4.2719	2.80	5.00
	Total	390	3.9337	.61574	.03118	3.8724	3.9950	1.80	5.00
OLRS_Mean	Associate Degree	31	3.7178	.96074	.17255	3.3654	4.0703	1.67	5.00
	Undergraduate	262	3.7894	.63146	.03901	3.7125	3.8662	1.96	5.00
	Postgraduate	97	4.1576	.58963	.05987	4.0387	4.2764	2.83	5.00
	Total	390	3.8752	.67181	.03402	3.8084	3.9421	1.67	5.00

Table 15 presents the mean scores on LLS and PLRS by educational level. A normality test was conducted in order to if the difference between online learning readiness mean scores and between lifelong learning scale mean scores by educational level and the results are shown in Table 16.

Table 16. LLS and OLRS Mean Scores P. Normality Test by Educational Level

Score	Type of education program	Kolmogorov-Smirnova Statistic	df	Sig.
LLS_Mean	Associate degree	0.183	31	0.009
	Undergraduate degree	0.057	262	0.04
	Postgraduate degree	0.092	97	0.044
OLRS_Mean	Associate degree	0.118	31	.200*
	Undergraduate degree	0.044	262	.200*
	Postgraduate degree	0.086	97	0.077

Given the results shown in Table 16, it can be seen that there was no normal distribution in the mean scores on Lifelong Learning Scale by the educational level (p<.05). Since there was no normal distribution, the non-parametric Kruskal-Wallis test was conducted in order to determine if there was a significant difference between the mean LLS scores.

Table 17. Kruskal-Wallis-H Test on Mean LLS Scores by the Level of Educational Program

Score	Groups	N	Mean Rank	Chi-Square	sd	P
LLS_Mean	Associate	31	193.15	16.018	2	.000
	Undergraduate	262	181.23			
	Postgraduate	97	234.79			
	Total	390				

As can be seen in Table 17, by using the Kruskal Wallis-H test, it was aimed to determine if the mean scores of students on the LLS differed significantly by their educational level. Accordingly, it was determined that there was a statistically significant difference between the mean scores on LLS by the current educational program, in which the students were enrolled (x2=16,018; sd=2; p<.05). This finding suggests that Hypothesis H3 was accepted. Mann Whitney-U test was used in determining between which educational levels there was a statistically significant difference. As a result of the analyses, it was revealed that there was a statistically significant difference between the LLS scores of postgraduate students and undergraduate students and the scores of postgraduate students were higher (U=9175; z=-4,05; p=.00). Considering the mean scores in Table 15, it can be seen that mean OLRS scores of postgraduate students ($\bar{X}$=4.16) were higher than those of undergraduate students ($\bar{X}$=3.79).

Table 18. Educational Levels and OLRS ANOVA test

Score		Sum of Squares	df	Mean Square	F	Sig.
OLRS_Mean	Between Groups	10.432	2	5.216	12.224	.000
	Within Groups	165.136	387	.427		
	Total	175.568	389			

Examining the normality test results presented in Table 16, it was determined that the mean scores on OLRS by educational levels had a normal distribution (p>.05). Since there was a normal distribution, the One-Way ANOVA test was conducted to examine if there was a difference between the OLRS scores by the current educational program, as seen in Table 18, and a statistically significant difference was found between the groups (F2-387=12.22; p=.00). This finding suggests that Hypothesis H4 was accepted. Considering the results obtained from the Levene test conducted in order to test the distribution between variances, it was determined as seen in Table 19 that there was a homogeneous distribution (p=.001).

Table 19. Homogeneity between Variances

	Levene Statistic	df1	df2	Sig.
OLRS_Mean	7.313	2	387	.001

Among Post-Hoc tests, the Scheffe test was conducted in order to reveal between which educational programs there was a difference in terms of OLRS scores and the results are presented in Table 20.

Table 20. Scheffe Test Results

Dependent Variable				Mean Difference (I-J)	Std. Error	Sig.	95% confidence level for average	
							Lower Lim	Upper Lim
OLRS Mean	Scheffe	Associate	Undergraduate	-.07150	.12407	.847	-.3764	.2334
			Postgraduate	-43971*	.13477	.005	-.7709	-.1085
		Undergraduate	Associate	.07150	.12407	.847	-.2334	.3764
			Postgraduate	-.36821*	.07764	.000	-.5590	-.1774
		Postgraduate	Associate	.43971*	.13477	.005	.1085	.7709
			Undergraduate	.36821*	.07764	.000	.1774	.5590

Given Table 20, it can be seen that there was a difference between undergraduate and postgraduate students and that, considering the data presented in Table 15, it can be concluded that the mean OLRS score of postgraduate students ($\bar{X}$=3.78) was higher than that of undergraduate students ($\bar{X}$=4.15).

"Path analysis is a method that can define the effects of external variables on internal variable(s) as direct, indirect, and total effect, which refers to the sum of direct and indirect effects, and allows facilitating the presentation of complex effect systems by illustrating these effect on a path schema" (Oktay, Akıncı, & Karaaslan, 2012).

In this step, the path analysis model, in which the hypotheses questioning if Lifelong Learning has effects on the subdimensions of OLRS could be tested, was established by using the AMOS 24 program. Goodness of fit of the structural model is presented in Table 21.

Table 21. Goodness of Fit Values of Path Analysis

	CMIN/df	CFI	TLI	RMSEA	SRMR
Sufficient Goodness of Fit	<5	>0.90	>0.80	<0.08	<0.10
Goodness of Fit for the First Model	3.834	.766	.748	.085	.0830
Goodness of Fit for the Corrected Model	3.187	.822	.805	.075	.0742

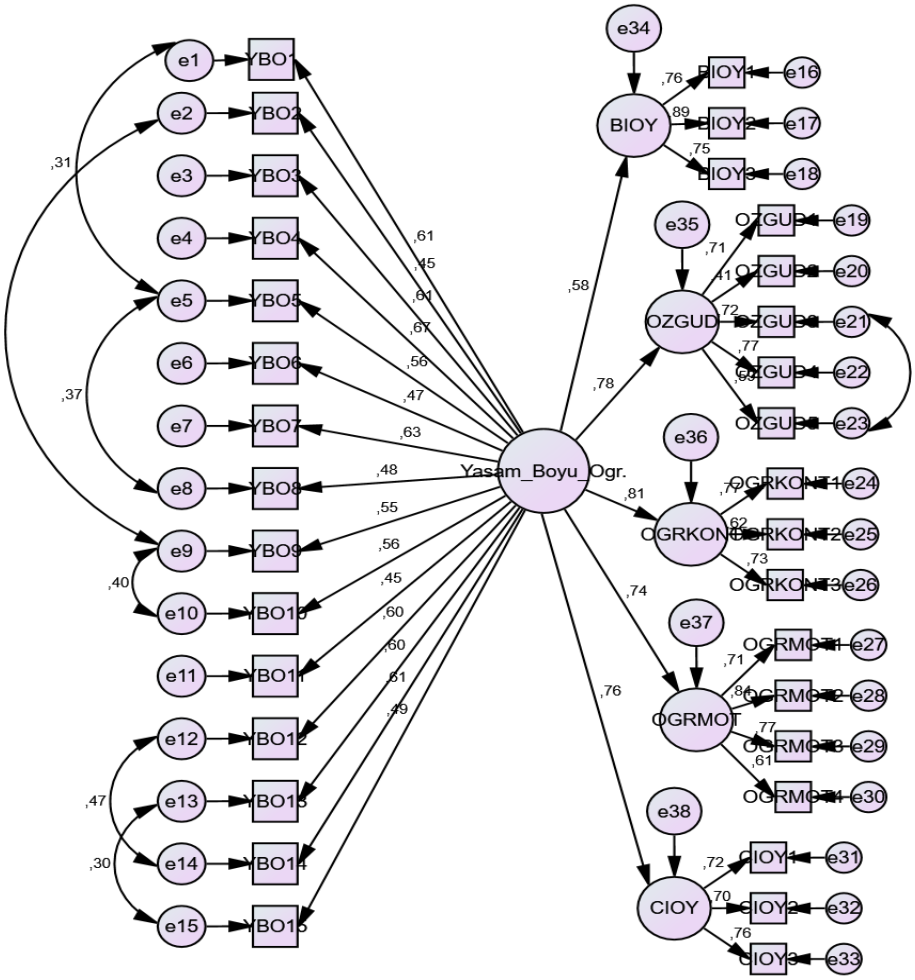


Figure 3. Path Analysis Model for the Effects of LL on Subdimensions of OLRS

Examining the first results obtained from the analysis of the model, it was determined that the values other than CMIN/df and SRMR did not have a suitable goodness of fit value. Controlling the modification indices, covariances were described for YBO12-YBO14, YBO9-YBO10, YBO5-YBO8, YBO1-YBO5, YBO13-YBO15, YBO2-YBO9, and OZGUD3-OZGUD5 and the goodness of fit values of the corrected model (Figure 3) offered sufficient goodness of fit values, except for CFI.

"Each fit index has critical limit points. Those are not exact ones but an acceptance. It is normal for the goodness of fit models established in newly developing areas to be below the critical limits" (Ayyıldız & Cengiz, 2006). Since the model would be tested recently and the other four parameters were meeting the goodness of fit criteria, the fact that the CFI value was lower than 0.9 was ignored and the hypothesis testing phase was initiated.

Table 22 represents the test results obtained for the hypotheses by using the path analysis. Hypothesis tests were conducted considering the t value (C.R.- critical ratio) and p values. Positivity and negativity of the t value determine the direction of the relationship. If the t value is positive, then the relationship between the factors is in the specified direction (positive). Otherwise, the relationship is negative. Within this context, it means that the p-value was lower than 0.05. Moreover, it also means that the hypotheses with t values higher than 1.96 and positive relationship were supported. Hypothesis test results are presented in Table 22.

Table 22. Path Analysis Results on Structural Relationships

Hypotheses	B	S.E	t (C.R)	P value	Result
H5:LLS ⟶ BIOY	0.578	0.131	+ 8.496	<0.001	Supported
H6:LLS ⟶ OzGud	0.782	0.121	+ 9.922	<0.001	Supported
H7:LLS ⟶ OgrKont	0.813	0.123	+ 10.491	<0.001	Supported
H8:LLS ⟶ OgrMot	0.736	0.095	+ 9.593	<0.001	Supported
H9: LLS ⟶ CIOY	0.760	0.140	+ 9.669	<0.001	Supported

Given the results presented in Table 22, it can be seen that Lifelong Learning had a positive and significant effect on the 5 subdimensions of OLRS. Hence, all 5 hypotheses (H5, H6, H7, H8, H9) were supported in the path analysis. Although there was no very high difference between t values, Hypothesis H7 had the highest value (10.491). In other words, Lifelong Learning had the highest effect on the Student Control (OGRKONT) subdimension of OLRS. Hypothesis H5 had the lowest t-value (8.496). Thus, the subdimension, on which Lifelong Learning had the relatively lowest effect, was Computer/Internet Self-Efficacy (BIOY).

DISCUSSION

It is very important to determine the factors influencing individuals' self-efficacy and readiness levels regarding the lifelong learning and online learning, among the most important educational concepts of today. Lifelong learning and online learning readiness scales developed for this purpose aim to determine those factors. In this study, among the prominent scales in the literature, the Turkish adaptation versions of the Lifelong Learning Scale developed by Wielkiewicz & Meuwissen (2014) and the Online Learning Readiness Scale developed by Hung et al. (2010) were used.

During the process, it was first tested if the gender and the education program in the university studied had an effect on the lifelong learning and online learning readiness concepts. The analyses showed that the lifelong learning scores of women were slightly higher than those of men. The results were in parallel with those reported by Kozikoğlu & Altunova (2018). On the other hand, in a previous study, Savuran (2014) determined that there was no difference between the genders in terms of lifelong learning competencies and age and department of graduation created a significant difference. Considering from the educational program being attended, there was no remarkable difference between associate degree students and undergraduate students in terms of lifelong learning but, as expected, lifelong learning levels of postgraduate students were higher than those of associate degree and undergraduate students. Similarly, Kozikoğlu & Altunova (2018) also found that lifelong learning levels of preservice teachers planning to do a master's degree were higher than the others.

Examining from the aspect of online learning readiness levels, women were found to be slightly better in comparison to men. In their study carried out on teachers, Üstün, Karaoğlan-Yılmaz, & Ramazan (2020) determined that online learning readiness level of female teachers was higher than male teachers. Examining the online learning readiness from the aspect of the type of program being attended in, there was no significant difference between undergraduate and associate degree programs but students having postgraduate education had a higher level of online learning readiness.

Considering the online learning readiness level, it was found to be worth further examining that there was no significant difference between associate degree students and other groups but there was a significant difference between undergraduate students and postgraduate students. It was thought that it might be because, in 390 participants, there were only 31 associate degree students. For this reason, a future study to be carried out with a higher number of associate degree students and a larger samples size would be useful in order to shed light on this subject.

CONCLUSION AND RECOMMENDATIONS

In the present study, it was actually aimed to determine if the lifelong learning was effective on the subdimensions of online learning readiness. Analyzing the structural model established within this context, it was found that lifelong learning had positive and significant relationships with each subdimension. In literature, the study that is similar to the present study the most is the one carried out by Çavuşoğlu & Acar (2020) measuring the relationship between students' opinions on distance education and their level of lifelong learning. Çavuşoğlu & Acar (2020) determined a positive relationship between the scores in effectiveness and familiarity subdimensions of the scale on opinion about distance education, which they used, and the lifelong learning scores. It suggests that the relationship between LL and OLRS might be a bidirectional one.

Examining the analysis data in detail, among the subdimensions of OLRS, LLS had the highest effect on Student Control, followed by Self-Driven Learning, Online Communication Self-Efficacy, Motivation for Learning, and Computer/Internet Self-Efficacy. Examining the factor loads of Lifelong Learning Scale, the highest factor load was found in LLS4 (0.717), followed by YBÖ13, YBÖ12, and YBÖ14 having close values, respectively. Those items were "I consider myself as a person that learns lifelong", "My area of interest regarding learning is very wide", "I am a person wondering many things", and "I love learning new things". Considering the items, it can be seen that they mainly focus on interest, curiosity, and pleasure from learning new things. Therefore, the activities aiming to increase the interest, motivation, and curiosity of individuals toward learning new things would contribute to the increase in their level of lifelong learning and, consequently, it would help increase their online learning readiness level.

Although it changed in the course of years in terms of shape, method, environment, and materials used, education will always have an important place in our lives, as it has always had. Achieving the desired outcomes from education, which started to become gradually more online in parallel with the changing necessities of this era and thanks to the advancement in technology, depends on accurately determining the paths and methods to be used and effectively and efficiently using them.

Within this context, it is thought that the studies aiming to determine the factors influencing the concepts such as lifelong learning and online learning readiness and reveal the relationships and interactions between these concepts would play a guiding light role in improving the education and lifelong learning.

Declaration of Conflicting Interests

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

Funding

The author(s) received no financial support for the research, author-ship, and/or publication of this article.

Statements of publication ethics

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

Researchers' contribution rate

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

Ethics Committee Approval Information

Before administering the above mentioned 3-part questionnaire to the university students, the approval was obtained from the Ethics Committee of Bursa Uludağ University (26.11.2021, 2021-10).

REFERENCES

A.Mulaik, S., James, L. R., Alstine, J. V., Bennet, N., Lind, S., & Stilwell, C. D. (1989). Evaluation of goodness-of-fit indices for structural equation models. Psychological Bulletin, 430-445. https://doi.org/10.1037/0033-2909.105.3.430 adresinden 05.1.2022 tarihinde erişilmiştir.

Ayyıldız, H., & Cengiz, E. (2006). Pazarlama Modellerinin Testinde Kullanılabilecek Yapısal Eşitlik Modeli (Yem) Üzerine Kavramsal Bir İnceleme. Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 63-84.

Boztepe, Ö., & Demirtaş, Z. (2016). The Adaptation of Lifelong Learning Scale intoTurkish Culture. Journal of Family, Counseling, and Education, 10-17.

Brown, T. A., & Moore, M. T. (2012). Confirmatory Factor Analysis. Handbook of structural equation modeling, 361-379.

Çavuşoğlu, G., & Acar, K. (2020). Üniversite Öğrencilerinin Uzaktan Eğitime Yönelik Görüşleri ile Yaşam Boyu Öğrenme Düzeyleri Arasındaki İlişki. Spor ve Performans Araştırmaları Dergisi, 207-220.

Engin, M. (2013). Üniversitelerin Teknoloji Temelli Uzaktan Eğitim Sistemlerinin Karakteristik Özellikleri Açısından İncelenmesi. Eğitim Bilimleri ve Uygulama Dergisi, 1-22.

Engin, M., Kör, H., & Erbay, H. (2017). Yaşam Boyu Öğrenme Ölçeği Türkçe Uyarlama Çalışması. Kastamonu Eğitim Dergisi, 1561-1572.

Güleç, İ., Çelik, S., & Demirhan, B. (2012). Yaşam Boyu Öğrenme Nedir? Kavram ve Kapsamı Üzerine Bir Değerlendirme. Sakarya University Journal of Education, 34-48.

Hair, o. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Multivariate Data Analysis. Essex: Pearson Education.

Hung, M.-L., Chou, C., Chen, C.-H., & Own, Z.-Y. (2010). Learner readiness for online learning: Scale development and student perceptions. Computers & Education, 1080-1090.

Kozikoğlu, İ., & Altunova, N. (2018). Öğretmen Adaylarının 21. Yüzyıl Becerilerine İlişkin Öz-yeterlik Algılarının Yaşam Boyu Öğrenme Eğilimlerini Yordama Gücü. Yükseköğretim ve Bilim Dergisi, 522-531.

Kumar, R. (2015). Araştırma Yöntemleri - Yeni Başlayanlar İçin Adım Adım Araştırma Rehberi. (Ö. Çokluk, Dü., Ö. Çokluk, G. Şekercioğlu, & H. Atak, Çev.) Ankara: Edge Akademi Yayıncılık.

McDonald, R. P., & Ho, M.-H. R. (2002). Principles and Practice in Reporting Structural Equation Analyses. Psychological Methods, 64-82.

More, M. G., & Kearsley, G. (2005). Distance Education: A System View of Online Learning. Wadsworth: Cengage Learning.

Oktay, E., Akıncı, M. M., & Karaaslan, A. (2012). Yol Analizi Yardımıyla Dersler Arasındaki Etkileşimin Araştırılması: Atatürk Üniversitesi İktisadi ve İdari Bilimler Fakültesi İşletme. Atatürk Üniversitesi İktisadi ve İdari Bilimler Dergisi, 67-83.

Ölmez, C. (2019, Şubat 2). Normallik Testleri-Spss. https://cengizolmez.com adresinden 12.10.2021 tarihinde erişilmiştir.

Özabacı, N. (2011). İlişki Niteliği Ölçeği'nin Türkçe Uyarlaması: Geçerlik ve Güvenirlik Çalışması. Eğitim ve Bilim, 159-167.

Saruhan, Ş. C., & Özdemirci, A. (2020). Bilim, Felsefe ve Metodoloji. İstanbul: Beta.

Savuran, Y. (2014). Life-Long Learning Competencies Of Prospective English Language Teachers In Comparison With Their Mentors. Ankara: Hacettepe University Graduate School Of Educational Sciences.

Tabachnick, B. G., & Fidell, L. S. (2007). Using Multivariate Statistics. Boston: Pearson.

Uğurlu, C. T., & Arslan, C. (2019). Sendikal Tutum Ölçeği: Geçerlik ve Güvenirlik Çalışması. İnönü Üniversitesi Eğitim Bilimleri Enstitüsü Dergisi, 78-90.

Üstün, A. B., Karaoğlan-Yılmaz, F. G., & Yılmaz, R. (2020). Öğretmenler E-Öğrenmeye Hazır mı? Öğretmenlerin E-Öğrenmeye Yönelik Hazır Bulunuşluklarının İncelenmesi Üzerine Bir Araştırma. Ahmet Keleşoğlu Eğitim Fakültesi Dergisi, 54-69.

W.Gerbing, D., & C.Anderson, J. (1992). Monte Carlo Evaluations of Goodness of Fit Indices for Structural Equation Models. Sociological Methods & Research, 132-160.

Wielkiewicz, R. M., & Meuwissen, A. S. (2014). A Lifelong Learning Scale for Research and Evaluation of Teaching and Curricular Effectiveness. Teaching of Psychology, 220-227.

Yaşlıoğlu, M. M. (2017). Sosyal Bilimlerde Faktör Analizi ve Geçerlilik: Keşfedici ve Doğrulayıcı Faktör Analizlerinin Kullanılması. İstanbul Üniversitesi İşletme Fakültesi Dergisi, 74-85.

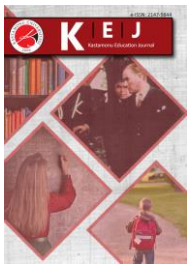
Yıldırım, S., Yıldırım, G., Çelik, E., & Karaman, S. (2014). Uzaktan Eğitim Öğrencilerinin Uzaktan Eğitime Yönelik Görüşleri:Bir Ölçek Geliştirme Çalışması. Eğitim ve Öğretim Araştırmaları Dergisi, 365-370.

Yıldız, D., & Uzunsakal, E. (2018). Alan Araştırmalarında Güvenilirlik Testlerinin Karşılaştırılması ve Tarımsal Veriler Üzerine Bir Uygulama. Uygulamalı Sosyal Bilimler Dergisi, 14-28.

Yurdugül, H., & Sarıkaya, D. A. (2013). Çevrimiçi Öğrenme Hazır Bulunuşluluk Ölçeği: Geçerlik ve Güvenirlik Çalışması. Eğitim ve Bilim, 391-406.

Yükseköğretim Bilgi Yönetim Sistemi. (2021, 5 5). Yükseköğretim Kurulu: https://istatistik.yok.gov.tr/ adresinden 24.12.2021 tarihinde erişilmiştir.

Kastamonu Education Journal, 2024, Vol. 32, No:1,113-126
doi: 10.24106/kefdergi.1426652



| Research Article / Araştırma Makalesi |

Examination of Music Teachers' Childhood Experiences of Music

Müzik Öğretmenlerinin Çocukluk Dönemi Müzik Yaşantılarının İncelenmesi[1]

Cemal Algan[2], Abdullah Çetin[3]

Keywords
1. Art
2. Music education
3. Music experience

Anahtar Kelimeler
1. Sanat
2. Müzik Eğitimi
3. Müzik Yaşantısı

Received/Başvuru Tarihi
02.08.2023

Accepted / Kabul Tarihi
29.12.2023

Abstract

Purpose: This study aims to examine the musical experiences of music teachers in childhood.

Design/Methodology/Approach: The research was conducted using the phenomenology research design within the framework of the qualitative research approach. Participants of the study consist of twenty-three music teachers working in the secondary and high schools affiliated with the Ministry of Education in the Kahramanmaraş province in the 2020-2021 academic year. The research data were collected using a semi-structured interview form and conducted for content analysis.

Findings: Family, teacher, school, and environment play an important role in individuals' musical experiences in childhood. Participants' tendency towards music during childhood is attributed to their parents' interest in music and encouragement of music in their children, discovery and guidance of the students' musical talent, the facilities offered by the school, including an appropriate setting for learning music, organization of the musical activities such as choirs and courses at school, and events held by non-governmental organizations.

*Highlights: I*t is seen that music helped introverted and/or shy individuals socialize by allowing them to express themselves better. It was also revealed that the participants interested in music during childhood were self-confident, happy, and peaceful individuals with a wide social circle and without financial concerns.

Öz

Çalışmanın amacı: Bu araştırmanın amacı, müzik öğretmenlerinin çocukluk dönemini, müzik yaşantısı bakımından incelemektir.

Materyal ve Yöntem: Araştırma nitel araştırma desenlerinden biri olan olgubilim deseninde gerçekleştirilmiştir. Araştırmanın çalışma grubunu, 2020-2021 eğitim öğretim yılı, Kahramanmaraş ili, merkez ilçelerinde yer alan ortaokul ve liselerde müzik öğretmeni olarak görev yapan yirmi üç öğretmen oluşturmuştur. Araştırmada veriler yarı yapılandırılmış görüşme formu toplanmıştır. Verilerin analizinde içerik analizi tekniğinden faydalanılmıştır.

Bulgular: Bireylerin çocukluktaki müzik yaşantıları üzerinde aile, öğretmen, okul ve çevre önemli bir rol oynamıştır. Katılımcıların çocukluk döneminde müziğe yönelmelerinde; ailenin müziğe ilgisi, müzik dersine giren öğretmenlerin müziği sevdirmesi ve çocuğun yeteneğini keşfedip yönlendirmesi etkili olmuştur. Bunların yanında okulun müzik ortamı için sunduğu imkânlar, sivil toplum kuruluşlarında düzenlenen müzik etkinlikleri, arkadaşlarının müzikle ilgilenmesi, çevrenin motive etmesi de müziğe yönelmelerinde etkili olmuştur.

Önemli Vurgular: Müziğin katılımcıların hayatına yansımasına bakıldığında müzikle ilgilenmeden önce içine kapanık, utangaç bir yapıda olan bireylerin müzikle ilgilendikten sonra sosyal, kendini iyi ifade edebilen bireyler olduğu görülmüştür. Çocukluk döneminde müzikle ilgilenen katılımcıların kendine güvenen, sosyal çevresi geniş, mutlu, huzurlu, maddi kaygıları olmayan bireyler oldukları belirlenmiştir.

[1] This article was produced from the master's thesis by the first author under the supervision of the second author.

[2] **Corresponding Author,** Ministry of National Education, Teacher, Kahramanmaraş, TÜRKİYE; https://orcid.org/0000-0002-0511-8919
[3] Kahramanmaras Sütcü İmam University, Faculty of Education, Department of Educational Sciences, Kahramanmaraş, TÜRKİYE; https://orcid.org/ 0000-0003-1118-0740

Citation/Alıntı: Algan, C., & Çetin, A. (2024). Examination of music teachers' childhood experiences of music. *Kastamonu Education Journal, 32*(1), 113-126. doi: 10.24106/kefdergi.1426652

INTRODUCTION

Considering the development of individuals, it is known that the most sensitive period is childhood. Art education provided during this period is important for their physical, mental, social, and emotional development (Güven, 2017). It has multiple aspects and dimensions. Individuals trained in these different shapes and dimensions are expected to understand and interact with a different perspective, to be open to innovation, to follow scientific, technological, and social developments, and to develop themselves (San, 2019). Music education is one of the most important areas in art education (Güven, 2017).

Music education, which enables children's cognitive and emotional growth, is important in terms of raising well-equipped individuals (Ergen & Bilen, 2010). Children start to get music education at an early age, and their being guided appropriately supports their development in a positive way and enables them to become more successful and happy individuals (Deleş & Kaytez, 2020). Music has multi-faceted contributions to people's lives. Music made contributions to the academic, physical, social, and cultural development of individuals. As they are engaged in musical activities, they can express themselves better (Kılıç, 2016). Music education contributes to their social and aesthetic development and the improvement of their self-expression. Through these gains, they develop personalities to be more successful (Coşkuner, 2007). Moreover, it is known that music delays aging by reducing stress and pain (Yener, 2011). Each period has its own characteristics and dynamics in formal music education in Turkey.

With the music education given in the pre-school period, it is aimed to appeal to the senses of children, to help their mental development, to create a musical culture, to prepare the child for basic education by developing his mother tongue (Ministry of National Education [MoNE], 2017). Considering that learning at an early age is more effective and permanent than at other times, pre-school music education should be provided with the appropriate methods in that it can be effective in gaining musical behaviors such as listening to quality music, playing the instruments, and singing. As a result, the productive and aesthetic skills of the children improve, and their attention span is extended, eliminating mental and physical fatigue. In this vein, Özal Göncü (2002) believes they can develop social skills such as self-expression, cooperation, taking responsibility, and being disciplined.

Music plays a great part in the psychological development of children during primary education. Meeting many personal and social needs through music in this period, they recognize their emotions well, learn to control them, and get the opportunity to express themselves better. They avoid negative emotions such as insecurity and aggression. Thereby, they are able to establish better communication with others and socialize more healthily (Deveci, 2010; Ördekci, 2016; Yazıcı, 2009). Their musical environment consists of various individuals interested in music and musical instruments. The environment in concern includes new formations, developments, changes and transformations. This turns into concrete behaviors such as musical movement, creating one's own musical taste, making use of the surrounding objects as musical instruments, playing the musical instruments, and singing in the primary school period. All these transformation and development involves dimensions such as musical talent, musical intelligence, and practicing music (Uçan, Yıldız & Bayraktar, 1999).

The secondary education period is when young people are in search of identity, they decide what they want out of life, and display their individual differences. Furthermore, young people seek for attention, admiration, approval and love from others during this period. For this, they participate in a number of activities, care more about others' thoughts for themselves, and strive to acquire the characteristics of the group to which they want to belong. Namely, they may need music education to manage that (Uçar, 1989). Individuals' interest in music ensures respect from others, and improves their cooperation skills and confidence. Consequently, they become happy individuals who attain self-actualization (Apaydınlı, 2012).

Musical talent is both innate and influenced by the environment. In other words, both heredity and environment contribute to the development of musical ability. Individuals fail to improve their musical talent if they lack exposure to musical activities at early ages. Heredity is not adequate to discover and improve the musical talent (Göğüş, 1999). According to Denac (2008), children's interest in music is closely related to their teacher and household. Factors such as teachers' attaching significance to music activities, their using these activities in the classroom, and their family members' experiences of music influence their interest in music.

Music has an impact on every phase of human life, especially during childhood and adolescence. Music lessons play an important role in the socialization of the individual. Music activities, for instance, entail many positive behaviors such as cooperation, socialization, obeying the rules, and respecting others and what they do (Ördekci, 2016). Music nourishes the souls of children and keeps them away from pessimism and bad attitudes, leading them to be optimistic and happy individuals. Music education helps children learn to look at events and situations from different perspectives, to recognize themselves, and to form a strong character through artistic production (Toksoy, 2000). Individuals respond to the music they hear even during infancy. During this period, for example, they calm down with the lullabies, and they get better sleep. As they grow older, they repeat the sounds they hear and hum simple melodies. As they sing while growing up, their voices and breathing improve day by day. Musical activities such as keeping the rhythm, strengthening their muscles while playing the instruments, dancing, and singing contribute to their physical development and improvement of their communication skills. Singing enables one to gain the ability to train their voice and to work collaboratively. Their social development and imagination are supported by playing musical instruments and listening to music, respectively. To put it into a nutshell, individuals who grow up in an environment well-supported by music will have a better understanding of art and aesthetics even if they do not prefer a music-related profession (Sun & Seyrek, 2002). Thanks to music, the child recognizes the feeling of love. Their psychology is strengthened by their love for the society they live in and life (Yönetken, 1993).

When the literature on music education in Turkey is examined, Turkey is not at the desired level in music education (Kahyaoğlu, 2010). Educational difficulties continue determining and developing students' musical talent (Durdu, Algan, & Çetin, 2021). Önal (2012) found in his research that almost half of the students in Turkey first noticed their musical talents and decided to study in the music department themselves. It has been concluded that families and teachers are not at the desired level in guiding students, and they are behind in this regard. Students in music education; ability, readiness, environment (Akkol, 2018), family (Akkol, 2018), school (Özdemir & Yıldız, 2011), teacher (Durdu, Algan & Çetin, 2021; Helvacı, 2012), friend, programs attended, events experienced Many factors such as The most important group that can evaluate and explain these factors; They are music teachers with their knowledge and experience. Therefore, in this study, the childhood experiences of music teachers were examined. In this context, the problem sentence of the research is determined as, "What are the factors affecting the musical experiences of music teachers when their childhood period is examined?" Music talent, inherited to the individual, cannot turn into musical behavior unless interacting with the music environment (Özdemir & Yıldız, 2010). This research is important because it determines the environmental factors in the childhood music experiences of music teachers.

The main purpose of this research is to examine the musical experiences of music teachers in their childhood and to determine the reflections of factors such as family, school, teacher, and environment that may affect their musical experiences in this direction. Within the scope of this purpose, answers to the following questions were sought.

1. How do music teachers describe themselves when they think about their childhood experiences?
2. What music-related activities did music teachers participate in during their childhood?
3. Which event/s have been most influential in music teachers' inclination towards music?
4. What are the contributions of the families of the music teachers to their experiences of music during childhood?
5. What are the contributions of the schools that music teachers attend to their experiences of music during childhood?
6. What are the contributions of their music teachers to their experiences of music during childhood?
7. What reflections did the music teachers' experiences of music have on their lives?

METHOD

This chapter provides information about the research design, participants, data collection tools used in the research, data collection process, and data analysis.

Research Design

This research was carried out using the phenomenology design, one of the qualitative research designs. Phenomenology design is a design that focuses on dealing with all aspects of the cases by collecting detailed data about the cases that we are aware of but do not have detailed information about (Yıldırım & Şimşek, 2011). These cases are; experienced events, experiences, perspectives, attitudes, and ideas can appear in various forms (Merriam, 2013). In the phenomenology design, it is tried to reveal how people make sense of the phenomenon or phenomena, their ideas, perspectives and experiences about the phenomena (Johnson & Christensen, 2004; Patton, 2014). In this study, music teachers' childhood music experiences were accepted as facts and were examined in depth within the scope of factors such as family, environment, place of residence, school, and music teacher.

Participants

The study group research consisted of twenty-three volunteer teachers working as music teachers in secondary and high schools in the central districts of Kahramanmaraş in the 2020-2021 academic year. While determining the participants, the maximum diversity sampling method, one of the purposive sampling methods, was used. Purposeful sampling is a sampling method in which information-rich and diverse situations are selected, which allows for research in all details in line with the purpose of the research (Patton, 2014). While the maximum variety was preferred in the research, it was aimed to determine whether there are similarities and differences between the various situations and to reveal their dimensions, if any (Glesne, 2013). In order to provide this diversity, it grows in different settlements such as towns, districts, and provinces. Music teachers graduated from different music schools such as conservatories, education faculty, and music teaching departments. In this study, the participants were coded, and their names were kept confidential in order to comply with the ethical rules. Accordingly, the teachers who participated in the interview were coded as T1, T2, …… T23, according to the order of the interview. Demographic information of the study group is given in Table 1.

Table 1. Demographic characteristics of the working group

Code	Gender	Place of Growth	Graduated High School Type	Graduated Faculty Type	Professional Seniority Year
T1	Woman	District	Normal highschool	Faculty of Education	Over 15
T2	Man	District	Normal highschool	Conservatory	6-10
T3	Woman	Province	Normal highschool	Faculty of Education	11-15
T4	Woman	District	Normal highschool	Faculty of Education	11-15
T5	Man	Disrict	Normal highschool	Conservatory	6-10

T6	Woman	Povince	Fine arts high school	Faculty of Education	11-15
T7	Man	Town	Super high school	Faculty of Education	11-15
T8	Woman	Province	Anatolian High School	Conservatory	6-10
T9	Woman	Povince	Normal highschool	Conservatory	6-10
T10	Woman	Province	Normal highschool	Faculty of Fine Arts	1-5
T11	Man	Disrict	Fine arts high school	Faculty of Fine Arts	11-15
T12	Woman	Province	Fine arts high school	Faculty of Education	Over 15
T13	Man	Province	Vocational high School	Faculty of Education	Over 15
T14	Woman	Province	Fine arts high school	Faculty of Education	Over 15
T15	Man	Disrict	Normal high school	Conservatory	1-5
T16	Man	Province	Vocational high School	Conservatory	6-10
T17	Woman	Disrict	Fine arts high school	Faculty of Education	6-10
T18	Woman	Province	College	Faculty of Education	11-15
T19	Man	Province	Normal highschool	Conservatory	6-10
T20	Man	Province	Anatolian High School	Faculty of Education	1-5
T21	Man	Disrict	Normal highschool	Faculty of Education	11-15
T22	Woman	Disrict	Normal highschool	Conservatory	6-10
T23	Woman	Province	Fine arts high school	Faculty of Education	1-5

When the Table 1 is examined, there is information about the music teachers' gender, the place where they grew up, the status of the secondary school they attended, the type of high school they graduated from, the type of faculty they graduated from, and their professional seniority.

Data Collection Tools

The data in this study were obtained through interviews. Interview is the most important data collection tool used in phenomenological research. In order to reveal the experiences related to the cases and their meanings, the interview offers researchers the opportunity to examine through flexibility, interaction, and probe questions (Yıldırım & Şimşek, 2011). Research data were collected with a semi-structured interview form. In a semi-structured interview, the researcher can provide the target person to elaborate their answers by asking different questions on the subject, provided that they do not disrupt the course of the interview (Türnüklü, 2000). While preparing the interview questions, a literature review was conducted, and the opinions of experts in the field were consulted. In order for the open-ended questions to be understandable, questions were asked to two participants before the interviews, and the interview form was prepared by receiving feedback. A sample from the questions asked to the participants were “What are the contributions of your family in your musical life during your childhood?” and “What are the reflections of your musical life on your life?”. The teachers to be interviewed were informed about the research, and interviews were held on a voluntary basis. The interviews were conducted in the school environment, at home, and in the cafeteria. One interview lasted approximately 60 minutes. In addition, the interviews were audio-recorded on a voluntary basis.

Data analysis

Content analysis was used to analyze the data obtained in the research. In line with the suggestions of Yıldırım and Şimşek (2011), first of all, the data of the research were transferred to the computer environment and made ready for analysis. Then, the answers given by the participants were coded separately by two researchers independently of each other. Themes were created from the codes that were finally reached and presented in the form of tables. In addition, direct quotations from the participants' views were included.

Content analysis consists of collecting the interrelated data obtained, and organizing and interpreting them clearly. In content analysis, the concepts that explain the data and the relationship network of these concepts are determined through coding. This process is also known as “inductive analysis”. Inductive analysis is the process of determining the main theme of the problem based on the details of the data obtained by the researcher. Coding is giving names to meaningful parts of the data. Each meaningful piece or section in the data is called a concept. A category (theme) is formed by examining the connection between concepts and bringing them together in a higher-level group (Yıldırım & Şimşek, 2016).

Validity and Reliability

In qualitative research, conducting the research in an ethical way is the first stage of validity and reliability (Merriam, 2013). In this study, attention was paid to the volunteering of the participants; the participants were informed about the research, the identities of the participants were kept confidential, and codes were given instead. In addition, participant confirmation was obtained in the reporting (Berg and Lune, 2015; Christensen et al. 2015). Lincoln and Guba (1985) identified four topics in terms of ensuring validity and reliability in qualitative research: credibility, transferability, consistency, and confirmability. *Credibility*. In qualitative research, the preferred methods to ensure and increase the credibility of the research are explained as expert review, participant confirmation, triangulation, researcher's stance, and depth-oriented data collection (Merriam, 2013; Creswell, 2016; Patton, 2014). In this research, every stage of the research was presented to the expert opinion, and the research was carried out in line with the recommendations of the experts. The accuracy of the information was confirmed by the participant. In this study, the participants were coded, and detailed information about the participants was presented in the form of tables and explanations. All stages of the research are described in detail. *Transferability.* It is concerned with its adaptation and transfer to

similar contexts or situations, provided that certain findings of a previously completed research are not out of context (Guba, 1981). Therefore, transferability is leaving the extent to which the findings of any research are valid for other situations to the people in that situation (Merriam 2013). In order to ensure the transferability of this research, each stage of the research was described in detail, the research findings were explained in detail by supporting direct quotations, and clear, understandable, and plain language was used for the readers. *Consistency.* The data obtained in the research should be consistent with the findings and results (Merriam, 2013). Consistency; means that the findings and interpretations of the research are consistent among themselves. Creswell (2016) explains the concept of reliability in qualitative research as the coding of research data by more than one researcher and ensuring the harmony between these codes. In order to ensure consistency in the research, two researchers coded separately and created themes, and then compared the codes and themes they created using Miles and Huberman's fit formula (Reliability = Consensus / Consensus + Disagreement X 100) and calculated the agreement between them (Miles and Huberman, 1994). The agreement rate between the encoders was found to be 0.83. The fact that this result in the research is .70 and above means that it is reliable (Akay & Ültanır, 2010: 80). Researchers discussed the different encodings among themselves and determined the most appropriate code (Silverman, 2005). *Confirmability.* Confirmability; It is about the fact that the findings reflect the researched phenomenon as much as possible, away from the ideas, wishes and point of view of the researcher (Morrow, 2005). Confirmability is being open to external audit (Creswell, 2016). In order to ensure confirmability in this research, all the work done during the research process was recorded and filed in a computer environment.

FINDINGS

In this section, the findings are given in order according to the sub-purposes of the research. The codes and themes obtained from the opinions of music teachers were presented by being aggregated. In addition, direct quotations from the views of the participants were also included.

Personal Characteristics of Music Teachers in Childhood

The findings obtained from the opinions of the participants about how music teachers describe themselves in childhood and their personal characteristics are presented in Table 2 in the form of themes and codes.

Table 2. Childhood personal characteristics of music teachers

Themes	Codes	Participants
Extrovert	Energetic/Active	T7,T8, T10, T11, T15, T18
	Social	T10, T14, T22
	Game-lover	T4, T23
	Friendly	T6, T17
	Responsible	T12
	Sociable	T1
	Curious	T13
	Joker	T1
	Helpful	T15
	Copycat	T5
	Self-expression	T6
	Naughty	T7
Introvert	Shy	T3, T7, T8, T19
	Alone	T3, T20
	Timid	T8, T20
	Silent	T20
	Mature	T14
Mood	Happy	T1, T4, T5, T6, T10, T11, T16, T17, T18
	Calm	T3, T12, T20
	Emotional	T15, T19
	Full of love	T5, T13
	Bad-tempered	T6
	Irrational/day dreamer	T9
	Rebellious/anxious	T18
	Stubborn	T6
	Confident	T18
	Spoiled	T7

When Table 2 is examined, the personal characteristics of music teachers in childhood are classified as extrovert, introvert and mood. It is seen that music teachers are generally active in childhood while some of them are introvert. It is also revealed that they had a peaceful and happy childhood. In addition, there are music teachers who describe themselves as rebellious, bad-tempered and day dreamers in their childhood. Direct quotations from teachers' opinions on the subject are below.

"I was a happy, a complete playchild. I was a cheerful, happy child who did not spend much time at home and played games on the street. A child who makes a microphone and sings at home…" (T4). "I was a very active, somewhat rebellious, extrovert but

somewhat anxious, self-confident but very entertaining and joyful child. I was very interested in silkworm. I would watch, observe and follow them."(T18). "I was very active and had a happy childhood." (S11). "I can say that I was a loving child (T5). "I was an introvert and quiet child. I wasn't naughty, I was mostly alone, I didn't have many friends. Since I am very fond of my family, I would not feel the need for friends." (S3). "I was a happy child living in Ankara, being able to benefit from the opportunities of the city. I was expressive, friendly, somewhat bad-temprered and stubborn." (S6). "I was a quiet, calm, self-sufficient child. I didn't like to talk like that. I didn't like going into a crowd. With the effect of being the only child in the family, when I played, I would play alone." (T20). "I was someone extremely active but also shy, hard to get used to, unable to keep himself in the foreground, cold-blooded but warm-blooded..." (T8). "It would not be wrong to say I was shy and melancholic" (T19).

Musical Activities Attended by Music Teachers in Childhood

The findings obtained from the teachers' opinions about the music activities they attended during their childhood are given in Table 3 in the form of themes and codes.

Table 3. Music activities attended by music teachers during childhood

Themes	Codes	Participants
Taking Instrument Course	Baglama	T5, T9, T15, T18, T22
	Guitar	T2, T6, T11, T23
	Piano	T1, T11,
Playing an Instrument	Baglama	T5, T7, T13, T16
	Flute	T12, T17, T18
	Guitar	T11, T20
	Violin	T6
	Keyboard	T21
	Mandolin	T23
School Activities	Joining social sctivities	T5, T6, T7, T14, T16, T17, T19, T21, T22,
	Participation in school choir	T1, T3, T6, T8, T9, T10, T11, T12, T14, T15, T17, T22, T23
Other Activities	Singing songs	T2, T3, T5, T6, T8, T9, T10, T12, T16, T17, T19, T20
	Listening to music	T1, T2, T5, T21, T23
	Participating in special choirs	T2, T8, T12, T19, T20
	Making music instruments with materials	T1, T4, T9, T21, T23
	Going to music concerts and festivals	T2, T3, T5, T11, T17
	Dance shows	T4, T8, T9, T18, T20
	Working in wedding ceremonies	T7, T13, T21
	Folk dances	T1, T14, T15
	Participating in music competitions	T2, T20
	Involvement in theatrical activities	T9

As shown in Table 3, the music teachers participated in many activities such as instrument courses, playing instruments, school activities and other activities during their childhood. More specifically, they took courses in the baglama (f:5), guitar (f:4), piano (f:2), and played the baglama (f:4), flute (f:3), guitar (f:2), violin, keyboard and mandolin. Those who took part in school choirs sang songs in different settings during their childhood (f:13). It is also seen that they participated in many social activities inside and outside the school. Their opinions on this concern are presented below.

"I have participated in baglama courses, theater studies, dance and choir studies since primary school" (T9). "I usually attended school choirs. I went to the guitar lessons in middle school." (T23). "I was in the school choir and orchestra in primary and secondary schools. I went to the instrument courses, the longest of which was on the piano." (T11). "I took part in all music activities organized in the primary school ….from the dance activity in the nursery to the flute concert in the 5th grade. I was a guest in many programs organized by the district directorate of national education when I was in high school. I was playing the guitar and knew how to accompany the music. I ranked third in the Barış Manço Songs Interpretation Contest." (T20). "I participated in the social events in middle school and high school. Starting from the primary school, I used to go to the concerts once or twice a year." (T5). "I usually took part in choirs at school ceremonies and attended a baglama course in a public education center." (T22). "When we got together with relatives on special occasions such as weddings, engagements and henna night, we would all make music together. I attended the choirs outside the school. At school, I tried to be involved in music by taking choral and solo pieces." (T10).

Cases/Events Affecting Music Teachers' Tendency to Music during Childhood

The findings related to the phenomena or events that affect the music teachers' inclination towards music in childhood are given in Table 4 as themes and codes.

Table 4. Facts/Events affecting the music teachers' tendency to music during childhood

Themes	Codes	Participants
Teacher-driven	Music teacher's discovery and guidance of the talent in middle school	T1, T6, T8, T11, T14, T17, T22, T23
	Classroom teacher's discovery and guidance of the talent	T5, T12, T14
	Music teacher's tutoring in middle school	T6, T22
	Music teacher's taking them to the concert in middle school	T11

	Music teacher's organization of a trip to the fine arts high school for the middle school students	T17
	Music teacher's bringing the keyboard to class	T18
	Music teacher's motivation of the students in high school	T19
Family-driven	Family members' interest and attention to music	T3, T7, T9, T10, T12, T13, T14
	Performing the musicianship profession in the family	T3, T7, T8, T20
Individual-driven	Interest in music	T1, T2, T4, T5, T18, T19, T20, T22, T23
	Love of music	T2, T4, T14, T21,
	Self-discovery of the talent	T4, T6, T18, T20
	Inner curiosity	T18
	Professional preference	T7
Envionment-driven	Impact of the social environment	T5, T10, T13, T15, T16
	Receiving an instrument as a gift	T2, T16, T21
	The neighbor's playing an instrument	T15, T16
	Receiving appreciation at music events	T12

Table 4 indicates that the facts/events affecting the music teachers' tendency to music were classified as teacher-driven, family-driven, individual- and environment-driven. Teacher-driven tendencies mostly occur with the discovery and guidance of the music teachers in middle school. The family's interest, performance and appreciation of music were influential in the participants' tendency to music. Being personally interested in music and social environment's love for music are other factors that encourages the participants' tendency to music. Direct quotations from the opinions of music teachers expressing the facts or events that affect their inclination towards music are given below.

"I began to be interested in music in the 6th grade thanks to our music teacher's discovery of my talent. Thanks to his effort and guidance, I studied music. While I was unaware of the existence of a fine arts high school, due to the fact that we lived in a small town, he took us to the fine arts high school in the city center. I saw the flute, heard its voice and fell in love with the flute there for the first time, so to speak, and said to myself, "I should definitely study fine arts." (T17). "Because my father was interested in music (a local musician), I also began to be interested in music. Almost everyone in our house is interested in music. My brother also studied music and preferred to be a musician. He makes his living on music and working as an academician in the field of music. It wasn't an event that made me interested in music but my father's profession, taking care of us at home, and the environment we were living in." (T3)."I've been very interested in music ever since I could remember. I even used my toys to make music. My music teacher noticed my interest and talent in middle school and directed me to study music." (T23). "As a child of an Alevi family, music was always played in our house. Therefore, I must have been influenced by the environment in which I grew up." (T13).

Familial Contribution to Music Teachers' Childhood Music Experiences

The findings regarding the contribution of the family to the music teachers' childhood musical experiences are given in Table 5 in the form of themes and codes.

Table 5. The familial contribution to music teachers' childhood music experiences

Themes	Codes	Paticipants
Financial support	Sending them to the music course	T2, T4, T5, T9, T10, T11, T15, T17, T18, T23
	Buying them a musical instrument	T2, T5, T13, T15, T17, T18, T20, T23
	Providing them private music lessons	T1, T5, T6, T20, T23
Moral support	Supporting their decisions on music	T2, T4, T5, T6, T9, T11, T12, T14, T15, T17, T22, T23
	Encouraging them to study at a music school	T6, T11, T12, T14, T17, T19, T20, T23
	To motivate them on music	T5, T15, T22, T23
	Supporting them in participating in music events	T3, T5
Hidden contribution	Growing in an environment characterized by music	T3, T7, T8, T12, T16, T19, T20
	Family members' interest and appreciation of music	T1, T3, T4, T6, T12, T16
	Having a musician in the family	T3, T7, T8, T20

Table 5 shows that the familial contribution to the music teachers' early experiences of music is classified as financial support, moral support and hidden contribution. Concerning the financial support of the families, they contributed to the development of their tendency to music by sending them to music courses (f:10), buying them musical instruments (f:8) and providing them private music lessons (f:5). They also supported them by appreciation of their decisions and encouraging them to study music. Growing up in an environment charaterized by the music is considered hidden contribution provided by the families. The following are the participants' opinions about their familial contributions.

"I have always received my family's financial and moral support. Countless to remember, sending me to an instrument course (driving me to the course, buying me an instrument, supporting my decision when I wanted to study music, providing private music lessons, and etc. were among their contributions" (T23). "They supported me in every way. …both in the school choirs I attended, in the concerts we organized, and in high school. For example, I wanted to study at a fine arts high school, they confirmed by decision, and they were always with me when I was in high school." (T14). "I told my family that I wanted to attend a baglama course in the first year of high school. They also supported me with great enthusiasm and I was immediately enrolled in the course

and they bought me a baglama. The taste of the concert I gave at home every night still lingers." (T15). "At that time, families were not as conscious as they are now. Whenever I was engaged with music, I would get scolded. My father always got angry with me and forced me to study my school subjects. I did not receive any support from my family."(T21).

Contribution of the Music Teachers' Schools to their Music Experiences

The themes and codes obtained from the findings related to the contribution of the schools attened by the music teachers to their music experiences are given in Table 6.

Table 6. School contribution to the music teachers' music experiences

Themes	Codes	Participants
Individual Development	Celebrations of the special days and weeks	T1, T2, T4, T5, T6, T7, T9, T10, T11, T12, T14, T15, T16, T17, T19, T20, T21, T22, T23
	Organization of the choir activities	T1, T3, T5, T9, T22
	Teaching playing instruments in lessons	T3, T6, T17, T20
	Organizing music and instrument courses (free-of-charge)	T11, T12
Social Development	Assigning students duties and responsibilities in musical activities	T2, T3, T4, T5, T6, T7, T16, T19, T20,
	Increasing students' popularity and providing them privileges	T2, T3, T7, T20
	Valuing artistic activities	T14
	Discovery and encouragement of the students' talent by the school administration	T19
Talent Development (by the school infrastructure)	Offering a study room	T12, T17
	Offering a music room	T20, T21
	Expert teaching staff	T17, T18
Acceptance to University	Extra score on the university entrance exam	T6
	Training students for the talent tests	T6
Professional Development	Furthering education in music	T6, T9
	Affecting career choice	T3, T9

As seen in Table 6, contributions of the schools are classified as individual deveopment, social development, talent development, acceptance to university and professional develpment. Organizing celebration activities for the special days and weeks (f:19), having musical equipment in schools and training students for the talent tests can be counted among the contributions of the schools to the music teachers' development. Direct quotations from the relevant opinions of the participants are given below.

"I was lucky in primary and middle school because I was living in the town center. Free music courses were organized in our school. I had the opportunity to attend instrument courses." (T11). "I think it's a great support for schools to constantly allow the use of their stages and discovery of my musical talent. They might not have noticed it or they might have ignored it, and I might not be performing this profession now. I think the biggest support is that they discovered my talent and encouraged me to be on the stage." (T4). "That a very successful teacher specialised in music ran our music course in the middle school and that music activities are held in our school on special days and weeks enabled me to progress in music better. The contributions of my study at the fine arts high school are countless. First of all, all of my friends were interested and talented in music like me. Secondly, the study halls at the fine arts high school helped us improve ourselves by providing a comfortable setting. It was a privilege for us to be trained by the expert teachers." (T17). "Studying at Fine Arts High School developed me considerably in music theory and instruments at an early age. I easily passed the university talent test with this infrastructure and the extra scores I got on the university acceptance." (T6). Giving me the opportunity to sing in schools may have even affected my choice of profession." (T3).

Their Teachers' Contribution to the Music Teachers' Experiences of Music

The codes and themes obtained from the findings regarding their teachers' contributions to the music teachers' experiences of music are presented in Table 7.

Table 7. Their teachers' contribution to the music teachers' experiences of music

Themes	Codes	Participants
Primary School Teacher	Discovering and guiding students' talent	T4, T5, T7, T9, T12, T22
	Assigning duties and responsibilities to students	T5, T7, T11, T12
	Motivating students	T5, T11, T12
	Teaching playing instruments	T12
Primary School Music Teacher	Assigning duties and responsibilities to students	T1
	Discovering and guiding students' talent	T1
	Motivating students	T1

	Encouraging student for self-discovery	T18
	Introducing and popularizing music	T18
Middle School Music Teacher	Discovering and guiding students' talent	T1, T2, T3, T6, T7, T8, T14, T17, T21, T22, T23
	Motivating students	T7, T8, T10, T17, T21, T22
	Assigning duties and responsibilities to students	T4, T10, T11, T21
	Presenting the field-specific knowledge	T4, T8, T14, T18
	Private tutoring	T1, T6, T22
	Teaching playing instruments	T4, T6, T20
	Caring the students	T4, T21
	Informing students about music institutions	T3
	Engraining music	T11
	Taking students to concerts	T11
	Being a model	T18
	Training students for the talent tests	T6
High School Music Teacher	Being a model	T14, T15, T17, T20, T8, T14
	Guiding students	T6, T14, T15, T19, T20
	Presenting the field-specific knowledge	T8, T14, T17, T20
	Engraining music	T11, T15
	Assigning duties and responsibilities to students	T2, T11
	Caring the students	T20, T23
	Motivating students	T19
	Private tutoring	T23
Other Teachers	Motivating students	T3, T7, T16, T21, T22
	Assigning duties and responsibilities to students	T1, T5, T16
	Guiding students	T3, T9

Table 7 shows that their teachers generally contributed to the development of the music teachers by discovering and guiding their talents, assigning them duties and responsibilities, motivating them and being a model for them. Their music teachers were more effective in discovering their talent and guiding them in middle schools while music teachers in high schools were relatively taken as models by the students. The participants' opinions are cited below.

"My primary school teacher's assigning me some duties in social activities at school, advising my parents to encourage my talent/interest in music, and calling me as 'the classroom artist' were the biggest contributios for me". (T5). "Our primary school music teacher was hard-working, she discovered the students' interest and talent in music and encouraged them to study music. Our teachers in the middle school provided many contributions to my development. For example, our math teacher used to play the baglama for the last minutes of the lessons, we used to sing along." (T1). "My middle school music teacher is the person who guided my entire life. I got my first training on the notes and instruments from him (T6). I took him as a model with his character and expertise (T14).

Reflections of Music Experiences on Music Teachers

The findings regarding the reflections of music teachers' musical experiences are given in Table 8 in the form of themes and codes.

Table 8. Reflections of the teachers' music experiences on them

Themes	Codes	Participants
Psychological	Peace	T13, T14, T15, T17, T18
	Confidence	T2, T5, T6, T11, T19
	Sensuality	T5, T12, T20
	Bliss	T1, T4, T5
	Feeling of comfort	T4
	Therapy	T14
	Anger management	T20
	Optimism	T1
	Improved imagination	T9
Financial	Having a profession	T3,T5, T6, T7, T16, T21, T22
	Financial income	T2, T5, T7, T16, T21
	Comfortable student life	T2, T5
Social	Expansion of the social circle	T5, T7, T11,T17,T21
	Socialization with others	T3, T7, T19, T20
	Ability to express oneself	T5, T17, T18, T19
	Popularity	T20, T21
	Visiting various places	T3, T16

	Being initiative/sociable	T3, T19
	Sensitivity	T5
	Being beneficial to students	T14
	Being beneficial to their family/friends	T23
Personal	Doing the job loved	T1, T5, T6, T14, T23
	Gaining a different perspective	T9, T14, T15
	Ensuring survival	T4, T18
	Being beneficial and model to their children	T4, T14
	Gaining a critical perspective	T8
	Avoiding TV addiction	T4
	Feeling oneself special	T10
	Gaining elegance	T12
	Developing composing skills	T2
	Self-awareness	T17
	Being vigorous and energetic	T18
	Being knowledgeable	T21
	Effective time-management	T21

Table 8 indicates that the reflections of music teachers' musical experiences on themselves are categorized as psychological, financial, social and personal. The participants stated that their musical life made them peaceful and happy. They also stated that they earned income on music. Those who expresses that their social circle is wide thanks to music emphasized that they are vigorous and energetic because they do the job they love. The following are their opinions about the reflections of their musical experiences.

"As you know, our lessons are like the periods when we relax. I was always positive, but music made me even more positive." (T1). "I definitely believe that people who deal with music are more self-confident. Going on stage, playing instruments, singing and performing this professionally as a teacher and training the students on music definitely made great contributions to me." (T6). "Music has a lot of contributions and reflections on my life... First of all, we can say that music nourish our soul. If I hadn't been interested in music, I wouldn't have developed so much self-awareness." (T17). "I consider myself a sensitive and emotional individual with high-self-esteem who is self-confident, and can express oneself in the best way possible thanks to music." (T5). "I learned how to make money with music at the conservatory. For years, I earned money by making music in various cities of Türkiye. Thanks to music, I met very good people, traveled to a lot of places, and gained many experiences… I was honored to be a teacher, but I have always been a strange musician…" (T16). "It played an important role in my choice of profession. I became a music teacher now thanks to my music experiences. I also think that I became a more social, talkative and sociable person thanks to music." (T3). "Music has always added refinement, elegance and sensitivity to my life" (T12).

DISCUSSION CONCLUSION AND RECOMMENDATIONS

The current research revealed many factors that determine, direct, and affect the childhood music experiences of the music teachers. Among them are their family, teachers, school, environment, and technology. More specifically, their family's interest in music, their teacher's love of music, and discovery, and guidance of their talent contributed to their development of a tendency to music in their early life. In addition, the opportunities/facilities offered by the school they attended, music events organized by non-governmental organizations, their friends' interest in music, and being motivated by the people around them encouraged this tendency. Considering the reflection of music on their life, it was seen that music helped introverted individuals become more social ones who could express themselves better. It was also determined that the participants interested in music during childhood were self-confident, happy, and calm individuals with a wide social circle and no financial worries.

This study revealed that music teachers had different personal characteristics during childhood. For instance, some were reportedly extroverted, active, and social, while others were introverted, shy, and reluctant to speak. During this period, they experienced various emotions such as cheer, bliss, and anxiety. This finding was supported by Kara (2020), who reported that pre-service music teachers are mostly talkative, lively, and extrovert. Likewise, Yaşar (2020) concluded that the individuals who received music education get depressed much less frequently (2%) and are happier than those who did not (17.3%). Our finding is also in line with Çevik Kılıç (2017), who reported that music teachers are cheerful, enthusiastic, lively, calm, and peaceful individuals.

Another finding of the study showed that the activities organized in the schools and other school facilities contributed to the musical lives of the participants. Especially those who studied music in the fine arts high school were more knowledgeable in music, had stage experience at an early age, had better access to the facilities, and had no difficulty moving to the next level of education thanks to the comprehensive music education they received. The existing literature also emphasized the significance of organizing social activities in schools in the discovery and guidance of the student's talents (Koç Akran & Yıldız, 2020).

The study indicated that the music teachers who attended the instrument courses and participated in the choirs or other music activities during their childhood consider themselves social individuals. Some of them reported that they became social and self-confident individuals after participating in music activities. This particular finding overlaps with Güven (2017), who concluded that musical activities contribute to the development of children's social skills.

As mentioned earlier, the music teachers' tendency to music in childhood is largely affected by their music teachers in middle school, family, environment (city of residence), technology, and their personal interests and abilities. Their teacher's interest in music, giving them assignments and responsibilities, discovering their talent, and directing them to schools of music influenced the development of their tendency to music. It was not surprising to see especially the effect of their music teacher in middle school in this concern since it was the first time they were taught by a branch teacher. The finding related to the influence of familial support over the teachers' tendency to music is supported by Dittgen (2018), who found that familial support has a great place and importance in the musical life of the child. Tatar (2013), on the other hand, states that the relationship between the city and music does not only mean hearing the sounds of music in that city but also that it has different effects on individuals. In a similar vein, Göğüş (1999) states that musical talent emerges with the effect of environment and heredity. Both contribute to this talent in unknown proportions. However, it is a product fed naturally by the influence of the environment. It does not seem to be an expected situation for someone who did not have a musical environment in their childhood to show their musical talent and achieve musical success. The teacher, family, environment, and technology that emerged in this research could be considered the environmental factors in the emergence of musical talent, while personal interest and talent express hereditary factors.

Concerning the reflections of their childhood musical experiences on the music teachers, it is seen that music gives them peace, increases their self-confidence, and helps them be more emotional and sensitive. The participants stated that music made them more sociable, provided them with a wide environment, widened their horizons, helped them see the world from a different window, provided them with a profession and financial comfort, and, most importantly, made them feel happy by doing the job they love. All in all, it can be concluded that individuals interested in music are happy and peaceful and have different perspectives. This finding is approved by Uslu (2009), who reported that music increases self-confidence and contributes to the socialization and social development of individuals and that individuals who are interested in music are cheerful and happy. Lastly, the findings reported in Küçük's (2012) research are similar to the ones revealed by this study in that both showed that music teachers love their profession and choose it knowingly and willfully.

Based on the results obtained from the research, the following suggestions were made for the practitioners and researchers.

- Quality music education should be provided in childhood for many positive experiences, such as peace and happiness, socialization, self-confidence, and self-expression.
- Music lessons should be conducted by branch teachers to discover talented children, process their talents, and guide them appropriately.
- Schools should be prepared for music education with their teachers and musical equipment (music room, skill workshop, sound system, etc). Activities should be held in which students will display their musical talents (choir studies, competitions, music courses, etc.).
- Families should be cooperated to discover and/or develop students' musical talent. Especially parents could be recommended to be in cooperation with schools and inform the teachers about their children's talent once they discover it. The same can be recommended for the teachers. Namely, they should inform the parents about the musical talent of their children and encourage the students to get education on music.
- For pre-service and in-service preschool and classroom teachers, training programs should be regularly organized on the subjects such as music education, and music teaching methods and techniques.
- This research was conducted using the qualitative method. Other research can be conducted on similar subjects by using different research methods, such as quantitative or mixed.

Declaration of Conflicting Interests

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

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Statements of publication ethics

We hereby declare that the study has no unethical issues and that research and publication ethics have been observed carefully.

Researchers' contribution rate

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

Ethics Committee Approval Information

Ethics committee approval was obtained from the Social and Human Sciences Ethics Committee, Kahramanmaraş Sütçü İmam University, Türkiye (Date 29.09.2020 & No. 37271). In addition, consent was obtained from the Kahramanmaraş Provincial Directorate of National Education, Türkiye (Date: 27.04.2021 & No. 35776031).

REFERENCES

Akay, C., & Ültanır, E. (2010). Facilitated literacy education based on andragogic foundations opinions of KOYE trainers on the Process. *Mersin Üniversitesi Eğitim Fakültesi Dergisi, 6*(2), 75-88. https://dergipark.org.tr/tr/pub/mersinefd/issue/17376/181445

Akkol, M. L. (2018). Türkiye'deki müzik eğitiminde toplumsal ve ekonomik statüye dayalı eşitsizlikler [Inequalities based on social and economic status in music education in Turkey]. *Manisa Celal Bayar Üniversitesi Sosyal Bilimler Dergisi, 16*(1),463-492. https://dergipark.org.tr/tr/pub/cbayarsos/issue/36381/411517

Apaydınlı, K. (2012). Ergenlik dönemi sorunlarının çözümünde müzik eğitiminin rolü ve önemi [The role and importance of music education in the solution of adolescence problems.]. *Fine Arts, 7*(2), 123-130. https://dergipark.org.tr/tr/download/article-file/186537

Berg, B.L., & Lune, H. (2015). *Sosyal bilimlerde nitel araştırma yöntemleri [Qualitative research methods in the social sciences].* (H. Aydın Çev. Ed.). Eğitim Yayınevi.

Chrıstensen, L. B., Johnson, R. B., & Turner, L. A. (2015*). Araştırma yöntemleri: Desen ve analiz[Research methods: Design and analysis]* (A. Aypay Çev. Ed.). Anı Yayıncılık.

Coşkuner, S. (2007). *Türkiye'de Anadolu güzel sanatlar liseleri (yaylı çalgılar) bireysel çalgı eğitimi dersinde piyano eşlikli çalışmalara ilişkin öğretmen görüşleri[Teachers opinionson piano accompanied studies in Turkish Anatolian high school of fine arts (strins) individual instrument education lesson]* (Tez No. 207072) [Yüksek lisans tezi, Gazi Üniversitesi]. Yükseköğretim Kurulu Başkanlığı Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Creswell, J. W. (2016). *Nitel araştırma yöntemleri, beş yaklaşıma göre nitel araştırma ve araştırma deseni [Qualitative research methods, qualitative research and research design according to five approaches]* (M. Bütün ve S. B. Demir, Çev.). Siyasal Kitabevi.

Çevik Kılıç, D. B. (2017). Türkiye'deki müzik öğretmenlerin kişilikleri ve iş tatminleri [Music teachers' personalities and their job satisfactions in Turkey]. *Kastamonu Eğitim Dergisi, 25*(1), 435-454 . DOI: 10.24106/kefdergi.309194

Deleş, B., & Kaytez, N. (2020). Çocuk gelişiminde müziğin yeri ve önemi [The dlace and importance of music in child development]. *Avrasya Sosyal ve Ekonomi Araştırmaları Dergisi*, *7*(10), 133-142. https://dergipark.org.tr/tr/pub/asead/issue/57514/802257

Denac, O. (2008). A Case study of preschool children's musical interests at home and school. *Early Childhood Education Journal, 35*(5), 439-444. http://dx.doi.org/10.1007/s10643-007-0205-4

Deveci, Ö. (2010). *İlköğretim okulu yönetici ve öğretmenlerinin müzik dersi ve öğretmenine karşı bakış açılarına yönelik bir inceleme* [*Elementary school teacher and administrator of music lessons and music teacher viewpoints of the research an investigatioin*] (Tez No. 263600) [Yüksek lisans tezi, Cumhuriyet Üniversitesi]. Yükseköğretim Kurulu Başkanlığı Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Dıttgen, J. (2018). Suzuki yönteminde ailenin yeri ve önemi [The role and importance of the family in suzukı method] *Sahne ve Müzik , (6)* , 13-20. https://dergipark.org.tr/tr/pub/smead/issue/34898/386978

Durdu, A., Algan, C., & Çetin, A. (2021). *İlkokul 4. sınıf müzik eğitiminin bazı değişkenler bakımından incelenmesi*, 6. Çukurova Uluslararası Bilimsel Araştırmalar Kongresi Özet Kitabı, (ss. 252 – 253).

Ergen, D., & Bilen, S. (2010). İlköğretim düzeyinde eşlikli çalmaya dayalı keman eğitiminin entonasyon, özgüven ve tutum üzerindeki etkisi [The effect of elementary-level vıolın education based on playing wıth accompaniment on intonation, self-confidence and attitude]. *Batı Anadolu Eğitim Bilimleri Dergisi*, *1*(1), 23-32 . https://dergipark.org.tr/tr/pub/baebd/issue/3342/46247

Glesne, C. (2013). *Nitel araştırmaya giriş* [*Introduction to qualitative research*] (A. Ersoy, P. Yalçınoğlu Çev. Ed.) Anı Yayınları.

Göğüş, G. (1999). Müzik yeteneğinin tanımı, ölçümü ve "deneme yetenek testi" [Definition, measurement and "trial ability test" of musical talent]. *Uludağ Üniversitesi Eğitim Fakültesi Dergisi , 12*(1), 147-154. https://dergipark.org.tr/tr/pub/uefad/issue/26993/283727

Guba, E. G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries, *Educational Technology Research And Development, 29* (2), 75-91. https://www.jstor.org/stable/30219811

Güven, E. (2017). *12-14 Yaş grubu çocukların müziğe ilişkin tutumları ile sosyal beceri düzeyleri arasındaki ilişkinin incelenmesi [Investigation of the relationship between music attitudes and social skill levels of 12-14 age children]* (Tez No. 471097) [Yüksek lisans tezi, Başkent Üniversitesi]. Yükseköğretim Kurulu Başkanlığı Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Helvacı, A. (2012). İlköğretim I. kademe öğrencilerinin müzik eğitimi ile ilgili temel kavram ve kültürel bilgi düzeylerine ilişkin bir araştırma [A research related to primary school students' main concepts about music education and their level of cultural knowledge]. *Uludağ Üniversitesi Eğitim Fakültesi Dergisi, 25*(2), 531-546. https://dergipark.org.tr/tr/pub/uefad/issue/16696/173564

Johnson, B., & Christensen, L.(2004). *Educational research: Quantitative, qualitative, and mixed approaches* (2nd ed.). Needham Heights, MA: Allyn ve Bacon.

Kahyaoğlu, Y. (2010). Eğitim ve müzik sosyolojisi [Education, and the sociology of music]. *Sanat Dergisi,* (13), 147-152. https://dergipark.org.tr/tr/pub/ataunigsfd/ issue/2601/33484

Kara, A. (2020). *Müzik öğretmeni adaylarının kişilik özellikleri ve mesleki kaygı düzeyleri arasındaki ilişkinin incelenmesi [The investigation of the relationship between personal properties of music teacher candidates and professional anxiety levels]* (Tez No. 624072) [Yüksek lisans tezi, Atatürk Üniversitesi]. Yükseköğretim Kurulu Başkanlığı Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Kılıç, I. (2016). Ortaokul öğrencilerinin müzik ile ilgili görüşlerinin incelenmesi [Research on secondary school students' views about music] *Eğitim ve Öğretim Araştırmaları Dergisi,5*(3), 360-371. http://www.jret.org/FileUpload/ks281142/File/35.ilgim_kilic_.pdf

Koç Akran, S., & Yıldız, V. (2020). Sosyal etkinlikler modülüyle öğrencilere kazandırılan değerler: Öğrenci görüşleri [Values gained to students through social activities module: Student views] . *Uluslararası Beşeri Bilimler ve Eğitim Dergisi, 6*(14), 569-593. https://dergipark.org.tr/tr/pub/ijhe/issue/57645/802687

Küçük, D. P. (2012). Müzik öğretmenlerinin müzik öğretmenliği mesleğine yönelik tutumları [Attitude of music teachers towards profession of music teaching]. *Dicle Üniversitesi Ziya Gökalp Eğitim Fakültesi Dergisi, (19),* 151-161. https://dergipark.org.tr/tr/pub/zgefd/issue/47945/606602

Lincoln, Y.S., & Guba, E.G. (1985). *Naturalistic inquiry*. California: SAGE.

MEB. (2017). *Çocuk gelişimi ve eğitimi müzik etkinlikleri.* http://www.megep.meb.gov.tr/mte_program_modul/moduller_pdf/M%C3%BCzik%20Etkinlikleri.pdf

Merriam, S. B. (2013). *Nitel araştırma desen ve uygulama için bir rehber* [A guide to qualitative research design and practice]. (S. Turan Çev. Ed). Nobel Akademik Yayıncılık.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. sage.

Morrow, S. L. (2005). Quality and trustworthiness ın qualitative research ın counseling psychology. *Journal Of Counseling Psychology, 52* (2), 250-260. https://www.researchgate.net/publication/232446190

Önal, G. (2012). Müzik bölümünde okuyan öğrencilerin aile profilleri ve meslek tercihlerinde ailenin rolü : Kırıkkale Üniversitesi Güzel Sanatlar Fakültesi örneği. [The role of the family in the family profiles and career preferences of the students studying in the music department: The case of Kırıkkale University, Faculty of Fine Arts.] *Kırıkkale Üniversitesi Sosyal Bilimler Dergisi, 2*(2) , 27-43. https://dergipark.org.tr/tr/pub/kusbd/issue/19377/205566

Ördekci, Ş. (2016). *İlkokul 4. sınıf öğrencileri için hazırlanan müzik eğitiminde öğrenmeyi kolaylaştırıcı görsel materyallerin kullanımına ilişkin bir inceleme* [*An analysis on usage of visual materials facilitating learning in music education for 4th grade students*] (Tez No. 421702) [Yüksek lisans tezi, Afyon Kocatepe Üniversitesi]. Yükseköğretim Kurulu Başkanlığı Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Özal Göncü, İ. (2002). *4-6 yaş anaokulu çocuklarına uygulanan müzik eğitiminin müziksel ses ve işitsel algı gelişimlerine etkileri [The Affects of music education that applied to kindergarten students aged between 4 and 6 on their musical voice and auditory perception improvement]* (Tez No. 123557) [Doktora tezi, Gazi Üniversitesi]. Yükseköğretim Kurulu Başkanlığı Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Özdemir, G., & Yıldız, G. (2010). Genel gelişim sürecinde müziksel gelişim [Musical development in the procces of development] *Mehmet Akif Ersoy Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 0* (2) , 77-90. https://dergipark.org.tr/tr/pub/makusobed/issue/19434/206674

Patton, M. Q. (2014). *Nitel araştırma yöntemleri, beş yaklaşıma göre nitel araştırma ve araştırma deseni* [*Qualitative research methods, qualitative research and research design according to five approaches*]. (M.Bütün ve S. B. Demir Çev. Ed.) Siyasal Kitabevi.

San, İ. (2019). Sanat eğitimi [Art education]. *Ankara University Journal of Faculty of Educational Sciences (JFES), 15*(1), 215-226. https://doi.org/10.1501/Egifak_0000000828

Silverman, D. (2005). *Doing qualitative research: A practical handbook*. SAGE Publications.

Sun, M., & Seyrek, H. (2002). *Okul öncesi eğitiminde müzik eğitimi* [*Music education in preschool education*]. Müzik Eserleri Yayınları.

Tatar, B. (2013). Şehir-müzik ilişkisine dair kuramsal düşünceler [Theoretical thoughts on the city-music relationship]. *Süleyman Demirel Üniversitesi İlahiyat Fakültesi Dergisi, (31)*, 25-34. https://dergipark.org.tr/tr/pub/sduifd/issue /48326/611803

Toksoy, A. (2000). *İlköğretimde müzik eğitimi ile ilgili yaklaşımlar hakkında genel bir değerlendirme* [*A general evaluation about approaches to music education in primary education*] (Tez No. 98723) [Yüksek lisans tezi, İstanbul Teknik Üniversitesi]. Yükseköğretim Kurulu Başkanlığı Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Türnüklü, D. A. (2000). Eğitimbilim araştırmalarında etkin olarak kullanılabilecek nitel bir araştırma tekniği: Görüşme [A qualitative research technique that can be used effectively in educational research: Interview] . *Kuram ve Uygulamada Eğitim Yönetimi, 24* (24), 543-559. https://dergipark.org.tr/tr/pub/kuey/issue/10372/126941

Uçan, A., Yıldız, G., & Bayraktar, E. (1999). *İlköğretimde etkili öğrenme ve öğretme öğretmen el kitabı ilköğretimde müzik öğretimi modül 9* [E-kitap sürümü]. Milli Eğitim Bakanlığı Yayınları. https://www.researchgate.net/publication/336680813_Ilkogretimde_Etkili_Ogretme_ve_Ogrenme_Ogretmen_El_Kitabi_Modul_9_ILKOGRETIMDE_MUZIK_OGRETIMI/citation/download

Uçar, A. (1989). *Ortaöğretim kurumlarında müzik öğretimi ve sorunları [Music teaching and its problems in secondary education institutions.* Türk Eğitim Derneği Yayınları.

Uslu, M. (2009). M*üzik eğitiminin kişilik ve sosyal gelişme açısından değerlendirilmesi.* 38. ICANAS' Uluslararası Asya ve Kuzey Afrika Çalışmaları Kongresi, Ankara.

Yaşar, G. (2020). *Yetişkinlerde müzik eğitimi alan kişiler ile müzik eğitimi almamış kişilerin tükenmişlik düzeylerinin incelenmesi [Examination of burnout levels of adults who have received music education and those who have not received music education]* (Tez No. 635911) [Yüksek lisans tezi, Marmara Üniversitesi]. Yükseköğretim Kurulu Başkanlığı Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

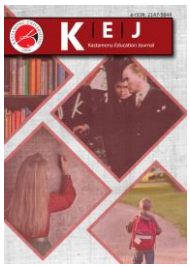
Yazıcı, T. (2009). *İlköğretim müzik dersinin uygulanmasında karşılaşılan sorunların öğretmen görüşleri açısından değerlendirilmesi (Trabzon il örneği) [The assessment of the problems facing elementary school music education from the teachers' point of view (Trabzon example)]* (Tez No. 249849) [Yüksek lisans tezi, Karadeniz Teknik Üniversitesi]. Yükseköğretim Kurulu Başkanlığı Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Yener, Y. A. (2011). Müziğin çocuklar ve yaşlılar için önemi [The effects of music on children and the elders] . *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi*, *29* (29), 119-124. https://dergipark.org.tr/tr/pub/pauefd/issue/11114/132894

Yıldırım, A., & Şimşek, H. (2016). *Sosyal bilimlerde nitel araştırma yöntemleri [Qualitative research methods in the social sciences].* Seçkin Yayıncılık.

Yönetken, B. H. (1993). *Türkiye'de müzik eğitiminin önemi* [*The importance of music education in Turkey*]. Müzik Ansiklopedisi Yayınları.

Kastamonu Education Journal, 2024, Vol. 32, No:1, 127-137
doi: 10.24106/kefdergi.1426999



| Research Article / Araştırma Makalesi |

Evaluation of the Processes of EU Education Projects in Private Schools and Effects of COVID-19 Pandemic[1]

Derya Bayram[2], Murat Bülbül[3]

Keywords
1. EU Education Projects
2. Private Schools
3.Covid-19 Pandemic

Anahtar Kelimeler
1.AB Eğitim Projeleri
2.Özel Okullar
3.Covid-19 Pandemisi

Received/Başvuru Tarihi
19.01.2023

Accepted / Kabul Tarihi
07.11.2023

Abstract

Purpose: The aim of this study is to assess the procedures of EU education projects implemented in private schools, as well as the impact of the Covid-19 epidemic on these processes, based on the perspectives of private school personnel. When the literature is examined, although there are a few studies on the contribution of EU education projects to private schools, there is no study that examines the entire project process from a holistic perspective.

*Design/Methodology/Approach: T*he phenomenology method, one of the qualitative research methods, was used. The working group consists of 12 private school administrators and teachers having participated in the EU education projects.

Findings: It is concluded that private schools have significant problems with both internal and external factors in every aspect of the projects. However, private schools also produce some practical solutions for these problems. In addition, participation in EU education projects has the potential to make significant contributions to both individuals and institutions. Furthermore, with the effect of the COVID-19 epidemic, online and hybrid models are projected to be employed more frequently, and participants believe that online initiatives cannot achieve the same aims as projects with direct participation.

Highlights: The content of the programs should be revised with alternative online or hybrid models, especially "international mobility", an important part of EU education projects, which is prevented because of Covid-19.

Öz

Çalışmanın amacı: Bu çalışmanın amacı, özel okullarda uygulanan AB eğitim projelerinin prosedürlerini ve COVID-19 salgınının bu süreçlere etkisini özel okul personelinin bakış açılarından hareketle değerlendirmektir. Literatür incelendiğinde, özel okullara AB eğitim projelerinin katkısının incelenmesine yönelik birkaç çalışma olsa bile proje süreçlerinin tamamının yürütülmesine ilişkin bütüncül bir bakış açısıyla inceleyen bir çalışma yer almamaktadır.

Materyal ve Yöntem: Araştırmanın amacına uygun bir şekilde nitel araştırma yöntemlerinden biri olan fenomenoloji yöntemi kullanılmıştır. Çalışma grubu AB eğitim projelerine katılım sağlamış 12 özel okul yöneticisi ve öğretmenden oluşmaktadır.

Bulgular: Elde edilen bulgulara dayalı olarak, özel okulların projelerin her alanında hem iç hem de dış faktörlerle önemli sorunlar yaşadığı sonucuna varılmıştır. Ancak özel okullar da bu sorunlara yönelik bazı pratik çözümler üretmektedir. Ayrıca, AB eğitim projelerine katılım hem bireylere hem de kurumlara önemli katkılar sağlama potansiyeline sahiptir. Bunlara ek olarak, COVID-19 salgınının etkisiyle online ve hibrit modellerin daha sık kullanılması öngörülmekte ve katılımcılar online girişimlerin doğrudan katılımlı projelerle aynı hedeflere ulaşamayacağına inanmaktadır.

Önemli Vurgular: Kovid-19 pandemisi nedeniyle önüne geçilen AB eğitim projelerinin önemli bir parçası olan "uluslararası hareketlilik" başta olmak üzere alternatif online veya hibrit modellerle programların içerikleri revize edilmelidir.

[1] This research is derived from the Master's dissertation.

[2] English Teacher, Zübeyde Hanım Secondary School, Esenyurt, İSTANBUL; https://orcid.org/ 0000-0002-5403-6418
[3] Assist. Prof., İstanbul Medeniyet University, Department of Educational Administration, Üsküdar, İSTANBUL; https://orcid.org/ 0000-0002-1415-0881

INTRODUCTION

The social, economic and political goals of the EU, shaped by its founding philosophy, necessitate educational cooperation between EU member and candidate countries. The international economic and political competition created by the effect of globalization is another factor that compels this cooperation between member countries (Cankaya, Kutlu & Cebeci, 2015). Erasmus+, the European Union's Education and Youth Program, is currently funding education projects between EU member and applicant countries. This award program, which runs from 2014 to 2020, includes the previous years' Comenius, Leonardo, Erasmus, Grundtvig, and Transversal Programs, also known as lifelong learning programs. Erasmus+ offers participants, including students and educators, the opportunity to study, train, gain work experience, and volunteer abroad. In addition to individual grants, Erasmus+ promotes transnational collaboration among educational, training, and youth institutions and organizations. It also contributes to national efforts to modernize education, training, and youth systems (Citizens Information, 2021).

Although Turkey is not yet a member of the EU, as a member of the European Commission, it can participate in the European Commission's EU Education and Youth Programs, which aim to strengthen cooperation in the field of education and youth among participating countries. Turkey started these programs as a pilot in 2003 with the National Agency and became a full member of the EU Education and Youth Programs on April 1, 2004. Until 2006, Socrates, Leonardo da Vinci, and Youth Programs; during the 2007-2013 period, Lifelong Learning and Youth Programs were carried out. The Erasmus+ Program, which covers the last period of 2014-2020, is carried out by the EU Education and Youth Programs Center, also called the Turkish National Agency (UA) (UA, 2020).

Many schools in Turkey apply for projects within the scope of these programs. Participation in these projects can make important contributions to schools: Besides making important contributions to the cultural, personal, institutional, and social development of school administrators, teachers, and students, it also improves their foreign languages (Yılmaz, 2019). In their research, Dilekli and Dikici (2008) concluded that administrators, teachers, and students involved in the Comenius project increased their interaction with each other, gained the ability to work in a group, and that teachers began to use new methods and techniques in education more frequently. In addition, participation in EU projects contributes significantly to the prestige of the school; parents are more likely to prefer these schools (Kesik & Beycioğlu, 2020).

Current statistics show that public schools take part in projects within the scope of EU Education Programs at a much higher rate than private schools. For example, 213 applications were accepted for Main Action 1 Learning Mobility of Individuals - School Education Staff Mobility Projects; While only 3 (1%) of these applications belong to private schools, 210 (99%) belong to public schools (UA, 2019a); a total of 669 applications were accepted to the Erasmus+ Inter-School Exchange Partnerships (KA229) program in 2019. While 75 (11%) of these applications belong to private schools, 594 (89%) belong to public schools (UA, 2019b). However, in 2004, when the first applications were made to these projects, the application rate of private schools was much higher than that of public schools. For example, even in the capital Ankara, 7 of the 8 schools that applied to Comenius program projects in the city center were private schools, while only 1 was a public school (Türkoğlu, 2004). It should also be noted that compared to today, the number of private schools in that year was proportionally much less than public schools (MEB, 2005). It is seen that despite the increase in the number of private schools (MEB, 2021), the number of applications made by private schools to EU education projects is decreasing.

In general, private schools are considered to be more adaptable to innovations than public schools. For this reason, it can be thought that the number of applications from private schools is higher in the first years and that the number of applications from public schools increases as they gain experience in the following years. However, considering the proportional increase in the number of private schools in the Turkish education system, this explanation alone will not be sufficient. According to the MEB 2021 statistics, the number of private schools in formal education on the basis of primary, secondary, and high school constitutes 14% of all schools (MEB, 2021). It should also be remembered that hundreds of private schools have been closed during the pandemic period (NTV, 2021). In addition, these statistics also include the types of schools that can only be opened as official schools, such as Imam-hatip secondary and high schools. These statistics clearly show that although the number of private schools has increased proportionally, the number of applications made by them to EU education projects has decreased over the past years.

Although private schools are private sector organizations, they are obliged to provide education, which is a public service whose framework is determined by the constitution and laws. The constitution of The Republic of Turkey states in Article 42/6, “The principles governing the functioning of private primary and secondary schools shall be regulated by law in keeping with the standards set for the state schools” (AYM, 2019, p. 41). Moreover, regardless of the type of school students attend, they should benefit from equal opportunities in education. In addition, private school teachers, like public school teachers, should have the opportunity to gain experience and develop themselves personally and professionally by participating in these projects. Considering the aforementioned information, private schools may have some particular obstacles, difficulties, and problems with the implementation and participation in EU educational programs, as opposed to public schools. The institutional and individual contributions of these initiatives should also be assessed from a holistic viewpoint so that private schools and their personnel are motivated to engage in EU educational programs.

Although there are several studies on the contributions of EU education programs to schools, no research on private schools has been found when the relevant papers in the literature are searched. Furthermore, no study has been found that looks into

the issues of EU education projects in private schools. As a result, this study, which examines EU education projects in private schools from a holistic approach, as mentioned above, is deemed relevant.

The primary goal of this research is to thoroughly examine and evaluate the implementation of EU education projects by private schools in Turkey, using the perspectives of private school administrators and teachers.

Based on this purpose, the following three sub-objectives were determined:

1) To identify the issues and solutions in the application, implementation, and evaluation processes of EU education projects.

2) To identify the contributions of EU projects to schools and individuals.

3) To discuss potential modifications induced by the influence of the COVID-19 pandemic on EU education projects.

The following questions were posed to the participants in order to attain these objectives:

For the first purpose:

1. What kind of problems can be experienced with stakeholders inside and outside the school during the application and execution of EU projects, and what is being done to solve these problems?

For the second purpose:

2. What are the reasons for a private school to apply to EU projects/what motivates them?

3. What kind of contributions does participation in EU projects make to the internal and external stakeholders of the school?

For the third purpose:

4. Considering the Covid-19 pandemic, how have EU education projects been affected by this process, and what kinds of modifications and transformations might be expected for these projects?

METHOD/MATERIALS

For this study, a qualitative research strategy was chosen because qualitative approaches are particularly beneficial in determining the meaning that people assign to situations and events that they encounter (Merriam, 1998). Phenomenology, a qualitative research method, is specifically chosen in this study because the goal is to establish what EU education projects mean to private school administrators and teachers. A phenomenological investigation, according to Creswell (2007), describes the meaning for multiple persons of their lived experiences of a concept or a phenomenon (Creswell, 2007, p. 57-58).

The research study group consists of 12 people holding various positions (founder, administrator and teacher) in private schools and having previously experienced at least one EU educational Project. Furthermore, these people differ in terms of gender, age, seniority, and educational level (Table 2). The multidimensional perception of the phenomenon experienced by diverse persons is explored in phenomenological investigations, and therefore it is attempted to discover what the common points are in the perspectives, thoughts, and reactions to this phenomenon (Fraenkel, Hyun & Wallen, 2012, p. 432). The code names of the participants and their positions in the schools are shown in Table 2.

In accordance with the study's objectives, individuals in the study group were chosen using maximum variation sampling, which is one of the purposive sampling procedures. Maximum diversity sampling aims to give many points of view from different people in order to reveal a complex phenomenon. Individuals of various ages, gender, educational level, sectoral experience, and other personal features and qualities are involved in the study (Creswell, 2017, 268). The most important thing to understand about this sample strategy is that the researcher is seeking to identify what kind of commonality, similarities, and, of course, variances exist across distinct scenarios (Yıldırım & Şimşek, 2018, p. 120).

Table 2

Some Demographic Characteristics of the Participants

Code	Gender	Position	Age	Experience Year	Educational Background
P1	Male	Founder & School Principal	44	20	Bachelor's Degree
P2	Male	School Principal	40	17	Master's Degree
P3	Male	School Principal	32	10	Bachelor's Degree
P4	Male	School Principal	35	8	Bachelor's Degree

Code	Gender	Position	Age	Experience Year	Educational Background
P5	Male	Founder& School Principal	35	9,5	Bachelor's Degree
P6	Female	School Principal	50	32	Bachelor's Degree
P7	Female	School Principal	47	27	Bachelor's Degree
T1	Female	Group Leader& Teacher	39	16	Master's Degree
T2	Female	Teacher	45	23	Master's Degree
T3	Female	Teacher	30	7	Bachelor's Degree
T4	Female	Project Coordinator & Teacher	41	17	Doctoral Degree
T5	Female	Assistant Manager & Teacher	47	26	Bachelor's Degree

In the study, questions were directed to the participants with a semi-structured interview form. The semi-structured interview methodology is employed for this study, which is part of the interview method of qualitative data collection instruments. In semi-structured interviews, certain types of questions are prepared for all interviews. The interviewees are asked the same questions in the semi-structured form (Yıldırım & Şimşek, 2018). A thorough assessment of the relevant literature was used to create the questions used to collect data. Two field specialists' comments were sought while creating the questions, with the goal of increasing the research's validity. In addition, the "direct quotation" method, a qualitative study validation method, was applied. The "researcher variation" technique is another validation strategy utilized in this area. Two researchers separately assessed the data, and the themes selected by both researchers were then included in the findings (Christensen, Johnson & Turner, 2015, pp. 404-406).

Although face-to-face interviews were requested in the research, the interviews were held online due to the Covid-19 pandemic. Zoom Program, one of the online communication platforms, was used and it was tried to establish maximum interaction with the participants by ensuring that the cameras were open during the interview. The interview process was as follows: first, the participants were given preliminary information about the purpose and importance of the research, interview rules, and the confidentiality of personal information. Secondly, the concepts such as internal stakeholder, external stakeholder, and project dissemination activities were explained in the interview questions. Finally, permission was requested from the participants to record the interview, and the interview was recorded. During the interview, notes were taken when necessary.

The data was analyzed using a content analysis technique developed for phenomenological research. In the literature, the general classification in qualitative data analysis takes the form of descriptive and content analysis. The content is summarized and analyzed within the framework of predetermined categories in descriptive analysis. Descriptive analysis is shallower than content analysis; content analysis data is investigated in depth, allowing the formation of previously unknown categories and dimensions (Yıldırım & Şimşek, 2018, p. 239). According to Creswell (2021), content analysis starts with developing a list of important expressions in the interview data (coding). Afterward, the inconsistent and important ones of these statements are gathered under larger units, and thus, the themes of the research are obtained. In this research, 5 main and 15 sub-categories were obtained as a result of following the above-mentioned processes using the content analysis approach.

In all processes of this research, the rules of scientific research and publication ethics were followed by the researchers. In addition to that, an Ethics Approval Certificate was obtained.

Before the interview, the participants were interviewed, and it was established that they would engage in the research with their consent. It is said that the interviews conducted using the video recording method would be kept confidential and that they can only turn off their cameras if they wish and continue just with the picture and sound recording of the researcher; it was also indicated that they could leave the meeting at any time. The code name was employed in the research to safeguard the participants' privacy.

FINDINGS

The analysis resulted in five primary topics and 13 subtopics under these major topics. The following will present these key topics in order and in conjunction with their related subthemes.

1. EU Education Projects Application Process

The following are the two sub-themes that have emerged from this theme:

1.1. Issues Relating to the Application

The key issues in the application process are low teacher motivation, issues with provincial and district national education directors, and the complexity of bureaucratic procedures. According to one of the teachers (T3), the problem of motivation is as follows:

Due to the workload and intensity, there was not much demand anyway. None of the teachers came and said, "Take me with you.". I always got feedback like this; "I'm not looking for trouble, what will I do abroad with the responsibility of 6 children?" I got such returns. Nobody wanted to volunteer.

The teacher (T3), as an example, explained the problems they had with the provincial and district national education directorates with the following words:

“During the application process, I had a lot of trouble with the district's national education. The district neglected national education, neglected everything, and nobody knows how it works... This cannot happen; I'm going to the directorate, and my papers are complete for a letter that will require approval from the district and province. It's our first time doing it. We had a lot of trouble when I first went. This document is missing, this document is more, etc. I went first, I took everything according to the list of documents they wanted. Despite this, some are missing, some are too much… There is a voice coming out of every head in the district national education. Nobody knows what they are doing; Especially in the department responsible for private schools…”

1.2. Solutions for the Application Process Issues

Teachers are given incentives to solve difficulties, according to the respondents, and project consultancy and trainings for teachers and students are provided. As an example, the school principal (P3) said:

“I presented a plaque of success to the teachers at the project returns. Together with our founders, we have provided a small increase in raise. We presented certificates of achievement to both students and teachers... Because the teacher is motivated... Even asking the participants if they need something during the project gives them satisfaction.”

Regarding the consultancy and training services supplied to teachers, a teacher (T5) who was significantly involved in the initiatives said:

“In fact, as a teacher who is interested in projects, I have been constantly telling my colleagues about the contributions of the projects. We have made presentations and workshops for the teachers. We give training on what European Union projects are, what they are not, and how to write. We have received the training from experts from people in Turkey who do this job well.”

2. EU Education Projects Implementation Process

The following are the two sub-themes that have emerged from this theme:

2.1. Issues Relating to the Implementation

In the implementation process of the projects, the main issues are disruption of classroom education, negative parental attitudes and behaviors, and unethical financial expectations of school founders. Teachers who are responsible for the projects sometimes fail to do the lessons. Because they may be abroad due to the project or they may be hosting participants from different countries. Some parents’ attitudes and behaviors may also cause issues. (T1) explains some of them in these words:

“It is already difficult to take children abroad, but it is much more difficult when the students are Turkish. Parents are obsessed with too many things... First of all, they need to be persuaded... For example, we started with 10 students and continued with only 6 of them... When foreign students come to Turkey, it's not a problem for their families, but when we go abroad, our Turkish families almost want their kids to stay in the same room with us...”

Some private school founders may want a significant portion of EU education project money to remain in the school budget, even if it is not ethical, legal, or compatible with the aims of education. According to an experienced school principal (P1);

“I think 7-8 out of 10 private school founders want teachers and students to learn something, while 3 may want 10.000 Euros to the school budget.”

2.2. Solutions for the Implementation Process Issues

In general, the participants' solution recommendations are as follows: confidence establishment and persuasion process for parents, determination of criteria for selection of students, and precautions taken to prevent disruption of classroom education. T1 described their efforts to persuade parents as follows:

“In order to convince parents of their children's participation in the project; We made an effort by showing them where their children will stay, even by organizing video conferences. The most important thing is that we showed the academic outputs of the children. They will have opportunities to experience both social competence and foreign language… We showed these, we had to hold a lot of parent meetings.”

P4 shared the way they discovered to demonstrate that there is no discrimination among student

We did not choose our students randomly. We had our criteria. That's why we didn't have much trouble. Apart from that, they should not have received any disciplinary punishment. Also, since the subject of the project was coding, we took those whose computer skills were above average. We identified the students as the main participants and alternate participants…

3. Individual and Institutional Contributions of Participation in EU Education Projects

The following are the four sub-themes that have emerged from this theme:

3.1. Contribution to School Promotion and Prestige

Based on the responses of several participants, it was established that EU education projects benefited the promotion and prestige of private schools. (T1) summed up the activities that helped to promote the school and boost its reputation as follows:

“Only a wall was prepared in our school where the project will be shown; trophy, exhibition with images, newspaper... We appeared on Swedish television and were guests on Polish radio… Newspapers reported on them.”

3.2. Developing Staff Personally and Professionally

Participating in EU education programs, according to private school employees, makes a distinctive contribution to the personal and professional development of teachers and principals. (P6) states that

“It brings the teacher into contact with a variety of students as well as people from other countries. So, they can learn firsthand what is done in different countries' schools, how pupils study, and from whom they acquire their education. I believe the teachers' vision is evolving.”

3.3. Developing Students Personally and Academically

According to the findings, EU education projects supported the personal and academic development of private school students. A private school founder shares his opinion as follows:

“Students increase understanding, strengthen their abilities to promote our country and understand the value of scientific information. And they develop a positive perspective on foreign languages and other cultures. Moreover, their self-confidence increases.”

3.4. Developing Collaboration Skills with Other Organizations

Schools can generally collaborate with other institutions in project processes by interacting with them. For instance, while P1 stated that they received brochures and contributions from the Ministry of Environment and Ministry of National Education (MoNE) on recycling in 2012; P6 added that during their host period, they worked with the municipality and a few local stores on gifts.

4. Reporting, Dissemination, and Promotion of EU Education Projects

The following are the three sub-themes that have emerged from this theme:

4.1. National Education Directorates' Insensitive Attitudes

Some participants complained about the insensitive attitude of the education directorates toward the dissemination and promotion activities of the projects. For example, (T4)

“They proposed to shoot a TRT documentary simply since the project KA3 has been completed. This was required by the national agency. Ministry of Foreign Affairs officials arrived. But nobody came. So sad…”

4.2. Turkish National Agency's (NA) Institutional and Solution-Oriented Approach

NA's solution-oriented and institutional methods were encountered in reporting, dissemination, and promotion of EU education projects, according to the responses made by the participants. (T3) highlights that

“In the National Agency, we did not have any problems in general. The National Agency has been very supportive in this process. We had a small problem, and there were immediate solutions. They are solution-oriented.”

4.3. Dissemination and Promotion Activities of Schools

Some private schools engage in dissemination and promotion initiatives for EU education projects that they have completed. This is how F1 describes:

“We might say that participating in projects moves us forward. We demonstrate that we are always reinventing ourselves and that we benefit from numerous fields and countries in broadening our students' horizons. We distribute it to all parents and guests who visit our school during registration and school advertising days. We also post the project promotion film on our school's website and social media channels.”

5. EU Education Projects in Covid-19 Pandemic

The following are the two sub-themes that have emerged from this theme:

5.1. Pandemic’s Negative Impact on EU Education Projects

The majority of interviewees indicated that the pandemic had a very negative impact on their projects; they also stated that online projects do not fulfill the same goals as programs with direct participation. (T3), as an example, explained the situation in these words:

“Well, we had to do our last activity online. I think our project has been very negatively affected. There is a situation that contradicts the purpose of the project. It would have been more appropriate for the National Agency to extend it for one more year instead of giving an additional six months.”

5.2. Transformation of the Projects

On the question of "What type of changes and transformations do you expect for these projects?" a large number of participants responded that digitalization-related changes are unavoidable. These modifications could allow preschool groups that aren't normally participating in the project to participate, and they also claim that the costs can be cut by hosting the planning meetings online. They also suggested that if the projects are conducted online, even partially, the internet infrastructure in schools should be reinforced. (T3)'s thoughts on the matter are as follows:

"If things keep going this way, it seems that everything in the world will be over Zoom. We went through a similar process: we would normally visit the school and view the wonderful surroundings around us, but due to the pandemic, they created a movie for us to watch. With our students, we sat in front of the computer, watching the school and its environments."

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

According to the preliminary findings of the study, the obstacles commonly encountered by private schools during the application phase of EU education projects include low teacher motivation, communication issues with national education directorates, and the complexity of bureaucratic procedures. EU education projects can be viewed as one of the significant sources of professional development for teachers, it is clear that improving teacher motivation is critical. The motivations of teachers for professional development predict participation in professional development activities and a variety of factors can influence teacher motivation (Richter, Kleinknecht & Gröschner, 2019). According to Demirer and Dak (2019), if teachers have previously produced an EU education project, they may be assigned to write more projects the following year, which is too much for teachers. They claim the increased workload leads to a lack of motivation and inefficiency. Besides that, other studies in the literature show that disadvantaged working conditions and workload of private school teachers negatively affect their performance, job satisfaction, and professional development (Çimen & Karadağ, 2020; Chudgar&Sakamoto, 2021, Uğurlu & Sözer Özdemir, 2021; Manikandan, & Suresh, 2021; Gündüz, 2005), which is consistent with the findings of this study in the context of applying to EU education projects.

It may be suggested that, in order to boost the engagement of private school instructors in EU education programs, working conditions be improved and legal procedures made to increase their motivation. Participation in EU education programs may potentially be a significant condition for governmental financial support for private schools.

The findings of this study reveal that throughout the application process for EU education projects, private school personnel have communication issues with national education directorates, as well as problems stemming from negative bureaucratic attitudes. The participants reported that they were quite exhausted, especially in the paperwork, and that each officer said different things and misled them. In Turkey, research on national education directorates backs up the above findings. According to Kulaksz (2010), it is a concern that during the approval process, provincial national education directorates request unneeded documentation from teachers who travel overseas as part of EU education programs. In a study conducted by Birel and Başar (2010), they found that formal correspondence in education directorates is problematic. According to Aktan (2018), qualities such as empathy, professional expertise, and guidance are among the values that are least featured in the strategic plans of provincial national education directorates. Ardıç and Aslanargun (2020) also determined that human- and bureaucratic-related issues are among the most fundamental issues confronting administrators in district national education directorates. It is advised that new studies be conducted on school participation in EU initiatives and the challenges that arise from national education directorates. Furthermore, all relevant personnel of the national education directorate can be given in-service training on EU education and youth programs, and school participation in EU education projects can be considered an important factor in the promotion of national education administrators to higher positions.

The findings of the study demonstrate that, in order to enhance involvement in EU education projects, school administrations might provide monetary and moral incentives to teachers who participate in these projects. In addition, to encourage involvement in projects, schools receive training and consulting services. Relevant studies show that better salary is one of the key aspects that influences the morale and motivation of instructors in private schools (Ertürk, 2017; Din, Malik, & Afzal, 2019). Besides, Artvinli, Çetintaş, and Terzi (2020) stated that the practices in the scientific counseling process for teachers contributed positively to teachers' professional development during the project preparation phase. In a study of 4006 TUBITAK science fairs held in schools, Okuyucu (2019) also concluded that teachers and students require expert assistance. However, according to Demirer and Dak's study (2019), some schools with low institutional capacity may apply for a project by having the support of consulting and training firms. As a result, they warn that project quality may suffer and that schools may be required to return project funds to the Turkish National Agency.

The findings of the study revealed that private schools' participation in EU education projects produces several contributions, both individually and institutionally. It not only raises the school's institutional status but also broadens the school's experience in collaboration with other institutions. It also contributes to the professional growth of teachers as well as the academic development of pupils, particularly in terms of foreign language abilities. It also contributes significantly to both their personal and cultural development. According to Kulaksız (2010), EU projects improve the popularity of the school and give it prestige. In line with our findings, Kesik and Balcı (2016) classified the contributions of EU education projects to schools in a scale development study they conducted: Institutional Development, Personal/Professional Development, Social Development, Foreign Language Learning, and Cultural Development. According to Tavşan's (2013) research, Comenius School Partnerships Projects improved education quality by fostering intercultural conversation, improving foreign language acquisition, developing European consciousness, and enhancing teacher and student participation in projects.

The participants were also found to be involved in dissemination and promotion efforts after the project, according to this study. These activities can be viewed as both a tool for promoting the school and a requirement the European Commission must meet. In all communication and dissemination activities and outputs, such as events, internet websites, and publications, beneficiaries must prominently acknowledge the European Union's contribution (European Commission, 2021). However,

participants' concerns that national education directorates are unresponsive to the announcement and promotion of these projects' outcomes should be noted.

Aside from the ones described above, some of the findings in our study are regarded as significant in terms of their contribution to the literature. It is deemed important that the outcomes such as the functionality of EU education projects during the Covid-19 pandemic and the transformation they will undergo during this process, the fact that parents may cause some difficulties to school management regarding their children's participation in EU education projects and that some private school owners attempt to incorporate grants from these initiatives to the school budget in ways that are not consistent with the project's goals. Furthermore, by examining the problems encountered by private schools during the project process, we hoped to start a discussion about why private schools' participation in EU education projects decreased despite the relative increase in the number of private schools and their proportional increase in the Turkish Education System. Undoubtedly, this phenomenological study has significant shortcomings. This survey only included employees working in private schools in Istanbul; research can also be undertaken based on the perspectives of private school staff working in different provinces. Furthermore, the research was based solely on the opinions of private school personnel; studies including students, parents, provincial and district directors of national education, and National Agency staff will ensure that the findings of this study are more accurately analyzed.

Declaration of Conflicting Interests

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

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Statements of publication ethics

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

Examples of author contribution statements

D.B. searched the literature, collected, presented and interpreted data, wrote the conclusion and discussion part of the manuscript. M.B. gave the idea for the thesis topic, contributed the literature, interpreted data, encouraged D.B., supervised the findings of this work. Both authors discussed the results and contributed to the final manuscript.

Researchers' contribution rate

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

Ethics Committee Approval Information

This study was approved by the Ethical Committee of Educational Studies of Istanbul Medeniyet University (Date: 01/02/2021; No.: 2021/02-02).

REFERENCES

Artvinli, E., Çetintaş,H ve Terzi, İ. (2020). TÜBİTAK ortaokul öğrencileri araştırma projelerinin bilimsel danışmanlık süreci yönetimi: Fen bilimleri örneği. *International Journal of Active Learning (IJAL),* 5(2), 86-126. doi: 10.48067/ijal.827001

AYM. (2019). *Constitution of The Republic of Turkey.* Retrieved from https://www.anayasa.gov.tr/en/legislation/turkish-constiution/

Cankaya, S., Kutlu, Ö., & Cebeci, E. (2015). The educational policy of European Union. *Procedia - Social and Behavioral Sciences,* 174, 886–893. doi:10.1016/j.sbspro.2015.01.706

Chudgar, A., & Sakamoto, J. (2021). Similar work, different pay? Private school teacher working conditions in India. *International Journal of Educational Development, 86*(102478). doi: 10.1016/j.ijedudev.2021.102478

Citizens Information. (2021, 10 February). *Erasmus+.* Retrieved from https://www.citizensinformation.ie/en/education/european_education_programmes/eramus_plus.html#

Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five traditions.* Washington: Sage.

Çimen, B. ve Karadağ, E. (2020). Özel okullarda çalışan öğretmenlerin çalışma şartları ve gelecek kaygıları üzerine görüşleri. *İnönü Üniversitesi Eğitim Fakültesi Dergisi*, *21*(2), 518-541.

Demirer, M. ve Dak, G. (2019). Üst düzey yöneticiler, okul yöneticileri ve öğretmenlerin Erasmus+ projelerine ilişkin oluşturdukları görsel metaforlar. *IBAD Sosyal Bilimler Dergisi, 4*(5), 255-266. doi: 10.21733/ibad.627950

Dilekli, Y. ve Dikici A. (2008). *Aksaray İli'nde 2006 ve 2007 yıllarında uygulanan Comenius projelerinin öğrenci, öğretmen, okullar ve dersler üzerindeki etkilerinin incelenmesi.* 1st National Curriculum and Instruction Congress, Niğde, Turkey.

Din, M., Malik, H. D., & Afzal, S. (2019). Unraveling the factors affecting morale of teachers working in private educational institutions of Pakistan. *Pakistan Journal of Social Sciences (PJSS), 39*(2), 473–482.

Ertürk, R. (2017). Öğretmenlerin iş motivasyonunu artıran ve olumsuz etkileyen durumların incelenmesi. *Akademik Sosyal Araştırmalar Dergisi*, *5*(58), 582-603. doi: 10.16992/ASOS.12971

European Commission. (2021). *Erasmus+ programme guide.* Retrieved from https://ec.europa.eu/programmes/erasmus-plus/sites/default/files/2021-erasmusplus-programme-guide_v2_en.pdf

Fraenkel, A., Hyun, H.H., & Wallen, N.E. (2012). *How to design and evaluate research in education*. San Francisco: Mc. Graw Hill.

Kernis, M. H., Cornell, D. P., Sun, C. R., Berry, A., & Harlow, T. (1993). There's more to self-esteem than whether it is high or low: The importance of stability of self-esteem. *Journal of Personality and Social Psychology*, *65*(2), 1190-1204. doi: 10.1080/12312321212

Kesik, F. (2016). *Avrupa Birliği projelerinin okul sağlığına katkılarına ilişkin öğretmen görüşleri* (Yayımlanmamış doktora tezi). Dokuz Eylül Üniversitesi, İzmir.

Kesik, F. ve Balcı, E. (2016). AB projelerinin okullara sağladığı katkılar açısından değerlendirilmesi: bir ölçek geliştirme çalışması. *Kastamonu Eğitim Dergisi, 24*(4), 1621-1640.

Kesik, F., & Beycioğlu, K. (2020). An evaluation of the contributions of European Union Education and Youth Programs to schools: case of Comenius Multilateral Projects. *Journal of Qualitative Research in Education, 8*(2), 519-538.

Kulaksız, E. (2010). *Avrupa Birliği Comenius programlarının Türkiye'deki uygulamasına ilişkin katılımcı görüşleri*. (Yayımlanmamış doktora tezi). Kocaeli Üniversitesi, Kocaeli.

Manikandan, R., & Suresh, C. (2021). Impact of occupational stress with reference to private school teachers in Thanjavur District. *Primary Education Online, 20*(5), 4193-4198.

Milli Eğitim Bakanlığı (MEB). (2005*). Milli eğitim istatistikleri örgün ve yaygın eğitim.* http://hbogm.meb.gov.tr/meb_iys_dosyalar/2018_05/16123535_YrgYn_ve_YaygYn_EYitim_Ystatistikleri_20042005.pdf adresinden elde edildi.

MEB. (2021). *Millî Eğitim İstatistikleri Örgün Eğitim 2020/2021.* https://sgb.meb.gov.tr/meb_iys_dosyalar/2021_09/10141346_2020-2021_Ozet_Tablolar.xlsx adresinden elde edildi.

Merriam, S. B. (1998). *Qualitative research and case study applications in education*. San Francisco:Jossey-Bass.

NTV (2021, January 9). *Salgın özel okulları vurdu: 936 kolej kapandı, 300 bin öğrenci ayrıldı.* https://www.ntv.com.tr/egitim/salgin-ozel-okullari-vurdu-936-kolej-kapandi-300-bin-ogrenci-ayrildi,MCcWcP9QP06p-CXqaLRrag adresinden elde edildi.

Okuyucu, M. (2019). 4006-TÜBİTAK bilim fuarına ilişkin öğretmen ve öğrenci görüşleri. *International Journal of Social Sciences and Education Research, 5*(2), 202-218. doi: 10.24289/ijsser.545583

Richter, D., Kleinknecht, M., & Gröschner, A. (2019). What motivates teachers to participate in professional development? an empirical investigation of motivational orientations and the uptake of formal learning opportunities. *Teach. Teach. Educ. 86.* doi:10.1016/j.tate.2019.102929

Türkoğlu, Ş. (2004). *Türkiye'deki okulların Comenius projelerine etkin bir şekilde katılımının sağlanması üzerine bir araştırma Comenius 1-1 fen proje başvurusu (Yayımlanmamış yüksek lisans tezi).* Gazi Üniversitesi, Ankara.

UA. (2019a). *Erasmus+ Programı 2019 Yılı Ana Eylem 1 Bireylerin Öğrenme Hareketliliği - Okul Eğitimi Personel Hareketliliği proje başvurularına ilişkin sonuçlar*. https://www.ua.gov.tr/media/bf3pjvs3/ek-1_2019-_ka101_kabul_listesi.pdf?sfvrsn=2 adresinden elde edildi.

UA. (2019b). *Erasmus+ Programı 2019 Yılı Ana Eylem 2 - Okullar Arası Değişim Ortaklıkları proje başvurularına ilişkin sonuç kabul listesi*. https://www.ua.gov.tr/media/nyljvaeu/ek-1_2019_ka229_kabul_listesi.pdf?sfvrsn=2 adresinden elde edildi.

UA. (2020). *Turkish National Agency*. Retrieved from https://www.ua.gov.tr/en/corporate/turkish-national-agency/

Tavşan, E. (2013). *Avrupa Birliği Comenius 1 programinin amaçlarina ulaşma düzeyinin programa katilan öğretmen ve öğrenci görüşlerine göre incelenmesi (Karaman İli örneği)* (Yüksek lisans tezi). Necmettin Erbakan University, Konya. doi: 20.500.12812/297398

Ugurlu, C. T. ve Sözer Özdemir, Ö. (2021). Özel okulda mutlu bir öğretmen olmak. *Uşak Üniversitesi Sosyal Bilimler Dergisi, 14*(1), 64-84.

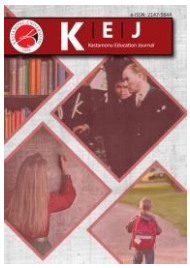
Yıldırım, A. ve Şimşek, H. (2018). *Sosyal bilimlerde nitel araştırma yöntemleri*. Ankara: Seçkin

Yıldırım, A. ve Şimşek, H. (2016). *Sosyal bilimlerde nitel araştırma yöntemleri*. Ankara: Seçkin.

Yılmaz, E. (2019). Özel eğitim okullarına Avrupa Birliği projelerinin katkısının yönetici ve öğretmen görüşleriyle değerlendirilmesi. *Ankara University Journal of Faculty of Educational Sciences (JFES), 52*(1), 29-50. doi: 10.30964/auebfd.426462

Yöndem, Z. D. ve Tokinan, B. Ö. (2007). Ergenlerde zorbalığın anne baba ve akran ilişkileri açısından incelenmesi. *Ege Eğitim Dergisi*, *8*(2), 53-68.

Kastamonu Education Journal, 2024, Vol. 32, No:1, 138-158
doi: 10.24106/kefdergi.1426735



| Research Article / Araştırma Makalesi|

Ethical Issues in Educational Technology

Eğitim Teknolojisinde Etik Sorunlar[1]

Inayet Aydın[2]

Keywords
1.Ethics
2.Educatioanl technology
3.Ethical issues in educational technology
4.Ethics in educational technology
5. Privacy and protection of children

Anahtar Kelimeler
1. Etik
2.Eğitim Teknolojisi
3.Eğitim Teknolojisinde Etik
4.Eğitim teknolojisinde etik sorunlar
5.Çocukların mahremiyeti ve korunması

Received/Başvuru Tarihi
07.11.2023

Accepted / Kabul Tarihi
26.01.2024

Abstract

Purpose: The purpose of this study is to identify the ethical issues created by educational technology from the perspective of children and youth and to develop recommendations for addressing the ethical problems they face in educational technology based on ethical evaluations.

Design/Methodology/Approach: This study utilizes the "Narrative Review" method.

Findings: This study reveals scientific findings on the inequalities created among students by educational technology, its impact on the child's privacy, values, and world of meaning, its effects on students' learning, cognitive functions, and creativity, its influence on students' emotional development and human relationships, as well as the negative effects of virtual reality and gamification, and the impact of technology on children's fundamental academic and physical skills.

Highlights: This research emphasizes the significant responsibilities that educational managers, decision-makers, policymakers, and teachers, especially those concerning "minors" under the age of 18, need to take on regarding the responsible, safe, and ethical use of technology in educational processes. The study delves into protecting children from potential harm and negative effects resulting from their use of educational technology.

Öz

Çalışmanın amacı: Bu çalışmanın amacı, eğitim teknolojisinin çocuk ve gençler açısından yarattığı etik sorunların neler olduğuno ortaya koymak ve yapılan etik değerlendirmeler sonucunda çocukların eğitim teknolojisinde maruz kaldıkları etik sorunların giderilmesine yönelik öneriler geliştirmektir.

Materyal ve Yöntem: Bu çalışmada "Anlatı İncelemesi" yöntemi kullanılmıştır.

Bulgular: Bu çalışmada eğitim teknolojisinin öğrenciler arasında yarattığı eşitsizlikler; çocuğun mahremiyet, değer ve anlam dünyası ile çocuğun kimliğine etkileri; öğrencilerin öğrenmesi ve zihinsel işlevleri ile yaratıcılıkları üzerindeki etkileri; öğrencilerin duygusal gelişim ve insan ilişkilerine etkileri; yaratılan sanal gerçekliğin ve oyunlaştırmanın olumsuz etkileri ile teknolojinin çocukların temel akademik ve fiziksel becerileri üzerine etkilerinin olduğu bilimsel bulgularla ortaya konmuştur.

Önemli Vurgular: Bu çalışma ile özellikle 18 yaş altındaki "küçüklerin" eğitim süreçlerinde eğitim yöneticilerinin, karar vericilerin, politika belirleyicilerin ve öğretmenlerin teknolojinin sorumlu, güvenli ve etik bir şekilde kullanılması konusunda üstlenmeleri gereken çok önemli sorumluluklar vardır. Bu süreçte çocukların eğitim teknolojisi kullanım süreçlerinde kendilerine gelebilecek zarar ve olumsuz etkilerden korunması ayrıntılı olarak ele alınmıştır.

[1] This study was presented as an oral presentation at the International Conference on Educational Technology and Online Learning Symposium held on June 20-23, 2023.

[2] **Corresponded Author,** Ankara University, Faculty of Educational Sciences, Department of Educational Administration,iaydin@ankara.edu.tr, Ankara, TÜRKİYE; https://orcid.org/ 0000-0002-7522-8961

INTRODUCTION

Throughout history, the use of teaching techniques and tools in the education of individuals has always been an important issue, and the search for more effective teaching approaches has never ended. According to Haran (2015), educational technology is "a complex and integrated process that involves people, procedures, ideas, devices, and organization to analyze all aspects of the human learning process and the problems experienced in this field and to design, implement, evaluate, and manage solutions to these problems". In general, the purpose of using technology in education has been to facilitate and enhance the processes of learning, teaching, and education. Educational technology has gradually evolved from clay tablets to blackboards and, ultimately, to artificial intelligence and robots, representing a significant area of development and progress. Within this historical timeline, various research has been conducted on educational technology, and it has become an important sub-discipline and research area within the field of Educational Sciences.

The concept of "Educational Technology"

The Association for Educational Communications and Technology (AECT) (2008) defines educational technology as "the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources" (Cited in Garrison, 2004). Different points are emphasized, and different approaches are highlighted when defining educational technology. These definitions can be grouped into three main categories (Saettler, 1999, p. 5):

a) The approach that considers educational technology as a branch of educational theory and practice, focusing on the design and use of messages that primarily control the learning process.

b) The approach that views educational technology as equipment, materials, and products used in the process of learning and teaching. According to this perspective, educational technology includes machines, materials, projectors, films, screens, and computer programs used for instructional presentations.

c) The approach that regards educational technology as "systematic knowledge obtained from scientific research." According to this perspective, educational technology is defined as the application of scientific data in the field of education.

This study focuses on educational technology within the scope of the use of technological tools in the learning and teaching processes. These technological tools can be used in various areas, such as the design and development of learning materials, the improvement of teaching methods, and the assessment of student achievement. Interactive software and applications, online learning platforms, virtual and augmented reality applications, distance education tools, and multimedia learning materials are among the primary examples of educational technology. Educational technologies generally serve five main purposes for teachers and students (Loui, 2005, p. 436): a) Facilitating effective communication among students, teachers, and among students themselves, b) Producing documents, drawings, and other works by students and teachers, c) Sharing the materials and works produced, d) Archiving classroom sessions for future reference, e) Accessing specialized resources via the internet. The main technological developments regarding the use of educational technology in education are explained below.

The Role of Technology in Education

In recent years, educational technology has rapidly evolved and changed. The widespread adoption of the internet and the increased use of digital devices have created significant opportunities for educational technology. Educational technology plays a crucial role in enriching students' learning experiences, enabling teachers to provide more effective instruction, and enhancing learning outcomes. Using technology in education offers new possibilities for stimulating and enriching young minds. Today, it is possible to incorporate various technological advancements into education, including assistive technology, virtual and augmented reality, high-tech collaboration tools, gamification, podcasting, blogging, 3D printing, artificial intelligence, personalized learning, and much more. Among the main technological developments that have played an important role in education are the following:

a) The Internet: The internet, derived from the words "international network," has become indispensable in people's lives. It is a global network of interconnected computers used for information sharing (Aydın, 2013). A life without the Internet has become almost impossible, and many services necessary for daily life have started to be realized through the Internet. Internet technologies have a great impact on the transformative role of computers in individual and social life (Froehlich, 2004). The popularization of the internet has revolutionized educational technology, allowing students, teachers, and other education professionals to access information from around the world.

b) Smartphones and Tablets: The proliferation of mobile devices has led to a significant change in educational technology. Smartphones and tablets provide students with access to learning materials and the ability to manage their learning processes.

c) Digital Books: Digital books, which can replace traditional printed books, make it easier for students to access educational materials.

d) Virtual Classrooms: Virtual classrooms enable students to attend live lessons via the internet, while teachers have the opportunity to better monitor student progress. These technological advancements have transformed the landscape of education, making it more accessible, interactive, and efficient for both students and educators.

e) Artificial Intelligence (AI): The emergence of big data, cloud computing, artificial neural networks, and machine learning has enabled engineers to create machines that can mimic human intelligence. Machines capable of perceiving, recognizing, learning,

responding, and problem-solving are referred to as artificial intelligence (Zhai et al., 2021, p. 1). The use of AI in education is increasingly widespread, aiming to provide students with personalized learning experiences and assess student development more effectively. With this technology, the learning process of students can be monitored, and learning materials tailored to the strengths and weaknesses of each student can be provided. Data on students' learning levels and styles can be collected, allowing for the delivery of the most suitable and personalized learning materials.

f) Game-Based Learning: Game-based learning plays a significant role in making the learning process enjoyable for students. Gamification, as a technique used in education, aims to enhance learning by gamifying it, increasing students' interest and motivation. In general, gamification in education seeks to strengthen learning behaviors by encouraging student participation, interest, and engagement with the learning environment (Castro, Sibove & Ting, 2018).

g) Virtual Reality: Virtual reality is an educational model where students learn by experiencing and living within virtually created environments (Kayabaşı, 2005). Virtual reality enables interactive learning, allowing students to gain experience in different settings and have more effective learning experiences. According to Gobbetti and Scateni (1998, p.4), virtual reality is fundamentally about creating a world that feels, sounds, behaves, and appears like the real world. In a virtual reality environment, users have the opportunity to enter an artificially generated space, experience different scenarios, and control that virtual world. Başaran (2010) found that virtual reality technology is engaging, encourages active participation, is suitable for students who learn schematically and visually, helps gain a general understanding of the subject, facilitates the application of knowledge, accelerates learning, and makes comprehension easier. Some of the opportunities provided by virtual reality technology in education are listed below (Boz, 2019):

- Conducting experiments that could be dangerous in the virtual world.
- Performing experiments and applications without the use of lab animals.
- Examining a virtual cadaver, any internal organ, or an unborn fetus as if handling them physically.
- Watching an operation, experiment, movie, play, fashion show, or lecture as if present in that environment.
- Visiting a city, museum, or any building as if touring inside it.
- Taking a trip to Mars, walking on the Moon.
- Learning to ski, drive a car, or dance.
- Preparing for a real presentation by giving one in a virtually created environment.

h) Augmented Reality (AR): Augmented reality technology enriches content by adding sound, images, and GPS data to an existing object, allowing individuals to feel as if they are in a constructed place and time. In education, augmented reality is used to provide students with experiences that do not exist in real life (Arıcı, 2019). Augmented reality can serve various purposes in education, making it easier for students to acquire, process, and remember information. Additionally, it makes learning more engaging and enjoyable. Augmented reality can be used at all education levels, from preschool to university and even in the workplace. For example, students can explore ancient Rome in a history lesson using augmented reality, walking through the events and places described by their teacher as if they were experiencing them in real life. Digital tours to museums or zoos in different countries can be organized, with lessons being narrated as if the students were present at that moment (Demirer and Erbaş 2015). Augmented reality technology can be used to teach concepts such as the area of a rectangle and triangle or allow students in science classes to view the muscular and skeletal systems in three dimensions and examine them from all angles. In such an environment, students remain focused and engaged, and their curiosity for learning increases. Learning becomes more efficient, saving time for students to develop their interests and skills in different areas (Arıcı, 2019). Many similar subjects can be taught interactively through augmented reality technology.

ı) Blockchain: Blockchain can be described as a type of digital ledger or record list where data is encrypted and stored in digital form, and data in blockchain is stored in blocks that are connected to each other in chronological order (Ocak, 2023). Blockchain technology allows students to securely store their education records and achievements. Additionally, blockchain technology provides students with verified certificates and other education documents. Thanks to the possibilities brought by technology, educational institutions can provide all kinds of information, such as qualifications or achievement certificates, in a permanent and secure manner via blockchain. Students can store and share the educational documents they have completed with anyone they choose and provide instant verification (Blockchain, 2019). Blockchain technology has emerged as a potential solution in the field of education. It can be applied to areas that require computing infrastructure and systems based on trust, such as the recognition of past learning in open and distance education, massive open online courses, on-campus applications, and learning management systems (Yıldırım, 2018, p. 147).

i) Cloud computing: The cloud computing model is a technology that extends the capabilities of computers, allowing users to access a range of software and services over the Internet (Rayport and Heyward, 2009). Cloud-based educational applications provide a new and flexible solution for accessing data and services, where knowledge and experiences can be shared effectively over the web, enabling collaborative work on projects (Li and Chen, 2011). The use of cloud computing in education can take various forms (Selvi and Küçüksille, 2012, p.252). a) Enabling students to carry out their educational activities without time and space limitations b) To access library content and online resources electronically, c) Recording student performance and grades electronically and querying them according to desired criteria, d) Providing regular feedback to students and making progress, e)

Creating online communities where students, educators, and administrators can work together, f) Creating a basis for sharing ideas and experiences among educators and administrators, g) Ensuring that students and employees of the institution can access electronic resources regardless of time and platform, h) Web-based course and class registration, i) A new way and environment for students to connect with educators and administrators.

j) Robotics in Education: Social robots, with their lifelike behaviors and social sensitivities, appeal to students and are used to make education more engaging. The increasing trend of using robots in education offers significant contributions by providing students with a personalized learning experience that suits different learning styles, reducing the workload of teachers, and allowing them to focus more on individual student needs. In today's world, where teachers have limited time to allocate to students, robots have great potential to teach every student in small groups and provide private lessons (Belpaeme and Tanaka, 2021). The use of robots in education is expected to bring various benefits, such as making lessons more enjoyable for students through interactive learning experiences with robots, boosting students' self-confidence, making them more active and independent thinkers, and increasing their interest in science and technology. However, there are significant technical, economic, and logistical challenges to the widespread implementation of social robots in classrooms.

As can be seen, such technological developments change the way education is delivered, providing the opportunity to make learning experiences more personalized, interactive, accessible, engaging, and effective. As technology continues to advance, the technological possibilities that can be used in education become limitless. The presence of technology maximizes the level of education and makes it much easier. Today, with direct access to the Internet, students do not have to wait for a teacher to present a topic to them. They can quickly learn everything they need on an online platform or with the help of different educational applications. Technologies such as computers, tablets, or cell phones help individuals educate themselves. During the COVID-19 pandemic, students were saved from being completely uneducated thanks to technology that made distance education possible. Thanks to educational technology, distance is no longer an obstacle for students who want to learn, education is no longer limited to books, and everyone has the chance to discover new knowledge and try something new (Prasanna, 2023). On the other hand, in the face of these rapid developments, educators are forced to use technology in teaching to improve interaction, participation, and sharing in their classrooms and lecture halls. In addition to all these benefits of educational technology, there are also harmful effects on children and young people.

Ethics, Technology Ethics and Ethics in Educational Technology

In its broadest sense, ethics is concerned with what is good and bad, right and wrong, in the decisions and actions of individuals. According to Spinello (1995, p. 14), the purpose of ethics is to help us behave in an honorable way and live in a way that preserves the fundamental values that make us fully human (cited in Britz, 1996). Ethics demands that individuals' intentions, actions, values, and beliefs be carefully and critically examined in terms of good-bad, right-wrong. As human beings, we all have basic duties and obligations and certain things we should and should not do. In other words, there is an ethical dimension to human existence. As human beings, we experience life in a world of good and bad, and we characterize certain actions as right and wrong. Being human requires us to make choices. Ethical sensitivity to these choices depends on the responsible exercise of our freedom and guides our struggle to answer fundamental questions that make us question how we should live our lives and how we can make the right choices (Thiroux & Krasemann, 2014). Every technological development brings its own ethical challenges. Humans design, produce, use, market, buy, and sell technology, but it is also necessary to question the purposes, motives, and rules by which humans work to advance technology (Hanks and Hanks, 2015).

The ability to communicate quickly and effectively, made possible by the creation of the Internet, has had a profound impact on people, transforming the daily lives of millions of people around the world. One of the most obvious benefits that technology offers is the opportunity for individuals to participate in a wide range of social and educational environments through cyberspace without giving up the comfort, and security of their homes. New forms of media, computers and communication systems have become an integral part of the lives of today's students. Children now have to learn, play, and communicate in a very different way from their parents while swimming in a vast ocean of technology (Flanagan, 2014, p. 70).

The pace of development and advancements that technology has reached today triggers many people's concerns and even fears about technology and leads people to adopt a hostile attitude towards technology (Agazzi, 2019). While the conveniences brought by technology are accepted by everyone, this situation has also caused many concerns. Today, there are significant differences of opinion between those who advocate and oppose technology. Techno-optimists believe that ever-evolving technology can make the world a better place by improving people's lives and that the solution to social problems depends on technological innovations. Techno-pessimists, on the contrary, believe that modern technology creates more problems for humanity than it solves and argue that the search for more technology will lead to new, unpredictable, and dangerous consequences (Diana, 2016). While it is not possible to defend or reject technology as a tool in its entirety, ethical use requires a benefit/harm analysis.

In an environment where more and more daily activities are transferred to the online arena, the negative effects of virtual reality on children, video games that promote violence or antisocial behaviors, and other problems that can be caused by spending too much time on the Internet are areas of ethical debate that need to be considered (Flanagan, 2014, 70). Especially the ethical problems created by educational technologies, which have become an integral part of children's learning processes in in-school

and out-of-school environments, are issues that should not be ignored these days when we are lost in a kind of technology intoxication.

It is also not possible to deny that technology has increasingly become more of an imposition than a choice. Ellul, who has made significant contributions to the philosophy of technology, states, "modern technology has become an all-encompassing phenomenon for civilization, and efficiency is no longer an option but has become the determining force of a new social order imposed on all human activities" (Ellul, 1964, p. 17). According to Günay (2017, p. 163), "modern technology attacks existence; it establishes dominance over it; it captures and controls it; keeps it under control; assigns tasks to it, and exploits it to the fullest." In this sense, technology does not leave room for individual choice; it compels it. Technology has also become a necessity and imposition in the education of children and young people.

Kiaulehn (1972, p.19) argued that technology is a tool and expressed the responsibility of human beings in this regard:

> Machines are neither good nor bad. It is human beings who are good and bad. The machine only does what man wants. Thanks to the machine, man is freed from slavery. If the freed slaves could not make their lives happier, what is the machine's fault? The reprehensible are the agitators who, out of thoughtlessness or fear of tomorrow, join the ranks of the enemies of the machine Going backwards leads us to the barbarism of yesterday.

Although technology is seen as a tool, it is also observed that it is gradually turning into an end. It is clear that technology plays an important role in the formation of human nature and identity. Today, human beings shape and develop themselves largely through technological tools and applications. Especially when it comes to children, ethical discussions become much more important. There is a great need for serious and thoughtful discussions on how to stand at a point between total resistance to technology and overconfidence in it. While there are individual studies in the literature that address ethical issues in educational technology, there are not many comprehensive works that approach the topic of technology ethics in education from both philosophical and technical aspects in a multidimensional way. The aim of this study is to comprehensively address the ethical issues caused by educational technology for children and bring the other side of the coin to the agenda. Thus, it is hoped that the study will contribute to filling an important gap in the literature.

METHOD/MATERIALS

In this study, the "Narrative Review" method was used. A narrative review method consists of a comprehensive and critical overview of previously published research on a particular topic of interest to a researcher. Also called a traditional review or literature review, narrative reviews help to establish a theoretical and methodological framework or context for what is already known about a particular topic. By conducting a literature review, gaps in the field are found and existing patterns and trends are identified. A narrative review is a good way to evaluate, critique and summarize existing research on a topic (The Edanz Team, 2023). In this study, the findings obtained from the literature scanned by the "Narrative Review" method are discussed under 21 sub-headings.

FINDINGS

With the increasing use of technology in education, the ethical responsibilities of technology producers, educators, and technology users have become an area of serious debate. Students and teachers use information technologies every day in the academic environment to perform different educational activities. The use of information technology (IT) has also raised new ethical issues. These technologies provide many benefits, but the unethical use of IT by students and teachers raises a major cyber-ethics and professional ethics debate in educational institutions. Some of the main ethical issues arising from the use of technology in education include privacy, security, and use of personal data, hacking, intellectual property, netiquette, vandalism, access, misdirection, impact of personalization on individual abilities, inappropriate use of resources, academic dishonesty, false virtual identities, online harassment and hate speech, academic and online freedom of expression (Olcott at all, 2015). In addition, there are many ethical problems, such as the damage to their innocence, privacy, safety, health, and well-being of students, and the inability to protect them during the interaction process with the technology used for education and training purposes for minors under the age of 18. The ethical problems that technology poses to children are discussed below under 21 themes/ headings.

Key Ethical Issues Raised by Educational Technology on Children and Young People

Within the scope of this research, the following findings were reached as a result of the systematic review of the main ethical issues related to the effects of educational technology on children and their world. The harmful effects of educational technologies used in and out of school on children and the main ethical issues are discussed below under the main headings by reviewing the relevant literature and research findings.

1. The effects of technology on inequalities among students: The widespread use of digital technology in economic, political, social, and cultural life around the world raises many concerns about the emergence of new forms of inequality and the exacerbation of existing inequalities between societies. At the same time, technology that makes our lives easier also leads to great inequalities, segregation, and division among individuals, social groups, or societies. There is a growing gap between those who can and cannot use ICT and between those who can and cannot access it. This situation, also known as the digital divide or digital disconnect, raises issues of inadequacy, inhibition, and inequality between different social groups in terms of access, use, and impact of information technologies. The exponential growth of information and communication and its transformation in all aspects of daily life have led to the emergence of a wide range of problems resulting in social exclusion and digital inequality (Braman, 2006). Not all students have equal access to educational technology due to financial, geographical, or other reasons. In this situation, educational technology tools create differences in students' access to learning opportunities, leading to a digital divide and reproducing inequality, widening the achievement gap between students. Factors beyond a child's control, such as poverty, literally shape a child's life and change even the brain's ability to think. Likewise, their emotions influence what knowledge a child learns and how they can apply that knowledge (Audley-Piotorwksi at all, 2012, p. 101).

In affluent countries, children start to benefit from online communication opportunities at a high level from the first years of their lives onward. For example, in the UK, children aged 5-15 spend two hours online every day (CRIN, 2022). However, according to a 2020 joint report by UNICEF and the International Telecommunication Union (ITU), two-thirds of the world's school-age children aged 3-17 (1.3 billion children) do not have an internet connection at home. Globally, 58% of school-age children from the richest households have an internet connection at home, compared to just 16% in poorer households. A similar disparity exists across countries by income level. In low-income countries, at most 1 out of every 20 school-age children has an internet connection at home, while in high-income countries, around 9 out of 10 have internet at home (UNICEF, 2020). Limited access to technology for underprivileged students eliminates the possibility of using technology fairly and providing equal opportunities for all students. While the Internet has become an inseparable part of children's personal development and social life, it has also brought inequalities among children to the forefront, as many children are deprived of access to information, opportunities for self-expression, increased awareness, and social interaction.

2. The impact of technology on the children's world of values and meaning: The development of personality takes place at home, at school, and in society, through interacting with others. Schools and the education system are institutions and an important environment in which students are immersed for 12 years, aiming at the harmonious development of the heart, head, and hands. Undoubtedly, teachers play an important role in the development of students, teaching human virtues and promoting universal ethical values (Kanagasabapathy, 1990, 9).However, with the development of technological tools, parents and teachers have resorted to the convenience of putting technological tools in the hands of children to keep them occupied so that they can spend more time on their own lives and work. For years, televisions fulfilled this function. Now electronic toys such as computers, tablets, and cell phones, also called digital nannies, are being used to keep children occupied. These electronic robots, which are put into children's hands to keep them entertained and busy, have started to negatively affect their development and turn them into machines. However, in order for children to become healthy individuals, introducing them to activities that will develop their world of value and meaning is among the most important responsibilities of educational institutions, teachers, and families.

According to Tepe (2008), "*human beings are needed for value and meaning to exist. Undoubtedly, value and meaning are phenomena of the human world. It is human beings who give meaning to the world, it is what human beings, at least some human beings, do and the products they produce that make the world meaningful. Therefore, meaning and value cannot be mentioned in a world without human beings*". So what are the negative effects of technology on children's world of value, and why is it important to develop children's world of value, and meaning in educational environments? As a result of our children being forced to be dependent on screens and virtual environments for long periods of time during school hours and at home for the purpose of education as human beings, values such as ambition, hedonism, winning, selfishness, and success gradually replace values such as compassion, caring, helping, living with the other in mind, and sharing, which are required for human-to-human relations. This can lead to the neglect of the basic values and meanings that should be developed in childhood.

The purpose of education is not only to transfer knowledge to individuals but also to revive the spirit of questioning their daily lives and behaviors in terms of good/bad, right/wrong, guided by ethical values. Education helps to build a person's character. Schools are the most important institutions where teachers mediate the development of basic virtues and major character traits in students (Aydın, 2019, 9). "Value education" is a process in which human ideals are transferred to children and contribute to the development of their character. One of the tasks of education is to raise children's awareness of ethical values from an early age, to evaluate the effects of these values and ethical behaviors on themselves and others, to enable them to think about values and behaviors, and to support them gaining various experiences to transform them into a form of character. In order to develop children's world of values, it is important in education and training processes to help students develop their personalities to cope with challenges. It is possible to do this through human-to-human communication experiences, not in front of screens or virtually.

It is crucial to help children develop physically and emotionally in order to effectively fulfill their social, moral, and democratic responsibilities today and in the future. In order to promote more peaceful and democratic societies, children's value worlds can be enriched by instilling ethical values, defending human rights, protecting the environment, and developing sensitivity and behavior in students. An approach that helps students discover their true purpose in life, involves giving back to the society in which they live and strive to improve , which are among the main goals of a universal value education process (Gupta, 2023).

Excessive exposure to technology is also a serious problem for family and community values. The more time children spend in front of screens, the less time they spend with their families. This leads to the weakening of family relationships and the avoidance of family. Long screen time, especially for very young children, negatively affects face-to-face interactions that help them develop valuable social skills. One of the expected functions of the education system is to ensure social understanding and cohesion (Bursalıoğlu, 2010). This can only be achieved if children and young people naturally take part in social relations and learn this tacit knowledge. Therefore, establishing a healthy balance between technology and interactions where children can learn basic ethical values in school and education processes can be considered among the basic duties of schools and teachers.

3. Forcing children from humanism to posthumanism: Humanism, that is, the being we call "human": a) It is a subject that is a) self-conscious, b) able to think rationally, c) endowed with intelligence, d) able to determine its own course of action depending on its needs and desires and to act in accordance with its wishes. The human being is endowed with a set of attributes such as rationality, authority, autonomy, and agency. Humanism considers the human subject as the center of the world and humanity, which is affected by human thought and action. The human being's self-awareness, self-knowledge, what he or she is, and self-consciousness are taken as signs of being human. More importantly, the concepts of human dignity and Human Rights are based on this universal idea of autonomy, self-consciousness, coherence, and self-determination. The term "Transhuman" or posthuman refers to individuals who use pharmaceuticals, bioelectronics, genetics, or other technologies to make significant alterations to their physical, emotional, or cognitive abilities. Of course, no human today is entirely untouched by modern biotechnology: the coffee we drink, the glasses we wear, or the medications we take all affect humans to varying degrees (Bess and Pasulka, 2018). However, transhumanism believes that through technology, humans can transcend their biological limitations, leading to faster, smarter, less disease-prone, and longer-lived human bodies in the future. Technological and biological modifications will enhance the 'human,' allowing for the improvement of the 'self' or 'personality.' Transhumanists believe that current human forms are a transitional stage, and the post-human, as an enhanced human, will be a combination of humans and machines (Nayar, 2014, pp. 14-16). The fact that children are increasingly forced to relate to machines rather than to human beings weakens their ability to develop "humanistic" values and leads them to become part of the machine, and children are increasingly forced to become "posthuman". Technology is an important factor affecting the growth and development of children today, and this influence can trigger many aspects of posthumanism. Here are some factors that explain how technology can push children towards posthumanism:

a) Humanism argues that humans are a species distinguished from non-human beings and that humans have intrinsic value. While making a clear distinction between humans and machines, posthumanism blurs the boundaries between humans and machines. Posthumanists think that humans can integrate with machines and that machines can have human-like abilities. Children today are exposed to technology at an earlier age and spend more time with digital devices. This means that their physical and mental worlds are increasingly influenced by technology. Forcing children to interact with technological machines for long periods of time intensively encourages greater integration of the human with the machine, which is one of the main propositions of posthumanism.

b) Humanism believes that human beings should use their potential for an advanced humanity and argues that this potential can be realized through education, cultural development, and moral values. Posthumanism, on the other hand, argues that humans can shape their future through technology. Posthumanists point to a future where humans can transcend their biological and mental limits and create new species or ways of being. Technology contributes greatly to children's education and learning experiences, but this supports a posthumanist vision in which children can access information more quickly and effectively. This change aims for a radical transformation from an increasingly 'analog,' humanist, literate, book or text-based social, cultural, and economic system to a 'digital,' posthumanist, code, data, or information-based system (Herbrechter, 2013, p. vii).

c) Humanism holds that every human being has inherent rights and that everyone is of equal value. Therefore, equality and respect for human rights are of paramount importance in relationships between people. In posthumanism, the impact of technological entities such as the digital world and artificial intelligence is of great importance. Interactions with these entities can replace interpersonal relationships. Children use digital tools to identify and express themselves on online platforms. This points to digital ways of identity formation and self-consciousness development, which can increase the potential for children to shape their identities and self-consciousness through technology.

d) Humanism represents a human-centered philosophical approach and emphasizes the value and potential of human beings and human relationships with human beings. Humanism encourages people to empathize with each other and understand human emotion so that relationships between people become deeper and more meaningful. Posthumanist thought also values beings that are not limited to humans and entities that are not unconscious or artificial, such as artificial intelligence. Therefore, beyond relationships between humans, it can focus on relationships with non-human beings and human-machine relationships. Today, children interact through digital means of communication. These forms of communication encourage children to connect with each other digitally rather than through physical contact. This serves posthumanism's ideal of blurring the boundaries between humans and technology.

e) Humanism emphasizes student-teacher relationships in education. Teachers are encouraged to adopt a personalized approach to understand students and discover their potential. In posthumanism, the impact of technological entities such as the digital world and artificial intelligence is of great importance. Interactions with these entities can replace interpersonal relationships. Technologies such as virtual reality and augmented reality enrich children's experiences, but these technologies transform children's perception and experience, becoming the means to open the doors to a posthumanist future.

4. The effects of technology on the child's identity: Self-understanding, identity perception, and freedom are very important for a person's sense of identity. The most important characteristics of being called humanare that it is "unpredictable" and has a structure that is "more complex" than thought. Human beings are natural, they act with their will. However, genetic modification created by technology has the potential to take human beings to a very worrying place in which everything we value in our current world, all the values that give meaning to our lives, are at risk. What happens when autonomy and free will, the most important human values, are manipulated by others (Bess, 2023)?

On the other hand, people create imaginary identities in the virtual worlds created by the Internet and live unreal parallel lives for hours. These lives are not real, but they are lived as if they were (Turkle, 2003). Individuals need virtual identities in order to present their own information by hiding or changing it on the internet. With virtual identities, individuals can hide information specific to their real-life identities or shape them in a way that will be accepted in virtual environments. Social media, one of today's most popular virtual environments, contributes greatly to internet users' presence in social groups, communication and interaction with other users, and the creation of virtual identities. The privacy and anonymity created by virtual identity support users to be more free and behave as they wish in social media environments. Thus, individuals participate in virtual environments with their perfected identities, communicate with other users, and become members of virtual environments (Dursun & Barut, 2016). The main features that distinguish virtual worlds from physical ones are disembodiment, immortality, the disappearance of time and space, the ability to change one's self-worth, and the opportunity to escape to fantasy worlds (Ercan, 2019, p.122).

Children may create a virtual identity for themselves on social media and other online platforms, and this identity may cause them to show and normalize behaviors that they do not exhibit in real life. In addition, as technology use increases, children may distance themselves from the real world. This can disconnect their identities from the real world. Technology also negatively affects children's ability to communicate face-to-face, and the virtual communication they establish does not adequately prepare them to overcome the difficulties they may encounter in real life. On the other hand, technology can also increase the difficulties children may face in the process of discovering their own identities. The virtual world may cause children to express themselves in different ways than in the real world. Children can leave many digital traces while using technology. These traces can lead to negative consequences in areas such as job applications or personal relationships in the future.

5. The harmful effects of technology on children's innocence: Children are beings of "innocence" or "purity", and protecting their innocence is an important responsibility. Innocence is the quality of having no experience or knowledge of the more complex or unpleasant aspects of life (Collins English Dictionary, 2023). The concept of child innocence refers to the purity of children, their lack of knowledge and experience, and their purity, which has not yet been corrupted by worldly affairs. The idea of children's innocence points to dangers that can harm children sexually (Bühler-Niederberger, 2017). The internet is full of violence, pornography, and other harmful content to which children are exposed at an early age. This content can negatively affect children's ethical and value systems. Even for educational purposes at school and at home, children can be exposed to potentially dangerous content in poorly protected and unsupervised internet environments. Pornographic videos and pictures that suddenly appear in front of them can harm their innocence and lead to abuse. According to a survey conducted by TUİK, 13% of children between the ages of 6 and 15 in Turkey have seen sexually explicit photos on the Internet, while 14% have met with people they do not know on the Internet (Aydın, 2013). This "sexualization" of children by technology at an early age and their easy access to online pornography is also associated with increased sexual and inappropriate aggressive behavior at school. Research shows a link between exposure to pornography and sexually aggressive behavior, especially in boys. With the proliferation of the Internet and other forms of media, adolescents have easy access to sexually explicit material. Watching pornography more frequently has an

impact on actions such as sexual aggression and adolescent dating violence (Rothman & Adhia, 2016; Wright, Tokunaga, & Kraus, 2016).

6. Effects of Technology on Children's Privacy, Confidentiality, and Safety: Educational technology tools can be used to collect and store students' personal information. Everything children do online leaves a digital trail, and data collectors can compile these trails and use highly detailed information about individuals to manipulate them. Therefore, to protect students' privacy, schools, teachers, and technology providers need to take great care with privacy policies and data security measures. The use of educational technology can pose privacy and security risks for students, such as unauthorized sharing of personal information, hacking, or cyberbullying. Disclosure, sharing, or inappropriate use of student data are among the major ethical risks (Zhai et al., 2021, p.14). Like adults, children's right to privacy is recognized as a natural right protected by law. Therefore, the right to privacy is a constitutional right protected under private law. The protection of privacy also includes the protection of personal data (Britz, 1996). According to a report to the Human Rights Council, a child's digital identity is being established by parents sharing intrauterine images of the child before birth, and teachers are increasingly sharing children's data on the web. Around 80 percent of children living in developed Western countries have a digital footprint by the age of two, largely due to the actions of family members (UN, 2021). It is an important ethical responsibility for educational institutions and educators to take adequate technical measures to protect the information privacy of children as a vulnerable social asset worthy of protection.

Children's devices are also threatened by spyware and adware. Spyware collects information about users through internet connections and can capture email addresses, passwords, and credit card numbers. Adware is also a form of spyware and collects information about a user's browsing preferences in order to display personalized ads in the browser window. Thieves are now trying to enter your digital doors as well as your physical doors (Ribble, 2009, 80). Since children are easier targets for this kind of software, data security issues become important ethical issues.

7. The negative effects of technology on students' mental functions and cognitive development: Rapidly evolving technology leads to a decline in individuals' cognitive, social, and survival skills. Many techno-optimists see AI as something that enhances human capacities, but there are many who do not. The increasing dependence of humans on machine-driven networks greatly reduces their ability to think for themselves, act autonomously, and interact effectively with others. On the other hand, what impact is emerging technology having on children's thinking? How functionally do children use their intellect- the ability to think, understand, comprehend, and adjust their behavior by constantly playing games (Turkle, 2003)? While the lightning-fast advancement of technology may seem like a great advantage, devices and learning applications can work faster than the speed of the human mind. This leads to students skimming through the materials, not understanding the nature and depth of the content, or missing some important points. Accurate, coherent, and high-level cognitive thinking takes time to develop. Therefore, it is important to slow down the use of technology in education and design teaching and learning processes to allow for more reflection and contemplation (Future Educators, 2023).

Technology has well-intentioned contributions, such as saving individuals time and facilitating the performance of certain mechanical activities. However, technology has automated almost all school activities. Why would a child need to learn the basics of math when they can use a calculator on their phone, or why would they need to learn spelling when they can use autocorrect software? Thus, technology, which initially served positive intentions, has led to a situation where new generations are unable to perform everyday cognitive activities without technology. In addition, when children use technology to solve every problem in school, their problem-solving abilities, a much sought-after skill set, are not sufficiently developed and are gradually lost (Allisonacademy, 2023).

8. The impact of technology on children's literacy skills: Technology is seen as the pen and paper of our age, and the necessary skills and competencies in reading and writing in children are neglected. However, reading and writing are among the most important skills that children can use throughout their lives. These skills will be useful in all areas of children's lives as well as their academic success. Today, electronic reading devices are often portable and allow children to store many books or documents on a single device. While this provides flexibility in reading, the act of reading is increasingly being replaced by listening or watching.

For example, is reading a book the same as watching a movie? Reading is usually considered a passive activity because it is an action that one performs alone. However, reading, like listening, is a mental activity. The reader, like the listener, needs to visualize what he/she reads in his/her mind, understand the ideas put forward in the text he/she reads, comprehend the connections between the ideas, compare them with his/her own knowledge and put them in order, reconstruct his/her existing knowledge with them, and select and separate the ones he/she wants to keep in his/her memory. This shows the importance of critical thinking in reading and the importance of an interactive relationship with the book (Adalı, 2010). Of course, videos are often used in educational activities. But watching a movie is like being in a car as a passenger. A driver drives you and you watch the scenery, and what is happening along the way. Reading a book is like being behind the wheel. You have full power over how to get to your

destination. You can go fast or slow, or you can stop for a while to admire the scenery and let your imagination run free. The contribution and excitement of interpreting the author's words in your head are different. Reading a book allows you to imagine more than watching a movie. When you watch a movie, everything is shown to you, and your mind has little to do. When you read, nothing is shown to you. You read the words and your mind makes its own movie. You have more control over what you imagine. Reading also contributes to expanding one's vocabulary, improving memory, increasing imagination, relieving stress, entertainment, peace of mind, etc. However, reading takes a lot of time and keeps us away from other people. For this reason, today's children are not willing to devote essential time to reading. In a visualized and digitalized world, they prefer saving time by watching ready-made content and socializing with others at the same time. However, the visual content constantly presented by others blocks our imagination, affects our memory, and impairs our mental health.

On the other hand, students' handwriting skills are not developed because they are directed towards technological tools. However, there are brain research studies that show that the act of writing by hand helps both learning and memorization, provides slower and more effective learning, and has stimulating effects. Although easier and faster, typing on a computer is repetitive and routine, as each keystroke requires almost the same action. Writing by hand is more challenging, complex, and slower, and it allows your brain to create more "connections" for thoughts to be imprinted in our minds (Future Educators, 2022).

Bainbridge (1983) describes the hidden dangers of relying too much on automated systems. "You build a machine to enhance human performance, and ironically, that machine continues to dull human abilities." He expressed it with these words. He was not wrong in this prediction. People can no longer remember their phone numbers, most of us can't even read our own handwriting, and we can't go anywhere without GPS. While technology is doing everything for us, we hardly have the chance to use our skills, and we have started to lose many of our mental abilities (Fry, 2019,136-137). Especially when it comes to children, could it be that the technological tools that are handed to them at the stage of developing their mental skills are blunting these skills?

9. The impact of technology on students' emotional development: Human-machine relationships, which are increasingly replacing human-human relationships, are a topic worth serious consideration. What will be the satisfaction of emotionally relating to artificial creatures that do not die, do not demand, do not get angry, and do not sulk, instead of the challenging aspects of real human relationships? What about human emotions? Would humans feel sympathy and responsibility towards machines? If we can relate to machines as psychological beings, do we have a moral responsibility towards them? The widespread use of technology can cause emotional vulnerabilities, especially in children. The virtual world may prevent children from preferring real-life relationships to fulfill their emotional needs (Turkle, 2003). These are questions of the future that need to be answered today.

Educational technology often leads to students learning while sitting in front of their computers. This can deprive students of social interactions and other learning opportunities. Technology can harm children's emotional development in several ways: a) Technology can cause social isolation in children. The virtual world can prevent children from interacting with friends in real life, which can lead to emotional isolation. b) The widespread use of technology can increase children's emotional vulnerability. The virtual world may prevent children from preferring real-life relationships to meet their emotional needs. c) Technology can cause children to be distracted. Video games, in particular, can cause children to be distracted for long periods of time and have difficulty focusing on real-life activities. d) Technology use can increase children's stress and anxiety levels. Children and young people in particular are more sensitive to the approval of others on social media, and children are constantly comparing themselves with others.Their anxiety and stress levels increase when they do not get enough likes or face criticism.

On the other hand, children try to bond with artificial pets and experience feelings of care and affection. But these animals are not real and can be misleading about the demands of real life. The new generation, who finds it natural to think of their glasses as screen monitors and their bodies as elements of their syborg selves, envisions a life filled with wearable computers. But to what extent will all these developments contribute to human happiness? We need to take a closer look at the psychological effects of the technologies and dizzying innovations we use today. With computer technology, we have created a very powerful object, an object that offers the illusion of companionship without the need for intimacy, an object that allows you to be alone and never be alone. In this sense, computers add a new dimension to the power of the traditional teddy bear or security blanket (Turkle, 2003). For the emotional development of our children, we need to give more space to real people, real emotions, and real relationships.

10. The Impact of Technology on Students' Creativity: Language, reasoning, imagination, and the ability to create technology are the powers that distinguish humans from all other living beings and enable them to have a transformative effect on the non-human world. Of course, today we live in a very different world from that of our ancestors. What happens if machines, which humans have created using these powers, create everything for humans? Does humanity need to create? Can humans live without creating? How satisfying can it be to produce arts such as painting, sculpture, graphics, etc., without using their hands and eyes?

One of the important tasks of schools is to cultivate aesthetic sensibility in children and young people through art education, enhance their capacity for creative thinking, help them understand the world, provide an environment for them to express

themselves, assist in their personal development, and enable students to understand and evaluate works of art. A child's education cannot be considered complete without art education for several fundamental reasons, including the fact that art imparts lifelong critical analysis skills, the ability to deal with uncertainty and problem-solving skills, and a sense of determination. Art is a unique way of getting to know and understand the world. The creative skills that children develop through art lead them to new ideas, new experiences, and new challenges. Art activities expand children's opportunities to explore the world, help them establish systematic and enjoyable relationships with the world they live in, and increase their sensory awareness, enhancing their sensitivity (Aydın, 2018).

However, today's children can obtain everything they need from the internet, so why should they feel the need to be creative? People often think and become creative when solutions are limited. Currently, technology provides students with almost everything they want. Students can pass their exams, but they may fail in life because intellectual creativity and uniqueness are required for success. The availability of everything students need does not allow them to use their creativity more effectively. Our children are becoming lazy about thinking and developing original ideas, and this is killing their creativity (Gstylemagazine, 2021).

Just as we need sleep to rest and process the events of the day, we also need solitude to strengthen our inner selves. Becoming addicted to social media 24/7 and constantly being connected to others through social media doesn't truly allow for solitude and can lead to overstimulation. However, this special time of solitude allows for thinking and creativity; our muscles relax, energy is restored, food is metabolized, our pupils narrow to reduce stimuli, and our heart rate and blood pressure slow down. During this time, the brain releases the neurotransmitter acetylcholine, increasing blood flow and alertness in the prefrontal cortex to help process information more effectively. Time spent alone is not only important for creativity, but it is also crucial for self-confidence and emotions. By taking time to calm ourselves and be alone, we can learn to manage our emotions and find solutions within ourselves (Murphy, 2016). How much time do children have to do all of these things?

11. The negative effects of technology on cyberbullying, child neglect, and abuse: The Internet exposes children to various risks, including exploitation and harassment by adult users, cyberbullying by peers, and technology addiction (Turkle, 2003). Educational technologies used for long hours and without control at school and home also create a serious environment for children to be exposed to these risks. Risks such as bullying, sexual harassment, and abuse are always present in virtual environments. Risks related to information security, such as virtual identity theft, avatar copying, misuse for fraud, and cybercrime, are always possible in virtual environments, threatening children's information security."

According to Remond, Kern, and Romo (2014), cyberbullying, a new form of traditional bullying, is now carried out through electronic devices that transmit messages, sound, and visuals. Cyberbullies use two important electronic tools to harm their victims. The first one is personal computers, from which they send disturbing and derogatory emails and instant messages to their victims. The second one is mobile phones. Cyberbullies use mobile phones to send malicious text messages to their victims (Patchin and Hinduja, 2006). With internet access now possible through mobile phones after computers, incidents of cyberbullying, such as swearing, threats, defamation, and exclusion, have increased in schools (Çetin et al., 2011). The rise of cyberbullying in schools has placed new responsibilities on teachers and school administrators to create a regular and healthy school environment and to protect students from all kinds of harm (Li, 2010).

12. The Effects of Technology on Children's Social Development, Communication, and Relationships: Technology reduces children's direct peer interaction. When they communicate through digital devices, they hide behind a "digital wall" and can have conversations they might not have face-to-face. This digital barrier can lead to a disconnect between children, themselves, and others (Hatch, 2011, p. 24). Despite the positive contributions of digital technologies to students' learning and development, our biological need for real-time interaction is being overlooked. Human beings have lived as social beings for tens of thousands of years, and expecting their genetic predisposition to change so easily is not very realistic (Allisonacademy, 2023). Social skills play a significant role in a student's life. However, modern technology diminishes students' human-to-human social skills because many students spend their time on the internet and mobile devices. Children are not inclined to go outside to interact with their peers and learn from real-life experiences. The most crucial tool for social development is going out, making friends, and learning how to coexist with others (Gstylemagazine, 2021).

The proliferation of digital technology use and, especially, its becoming an indispensable part of children's daily lives, along with the reduction of outdoor play areas, is believed to have negative effects on children. Therefore, it is observed that screen addiction and the increasing time spent on gaming on technological devices lead to a decrease in children's face-to-face communication with peers and group play, while solo gaming increases (Rosen et al., 2014). The only solution that teachers and educational institutions can offer is to encourage children and young people to engage in face-to-face interaction with others and to create such opportunities in schools and educational processes.

13. The Effects of Technology on Children's Learning and Decreased Academic Achievement (Faster but Less Retained Learning): Technology has both positive and negative effects on children's learning and academic achievement. The use of technological devices can lead to passive learning experiences for children, where students simply become spectators and do not actively guide their own learning processes. Resources like the internet provide instant access to all kinds of information. However, this ease of access can lead children to experience digital obesity, hinder them from conducting thorough research, and result in them only grasping surface-level information. Consequently, students may neglect deep learning and resort to rote memorization just to pass tests. Otherwise, children's ability to focus, exert effort, persevere through challenges, and develop motivation for learning can be impeded. In such cases, the instant gratification culture can be further encouraged through these applications.

The OECD's (2015) global research has shown that significant investments in computers and classroom technology in schools do not necessarily lead to the expected improvements in students' performance. According to the report, the impact of school technology on international test results, such as the PISA tests and tests measuring digital skills conducted in more than 70 countries, was examined. It was revealed that educational systems that made substantial investments in information and communication technologies did not achieve "observable improvements" in PISA test results for reading, mathematics, or science. Students who used computers very frequently in school achieved worse results, while students who used computers at a moderate level, such as once or twice a week, had "slightly better learning outcomes" compared to students who rarely used computers. The results indicated that there was "no significant improvement" in reading, mathematics, or science in countries that invested heavily in information technology. High-achieving school systems like those in South Korea and Shanghai, China had lower levels of computer use in schools. Singapore, where technology was used only moderately in schools, ranked highest in digital skills (BBC, 2015). Of course, there may be research findings that suggest otherwise. However, it is also observed that many alternative school models, such as tech-free education or nature schools, which aim for technology-free learning and traditional ways of learning for children, are rapidly gaining popularity.

14. Technology's impact on a child's physical development and the problem of obesity: Technology's excessive use contributes to a sedentary lifestyle, physical inactivity, and an increased risk of obesity and other health problems, particularly in children. The decrease in kinesthetic skills and the obesity issue are becoming increasingly important. Children who spend their entire day in front of a computer and then use it again for entertainment are doomed to a sedentary lifestyle. According to Sisson, Broyles, Baker, and Katzmarzyk (2010), in a study conducted on children aged 6-17, it was found that those with low levels of physical activity who use technological devices for extended periods are twice as likely to become obese compared to those who do not use such devices (cited in Mustafaoğlu, Zirek, Yasacı & Özdinçler, 2018).

The increase in screen time among children and adolescents contributes to the risk of obesity because screen-dependent activities trigger issues such as decreased physical activity, lower calorie expenditure, and more. Children who stay up late due to extended screen time experience an increase in the hunger hormone, "ghrelin," while their fullness hormone, "leptin," decreases. On average, a sleep-deprived person consumes an extra 300 calories per day and feels the need to snack more frequently. Consequently, in addition to physical inactivity in front of screens, the constant snacking habit in children significantly contributes to weight gain. Children's exposure to advertisements and marketing tactics for high-fat, high-sodium, low-nutrient foods while in front of screens also negatively impacts their preferences and health (Boyers, 2018). Considering all these risks, educational efforts that lead children to spend long hours with technological devices may contribute to their learning, but they expose them to significant problems such as reduced kinesthetic skills and obesity caused by inactivity. As adults, subjecting children to such actions is contrary to the ethical principle of "do no harm."

It is a known fact that children are at a higher risk of musculoskeletal problems due to the fact that technological products are generally designed for adults (Oates, Evans, & Hedge, 1998). In a study conducted on students aged 10-17, it was reported that 60% of the students experienced discomfort in specific areas of their bodies during computer use (Harris & Straker, 2000). Another study found that 9-10-year-old students had poor posture, and their postures tended to deteriorate continuously during 15-25 minutes of computer lessons at school. Children with poor posture were found to have musculoskeletal problems. It was reported that 16% of children felt more discomfort, especially when using a mouse (Breen, Pyper, Rusk, & Dockrell, 2007). Compared with desktop computer use, tablet use in children has been reported to lead to a more flexible and asymmetrical body posture, increased forward-leaning and elevated shoulders, and increased activity of neck muscles. However, it has been found that poor posture and increased muscle activity are more related to musculoskeletal problems in various body parts (Straker et al., 2008, cited in Mustafaoğlu, Zirek, Yasacı & Özdinçler, 2018).

15. The harmful effects of technology on child's health and well-being: The widespread use of technology and its impact on human health have brought the concept of "Digital Health and Wellness" to the forefront. Digital healthy living is used to denote being physically, socially, and emotionally healthy in our technology-centric world. Excessive use of social media, particularly by children and adolescents, can lead to emotional health problems such as anxiety and depression, as they often compare

themselves to others. A lack of balance in digital behaviors can lead to tension in social relationships. Spending more time on phones instead of with friends or family, or conversely, family and friends paying more attention to their phones than to children, can lead to certain emotional problems. Spending too much time in front of screens promotes a sedentary lifestyle and can result in physical health problems, sleep disorders, headaches, and eye fatigue. Moreover, technologies like tablets, smartphones, and computers, due to the extended periods of concentration required by children, can lead to eye fatigue, causing symptoms such as blurred vision and dry eyes (Murphy, 2016).

In a study conducted on young adults aged 20-24 in Sweden, new symptom cases reported in the hands/fingers through text messages were found among initially asymptomatic individuals after one year of follow-up. Five years later, there were cross-sectional relationships between continued symptoms in the neck and upper extremities through text messages. Repeated grasping movements, referred to as "Text Thumb," during texting or playing video games can cause narrowing of the flexor tendon in the thumb. These repetitive movements can lead to symptoms such as finger pain, weak grip, and degeneration, potentially resulting in permanent tendon damage (Gustafsson at all, 2017).

Teenagers and young adults are at the highest risk of hearing loss due to the use of personal audio devices with headphones. Research shows that nearly 50% of individuals aged 12 to 25 are exposed to unsafe levels of sound while using personal audio devices. According to the World Health Organization (WHO), unhealthy sound levels can occur when exposed to 85 decibels for 8 hours or above 100 decibels for 15 minutes. The World Health Organization recommends that the highest noise level exposure in the workplace should not exceed 85 decibels for up to 8 hours (Murphy, 2016). Additionally, excessive use of computers and phones in non-ergonomic conditions can lead to health problems such as carpal tunnel syndrome, eye fatigue, and back and neck pain. Technology use has also been associated with mental health issues such as anxiety, depression, and addiction (Ribble, 2009).

In today's world, the pervasive integration of technology into human life and the fact that many functions of life cannot be performed without technology have led to a phenomenon known as "techno panic." Techno panic refers to the feelings of anger, frustration, and intolerance that individuals experience towards various technological devices that fail to meet their expectations. When individuals encounter user errors due to their own technical inadequacies, they may become disappointed and direct their anger towards a technological device (Urbandictionary, 2023).

Sleep is a physiological and psychological phenomenon that every person needs every day. Many people spend one-third of their lifespan sleeping, highlighting the significant role of sleep in human life. Despite the importance of sleep in our lives, sleep disorders often disrupt people's lives and even reduce their quality of life (Li and Liu, 2011, 65). Excessive technology use can disrupt children's sleep patterns and reduce the quality and duration of their sleep. Studies have shown that prolonged exposure to blue light can suppress melatonin levels, a hormone that supports sleep and increases wakefulness the next morning. Exposure to blue light also reduces the amount of rapid eye movement (REM) sleep, which is the stage of sleep where dreams occur. REM sleep facilitates memory consolidation and more effective brain function by assisting in transmissions between neural networks in the brain. Sleep deprivation can result from missing calls or messages, staying awake late to use devices, and anxiety caused by interruptions from calls and messages (Murphy, 2016). In recent years, sleep disorders have become an increasingly prevalent issue among university students. According to reports, more than 16% of university students suffer from sleep disorders (Li and Liu, 2011, 65).

16. **Technology Addiction in Children:** In today's digital world, young children have become a primary target audience for digital toys and electronic devices. Technology has evolved into a major economic sector with the development and marketing of educational entertainment products aimed at children (Gibbons, 2012). When technology usage turns into addiction, it can lead to significant social and cognitive changes in a person's life. Engaging in certain technological activities can increase the release of a neurotransmitter called dopamine, which regulates emotional responses and provides a sense of pleasure. When an individual stops engaging in the activity, they may seek out another "stimulant" to maintain that sense of enjoyment. Research has shown that prolonged Internet use can reduce the number of dopamine transporters, resulting in an increased release of dopamine, thus enhancing the feeling of happiness (Murphy, 2016). It is evident that children who are glued to screens, particularly to video games, are negatively affected in terms of their health and overall quality of life.

17. **The Negative Effects of Technology on Memory and Attention:** Technology can be a significant source of distraction for students, leading to a decrease in focus, attention, and productivity. Furthermore, technology allows individuals to access information easily instead of storing it in their memory, causing people to underutilize their memory muscles, which can lead to memory weakening over time. However, attention plays a crucial role in shaping and supporting memory formation. Attention is essential for encoding information and developing memory, and it is critical for the development of early literacy skills. The increasing diversity of technological devices has been reported to lead to shorter attention spans, weaker concentration, and higher levels of distraction (Fan at all, 2005).

Constant exposure to new visual stimuli can lead to memory problems because when our brains are bombarded with a large number of stimuli, it can make the processes of storing and recalling information in memory more challenging. Children's brains are still developing and are more sensitive to the effects and overuse of technology compared to adults. Constant exposure to numerous visual stimuli can result in distractions and difficulties in maintaining focus. Stimulation caused by visual cues such as loud advertisements or bright lights can disrupt sleep quality and lead to sleep deprivation. The continuous bombardment of visual stimuli can also contribute to eye fatigue and discomfort.

Especially during activities that require focus and concentration, such as reading books, studying, or preparing for exams, children's attention can easily be disrupted due to regular notifications. To overcome this, it is crucial for them to take measures such as setting aside technological devices, turning off notifications, or even powering off mobile devices to control distractions (Gstylemagazine, 2021). Posner (2015) has found that when your attention is diverted while focusing on something, it takes an average of twenty-three minutes to return to the same state of focus (Cited in Hari, 2022, p.21). Students continue to use their cell phones and tablets throughout the day, both for school activities and beyond. Exposure to pleasure-oriented materials such as social media and video games rapidly stimulates children's dopamine systems, causing their brains to become accustomed to enjoyable, intense, and short-lived content, which in turn reduces their attention span. Research shows that Generation Z children have an attention span of approximately 8 seconds. While teachers may have good intentions, the teaching process should not be entirely delegated to technology, and technology should only be used in the classroom when absolutely necessary (Allisonacademy, 2023). In school and educational processes, it is crucial to incorporate non-technological activities, games, and group work that can help improve children's attention and concentration.

18. The Effects of Gamification on Children: Gamification is defined as the application of game elements in non-game contexts with the aim of creating more commitment and ownership in learning tasks. Games, by using dynamics, mechanics, and aesthetics, motivate students, increase their sense of responsibility, and strengthen their connection with the content and proposed tasks (Castro, Sibo, & Ting, 2018, 5). However, the negative effects of gamification on children can manifest in various ways when game design elements are applied to non-game contexts. One of the key considerations here is striking a balance between maintaining the fun of games while emphasizing learning and avoiding overshadowing learning by placing too much focus on the game itself (Zhai et al., 2021, p. 13). Is it ethical to use addictive video and mobile games that manipulate reward centers in the human brain for educational purposes? (Bossmann, 2016). Gamification in education undoubtedly provides valuable contributions. However, when looking at both sides of the coin, it seems impossible not to have some ethical concerns about gamification. Below are some of these concerns:

a) Gamification encourages making mistakes, makes it less stressful for students to make errors, and allows for more experimental learning. However, in real life, there isn't always the freedom to make mistakes and start from scratch.
b) Gamification makes learning fun, prevents students from getting bored, and can increase motivation for learning. However, if students focus solely on seeking pleasure from a young age and do not develop the ability to cope with challenging situations, they may become less resilient in life. Encouraging hedonistic, non-delayed gratification, and pleasure-focused habits can have negative effects on children's ability to become healthy adults in the long run.
c) Students can become overly dependent on gamified learning tools and may lose interest in real-world activities and other interactions.
d) Having students constantly in a win-oriented system can distance them from the reality of facing losses, which is a reality they will encounter many times in their lives.
e) Games often emphasize competition, especially in social settings. However, one of the most basic values children should learn is cooperation and the spirit of helping others.
f) Life is not a game. Gamification occurs in a virtual world, making it more difficult for students to learn real-world skills and hindering their ability to solve real-world problems.
g) Gamification can lead to excessive gaming addiction, negatively affecting a student's overall well-being, including academic performance. Research has shown that excessive gaming can lead to physical and mental health problems such as depression, anxiety, and sleep disorders (Van Rooji et al., 2011).
h) Video games offer children a simpler and faker form of social interaction than real relationships (Van Rooji et al., 2011).
i) Games can harm academic performance; students who play games for extended periods are more likely to have lower grades. Students may become so engrossed in games that they cannot complete assignments or prepare for class. Playing video games takes time away from homework, social interactions, and other school-related tasks (Lemmens et al., 2009).
j) Games can be a valuable tool to enhance student engagement, motivation, and learning outcomes in the classroom. However, it is important to remember that excessive use of games in education can lead to negative side effects such as addiction, a lack of critical thinking, and low academic performance.

19. **The negative effects of virtual and augmented reality applications on a child's perception of reality:** Bess (2023) suggests that devices like smartphones are rapidly distancing us from the real world. We lose our ability to live in the world without certain electronic extensions. The more you live on screens, the more you live in a narrow, increasingly artificial, and abstract world. This virtual world may be safe and controllable, but it's not as rich and unpredictable as the real world. What could be the consequences if the connection with the real world is completely lost during childhood? It is a significant issue for children who cannot adapt to the difference between the virtual world created by technology and the real world. The real world is what we perceive through our senses, and we perceive this world with our organic system, our body. Here, the humanist human is a concrete being. However, with posthumanism, where humans are encouraged to evolve, they are forced towards disembodiment and a post-biological era (Moravec, 1988). The 'cyborg child' (Turkle, 1998) "makes no distinction between online and offline, virtual and real; digital life is so deeply intertwined with their lives that the experiences children have in their virtual worlds are accepted as real experiences. For children who have been immersed in media from their earliest memories, life on the screen is a daily, natural practice; they do not know any other way of existence" (Thomas, 2006, p. 128).

20. **The commodification of technology (Technology turning into a rent-seeking field)**: Most technologies labeled as educational technologies are designed to profit, monitor students, and create dependency among users. The education sector is considered a significant market due to its large audience. The technology industry entering and taking over the education sector also plays a critical role in transforming societal culture. Technology is not an area where you can invest once and be done with it. The cost of constantly upgrading or maintaining your systems in line with ever-changing technology is quite high. In a world where new innovations emerge almost every day in the digital technology field and upgrading software and applications consistently requires more powerful devices, the belief that technology is the sole solution in education leads to substantial financial resources being allocated to technology (Allisonacademy, 2023).

The FATIH (Increasing Opportunities and Advancing Technology) Project, under the leadership of the Ministry of National Education in Turkey, first came onto the national agenda in November 2010, and significant investments were made in this project. The aim of this project was to cultivate generations who effectively use information technologies through the provision of interactive boards in schools, portable computers for teachers, and tablets for students. According to Ministry of Education officials, a total of 11 billion 524 million 965 thousand TL was allocated for the FATIH Project, and by the end of 2022, approximately 4 billion 770 million TL had been spent (Birgün, 19.01.2023). Despite being presented as the "project of the century," audits conducted by the Turkish Court of Accounts (Sayıştay Başkanlığı) have revealed that these significant investments have largely remained idle. It was determined that the systems established were not operational in many schools, and despite infrastructure development, interactive boards were not available in thousands of schools (Birgün, 19.01.2023). As seen, the FATIH Project, which set out with ambitious goals but failed to achieve the targeted success and efficiency, holds important lessons regarding the need for careful planning in investments in educational technology and the necessity of using national resources effectively and efficiently.

Indeed, teaching and learning can be done without technology, but the key question is how valuable the specific skills acquired will be after several generations of technological advancement. Therefore, to avoid regretting the purchase of new technology, educational institutions are responsible for estimating the real long-term costs of this investment and how they will be reflected in the tuition fees that students and parents will have to pay.

21. **Technology and academic integrity issues**: Educational technology tools can enable students to prepare their assignments, projects, and papers more quickly and easily. However, it is also possible for students to misuse these tools and engage in plagiarism. Therefore, teachers should provide students with education on proper referencing and citation and raise awareness about the ethical use of technology tools (Gstylemagazine, 2021).

Honesty can be defined as having the quality of being honest and possessing strong moral principles. Dishonesty (fraud) can be expressed as a tendency to lack honesty or truthfulness, inclining towards deceit or deception. Academic integrity consists of written and unwritten norms in the academic field that should be followed, such as independent work, producing original scholarly work, and transparently and accurately referencing and attributing the resources and contributions of others (Cojocariu and Mareş, 2022, 2). One of the major challenges teachers face is cheating during exams and students having a lack of awareness of their knowledge of the subject matter. This is also a significant issue in online tests because teachers often do not know whether students have access to other devices while taking the exam. This problem can lead to long-term consequences, primarily because educational institutions cannot guarantee that the student truly possesses the knowledge required for higher education levels or for performing their job (Allisonacademy, 2023).

Applications of artificial intelligence, such as ChatGPT, promise to revolutionize our methods of information retrieval, article composition, software code writing, and business plan creation, as they possess the ability to generate human-like texts. Learning to write an article from scratch is a challenging process that requires the use of skills like critical thinking, organizational skills, and

self-expression. On the other hand, creating vivid and beautiful images with each stroke of a brush may be considered the essence of human creativity. Delegating these tasks to a smart machine, while convenient, is regressive in terms of human intelligence and creativity. Consequently, the New York state school system has blocked students and teachers from accessing ChatGPT in their classrooms, citing concerns about its adverse effects on student learning and the safety and accuracy of content (Elsen-Rooney, 2023). Some online art communities have prohibited users from uploading images created using artificial intelligence image generators such as DALL-E, Midjourney, and Stable Diffusion (Hoffman, 2023).

DISCUSSION

In this section of the study, ethical issues arising from educational technology on children and youth are discussed under four main headings.

The Impact of Technology on a Child's Identity, Personality, Values, and Worldview: When examining the influence of technology on a child's identity, personality, values, and worldview, it is evident that excluding children from technology and educational technology in today's world is both impossible and senseless. However, there is a legitimate concern that, as we chase technological "advancements," we may risk losing some of the most valuable aspects of our lives. Ethical concerns cannot be disregarded when presenting educational technologies to our children. The challenge we face is to be sensitive to our core values and to find a vision and roadmap that will not lead to the loss of these values but, rather, their enhancement (Bostrom, 2021). One of the technoethical issues is that designers tend to see technology as "mere tools," while users experience them as carriers of meaning and ideas, sometimes even extensions of themselves (Turkle, 2003). Children are beginning to perceive technology as an extension of themselves, shifting their relationship more towards machines rather than humans, and rapidly pushing them from humanist values towards "posthumanism." The "posthuman" individual is being chemically, surgically, or mechanically transformed through technoscience, engulfed by technology, and forced to exist in a world where they are irreversibly altered by technology. This imposes a form of modification, hybridized life forms, new forms of sociality, and a new understanding of life itself on children (Nayar, 2014, p. 2).

The Impact of Technology on a Child's Innocence, Privacy, and Safety: Children, who are increasingly left alone with technology, are known to face numerous risks that jeopardize their innocence, privacy, and safety. They encounter pornographic materials at a very young age and become targets of advertisements and malicious software. Children leave digital footprints with every interaction on the internet, which are then manipulated by data-collecting websites. Manipulation, in its broadest sense, simply means directing or controlling something. In this sense, manipulation is an attempt to influence individual decision-making processes and behaviors (Susser, Roessler, & Nissenbaum, 2019). Those who collect data on technology, knowing children's preferences, interests, habits, friends and acquaintances, abilities, education, physical health, and financial status, are in a significant position to have an impact on children (Richards, 2013). It allows for a better understanding of students' goals, what motivates them, what their weaknesses and vulnerabilities are, and when they are most susceptible. Information technologies make it cheap and easy to generate, collect, analyze, and use data of this kind about children and young people. Therefore, such technologies make us highly vulnerable to manipulation by those who create, control, and distribute these systems. Concerns about children and young people being manipulated through technology, their individual decision-making processes being directed or controlled, and thus their capacity for making independent choices being jeopardized are growing (Susser, Roessler, & Nissenbaum, 2019).

The Impact of Technology on Child Development and Health: Intensive use of technology, even for educational purposes, leaves children sitting in front of screens for extended periods of time. This negatively affects children's physical development and can lead to problems at a young age. A study investigating the relationship between computer use and musculoskeletal disorders found that half of the 6th-grade students reported experiencing discomfort in at least one part of their body, with the most common complaints being related to the neck, back, and shoulder areas (Jacobs, Hudak, & McGiffert, 2009). Activities such as walking, running, swimming, or playing games that engage the body, like volleyball and tennis, can help counteract the negative effects of prolonged technology use (Murphy, 2016). It has been reported that only 4 out of every 10 children aged 6-11 meet the recommended guidelines for both daily physical activity and technology device use. Furthermore, it has been found that as children get older, their levels of physical inactivity increase (Fakhouri at all, 2013).

Technological developments have increased young people's interaction with screen-based technologies (screen time), while simultaneously a decrease in young people's contact with nature (green time) has been observed. According to research findings, high screen time appears to be associated with negative psychological outcomes, while high green time appears to be associated with positive psychological outcomes (Oswald, Rumbold, Kedzior, & Moore, 2020).

T*he Impact of Technology on a Child's Education and Academic Achievement:* The belief that traditional education is failing and inadequate has become widespread in the technology sector, and there is a significant effort to use technology to bridge this gap.

Through the development of the internet and computers, various tools like distance education, virtual and augmented reality, high-tech collaboration tools, gamification, podcasting, blogging, 3D printing, artificial intelligence, personalized learning, and much more have been introduced into both in-school and out-of-school education for children. As a result, the processes of learning and teaching have undergone numerous changes, requiring a fresh perspective on everything. Many educational toys, including electronic and computer-based ones, such as spelling, counting, and handwriting instruction, remote-controlled devices, electronic board games, and electronic pets, have entered children's lives from a very young age (Spatariu, Peach, and Bell, 2012, p.27). The digital world is growing and changing rapidly, and technology companies are releasing their products so quickly that everyone should take a moment to consider the potential issues that may arise from their use (Ribble, 2009, p.24). However, this educational effort immersed in technology tends to increase children's attention and memory problems while weakening their memory. Furthermore, learning becomes shallow and less enduring. Due to the need to juggle multiple tasks simultaneously, the children's means of concentrating are reduced.Students and teachers increasingly need to be aware of ethical rules. As educational activities extend beyond the boundaries of schools, the ethical use of technology becomes even more critical. The use of technology by students for studying at home and teachers delivering lessons in an online environment has given rise to widespread ethical issues. To support students, teachers, and administrators in using technology responsibly, the United States developed the National Educational Technology Standards (NETS) in 2007. These standards are utilized in every state in the U.S., and achieving deep learning on a single subject is diminished (ISTE, 2023). Students and teachers should prioritize being conscious of the ethical use of educational technology.

CONCLUSION AND RECOMMENDATIONS

Certainly, protecting children from the harmful effects of technology places significant responsibility on technology producers, education and school administrators, teachers, and parents. To achieve this goal, the following recommendations can be helpful:

a) Technology creators, educators, and children should be educated about technology ethics. Training should be provided on the responsible, safe, and ethical use of technologies.

b) Teaching children how to use technology correctly is crucial. They should be taught when and how to use technology, and awareness should be raised about internet safety and online privacy.

c) Efforts should be made for "technology for humanity, not technology in place of humanity." Children should not be detached from an education process that allows them to acquire fundamental values like compassion, empathy, cooperation, interest, and responsibility.

d) Education should focus on making students critical and selective viewers and consumers. Time spent on screens should be limited, and the type of content accessible to children should be controlled.

e) To preserve children's values and worldviews, they should be encouraged to form real relationships with peers and engage in interactive activities. Real-life activities that enhance their social interactions and fulfill their emotional needs should be prioritized.

f) Technology use should be restricted to protect children's innocence, privacy, and safety. Filtering and parental control features should be used to block access to inappropriate content.

g) The digital balance should be maintained to prevent technology dependency. This means balancing technology usage with other activities. For example, after using technology, children should have the opportunity to engage in physical activities, outdoor play, or creative pursuits.

h) Measures should be taken to address issues related to digital health and well-being, such as obesity, snacking, sleep deprivation, and eye problems.

i) While educational technology is designed to support children's learning processes, it should be managed correctly by teachers. Teachers can enhance learning by providing interactive materials tailored to students' interests. However, non-technological activities that support children's physical, social, and emotional development should also be included.

j) All educational administrators and teachers should ensure the ethical use of educational technology and respect students' personal and privacy rights. Student privacy rights should be respected, and student information should not be shared with third parties without the consent of the student, parent, or legal guardian.

k) Clear privacy policies should be established regarding how students' data will be used during the use of educational technology, and these policies should be easily understood by everyone.

l) Academic honesty and copyright should be taught and monitored during the use of educational technology.

m) Digital educational materials should be selected and used in a way that does not harm students. Inappropriate materials should be avoided.

n) Parents should be informed about their children's use of educational technology and educated about the ethical use of technology. This way, necessary precautions can also be taken at home during children's technology usage.

o) Educational technology should always be used correctly and contribute positively to children's education.

p) The use of gamification in education should be carefully considered, taking into account potential long-term effects on students' overall performance and development.

q) All measures should be taken to reduce the "screen time" children and young people spend with screen-based technologies and increase the "green time" they spend in contact with nature.

Declaration of Conflicting Interests

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

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Statements of publication ethics

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

REFERENCES

Adalı, O. (2010). *Etkileşimli ve Eleştirel Okuma Teknikleri*. *[Interactive and Critical Reading Techniques].* Toroslu Yayınevi

Agazzi, E. (2019). *Technological Development and Ethics*. Bioethics Update.5: 69-75.

Allisonacademy. (2023). Retrieved from https://www.allisonacademy.com/students/education/technology-in-education/advantages-and-disadvantages-of-technology-in-education.

Arıcı, Ş. (10 May 2019). Artırılmış Gerçeklik Eğitimde Nasıl Kullanılır? [How to Use Augmented Reality in Education?]. Retrieved from https://www.iienstitu.com/blog/artirilmis-gerceklik-egitimde-nasil-kullanilir.

Asrın fiyaskosu [Fiasco of the century]. (2023, 19 January). Retrieved from https://www.birgun.net/haber/asrin-fiyaskosu-418100.

Audley-Piotorwksi, S., Kumar, H., Hsueh, Y. & Sumner, M. (2012). Technology: Changing the Research Base on Young Children. Technology and Young Children: Bridging the Communication Generation Gap. Sally Blake, Denise Winsor, Lee Allen. Eds., Information Science Reference (an imprint of IGI Global Pp. 88-109.

Aydın, İ. (2013). Çocuk, internet, etik. *[Children, internet, ethics].* Gençlik Araştırmalari Dergisi. 1(1), 2.

Aydın, İ. (2018). Okul Yöneticilerinin Sanata Yaklaşımı. *[School Administrators' Approach to Art*]. Çocuk ve Sanat. IX.Ulusal Çocuk Kültürü Kongresi Bildirileri. 3-6 Ekim 2017. Ankara Üniversitesi Çocuk Kültürü Araştırma ve Uygulama Merkezi Yayınları, No:27.

Aydın, İ. (2019). Eğitim ve Öğretimde Etik. *[Ethics in Education and Teaching].* PEGEM A Yayıncılık.

Aydın, İ. (2022). Akademik Etik. [Academic Ethics]. 4. Baskı. Ankara: PEGEM A Yayıncılık.

Bainbridge, L. (1983). Ironies of automation. Automatica. 19 (6): 775–779.

Belpaeme, T.& Tanaka, F. (2021). Social Robots as educators. OECDİlibrary, Retrieved from https://www.oecd-ilibrary.org/sites/1c3b1d56-en/index.html?itemId=/content/component/1c3b1d56-en.

Başaran, F. (2010). Öğretmen adaylarının eğitimde sanal gerçeklik kullanımına ilişkin görüşleri (Sakarya Üniversitesi BÖTE örneği). [Prospective teachers' views on the use of virtual reality in education Sakarya University BÖTE case]. (Yayımlanmamış Yüksek Lisans Tezi). Sakarya Üniversitesi, Sosyal Bilimler Enstitüsü, Sakarya.

Bess, M, D. (2023). Planet in Peril: Humanity's Four Greatest Challenges and How We Can Overcome Them, United Kingdom: Cambridge University Press.

Bess, M.& Pasulka D. W. (2018). Posthumanism: The Future of Homo Sapiens. Macmillan Reference USA.

Bossmann, J. (2016). "Top 9 ethical issues in artificial intelligence". Retrieved from https://www.weforum.org/agenda/2016/10/top-10-ethical-issues-in-artificial-intelligence/

Bostrom, N. (2001). What is transhumanism? Retrieved from https://nickbostrom.com/old/transhumanism (11.12.2022).

Braman, S. (2006). Change of state: Information, policy, and power. Cambridge, MA: MIT Press.

Breen, R., Pyper, S., Rusk, Y., & Dockrell, S. (2007). An investigation of children's posture and discomfort during computer use. Journal of Ergonomics, 50(10), 1582–1592.

Britz, J. J. (1996). Technology as a Threat to Prıvacy: Ethical Challenges to the Information Profession. Microcomputers for Information Management, 13:3-4, 175-93.

Boz, M.S. (2019). Eğitimde artırılmış gerçeklik uygulamalarinin değerlendirilmesi. T.C. Milli Eğitim Bakanlığı Yenilik ve Eğitim Teknolojileri Genel Müdürlüğü.

Blokchain. (7 Mayıs, 2019). Blockchain teknolojisinin eğitim sistemine faydaları. Retrieved from https://bctr.org/blockchain-teknolojisinin-egitim-sistemine-faydalari.

Boyers, L. (2018). Obesity in Children and Technology. Livestrong. Retrieved from http://www.livestrong.com/article/46320-obesitychildren-technology

Bursalıoğlu, Z. (2010). EğitimYönetiminde Yeni Yapı ve Davranış. [New Structure and Behavior in Education Management]. PEGEM A Yayıncılık.

Bühler-Niederberger, D. (2017). Innocence and Childhood. Childhood Studies. Oxford Bibliographies. https://www.oxfordbibliographies.com/display/document/obo-9780199791231/obo-9780199791231-0161.xmlDOI: 10.1093/OBO/9780199791231-0161

Castro, K.A.C; Sibo, İ.P.H; Thing, I. (2018). Assessing Gamification Effects on E-learning Platforms: An Experimental Case. Lorna Uden Dario Liberona; Jozef Ristvej (Eds.). Learning Technology for Education Challenges. 7th International Workshop, LTEC 2018 Žilina, Slovakia, August 6–10, 2018 Proceedings. Springer International Publishing AG.

Cojocariu, V.M. & Mareş, G. (2022). Academic Integrity in the Technology-Driven Education Era. Ethical Use of Information Technology in Higher Education. Liliana Mâta (ED). Singapore: Springer Nature Ltd. Pp. 1-16.

Collins English Dictionary. (2023). Retrieved from https://www.collinsdictionary.com/dictionary/english/innocence.

CRIN: (2022). Child Rights International Network. Briefing: Children's rights in the digital age. Retrieved from https://home.crin.org/issues/digital-rights/childrens-right-digital-age.

Çetin, B., Peker, A., Eroğlu, Y., ve Çitemel, N. (2011). Interpersonal cognitive distortions as a predictor of cyber victimization and bullying: A preliminary report in adolescents. International Online Journal of Educational Sciences, 3(3), 1064-1080.

Demirer, V., Erbaş, Ç. (2015). Mobil Artırılmış Gerçeklik Uygulamalarının İncelenmesi ve Eğitimsel Açıdan Değerlendirilmesi [*Investigation and Educational Evaluation of Mobile Augmented Reality Applications]*. Mersin Üniversitesi Eğitim Fakültesi Dergisi, 11(3), 802-813.

Diana, F. (10 October 2016). Techno-Optimist or Techno-Pessimist? Retrieved from https://frankdiana.net/2016/10/10/techno-optimist-or-techno-pessimist/(15.02.2023)

Dursun, Ö. Ö. ve Barut, E. (2016). Sosyal Medyanın Yeni Sorunsalı: Sanal Kimlikler. Eğitim Teknolojileri Okumaları *[The New Problematic of social media: Virtual Identities. Education Technologies Readings].* (Eds: Aytekin İşman, Hatice Ferhan Odabaşı, Buket Akkoyunlu). Salmat Basım Yayıncılık.

Ellul, J. (1964). The Technological Society. John Wilkinson (Translator). New York: Viyage Books.

Elsen-Rooney, M. (2023). NYC education department blocks ChatGPT on school devices, networks. Retrieved from https://ny.chalkbeat.org/2023/1/3/23537987/nyc-schools-ban-chatgpt-writing-artificial-intelligence.

Ercan, E. A. (2019). Sanal Gerçeklik, Hakikat Kavramının Dönüşümü ve Popüler Kültürdeki Yansımaları. *[Virtual Reality, Transformation of the Concept of Truth and Its Reflections in Popular Culture].* Türkiye İletişim Araştırmaları Dergisi. 34, pp 115-143 • ISSN: 2630-6220 DOI: 10.17829/turcom.527355

Fakhouri, T. H., Hughes, J. P., Brody, D. J., Kit, B. K., & Ogden, C. L. (2013). Physical activity and screen-time viewing among elementary school-aged children in the United States from 2009 to 2010. Jama Pediatrics, 167(3), 223–229.

Fan, J., Mccandliss, D., Fossella, J. & Posner, M. (2005). Show The Activation of Attentional Networks. NeuroImage 26(2):471-9.DOI: 10.1016/j.neuroimage.2005.02.004

Flanagan, V. (2014). Technology and Identity in Young Adult Fiction the Posthuman Subject. London: Palgrave Macmillan.

Fry, H. (2019). Merhaba Dünya: Makine Çağında İnsan Olmak [Hello World: Being Human in the Age of Algorithms]. Çev. İpek Güneş Çıgay, İstanbul: Hep Kitap Yayınları.

Froehlich, T. (2004). A Brief history of information ethics. Textos Universitaris de Biblioteconomia Documantacio, 13. https://bid.ub.edu/13froel2.htm

Future Educators. (2022). Pros and Cons of Technology in the Classroom. Retrieved from https://www.futureeducators.org/technology-in-classrooms-pros-cons/.

Garrison, D. R., & Kanuka, H. (2004). Blended learning: Uncovering its transformative potential in higher education. The Internet and Higher Education, 7(2), 95–105. https://edtechbooks.org/-unph

Gibbons, A. N. (2012). The Impact of Technology on Early Childhood Education: Where the Child Things Are? Adults, Children, Digital Monsters and the Spaces in Between. Technology and Young Children: Bridging the Communication Generation Gap. Sally Blake, Denise Winsor, Lee Allen. Eds., nformation Science Reference (an imprint of IGI Global Pp. 1-23.

Gobbetti, E.& Scateni, R. (1998). Virtual reality: past, present, and future. StudHealth Technol Inform, 58, 3-20. PMID: 10350926.

Gstylemagazine. (2021). Adverse Effects of Technology in Education. Retrieved from https://gstylemag.com/2021/11/09/adverse-effects-of-technology-in-education/.

Gustafsson, E., Thomée, S., Grimby-Ekman & Hagberg, A. M. (2017). Texting on mobile phones and musculoskeletal disorders in young adults: A five-year cohort study. Applied Ergonomics. Volume 58, January 2017, Pages 208-214.

Gupta, S. (06 January 2023). Importance of Value Education: Aim, Types, Purpose, Methods. Retrieved from https://www.collegesearch.in/articles/importance-of-value-education.

Günay, D. (2017). Teknoloji Nedir? Felsefi Bir Yaklaşım [What is Technology? A Philosophical Approach]. Yükseköğretim ve Bilim Dergisi/Journal of Higher Education and Science. Cilt/Volume 7, Sayı/Number 1, Nisan/April 2017; Sayfa/Pages 163-166DOI: 10.5961/jhes.2017.194

Hanks, J. Craig & Hanks, Emily Kay. From Technological Autonomy to Technological Bluff: Jacques Ellul and Our Technological Condition. (2015). Human Affairs, 25: 4. 460-470. https://doi.org/10.1515/humaff-2015-0037

Haran, M. (2015). A History of Educational Technology. Retrieved from http://institute-of-progressive-education-and-learning.org/a-history-of-education-technology/

Harris, C., & Straker, L. (2000). Survey of physical ergonomics issues associated with school children's use of laptop computers. International Journal of Industrial Ergonomics, 26(3), 337–346.

Hari, J. (2022). Çalınan Dikkat: Neden Odaklanamıyoruz. [Stolen Attention: Why We Can't Focus]. (Çev: Barış, Engin Aksoy). İstanbul. Metis yayınları.

Hatch, K. E. (2011). Determining the Effects of Technology on Children. Senior Honors Projects.Paper 260.https://digitalcommons.uri.edu/srhonorsprog/260.

Herbrechter, S. (2013). *Posthumanism: A critical analysis*. London. Bloomsbury Academic.

Hoffman, R. (28.01.2023). Retrieved from https://www.theatlantic.com/ideas/archive/2023/01/chatgpt-ai-technology-techo-humanism-reid-hoffman/672872/ (15.08.2022).

ISTE. (2023). International Society for Technology in Education. Retrieved from https://iste.org/standards/students.

Jacobs, K., Hudak, S., & McGiffert, J. (2009). Computer-related posture and musculoskeletal discomfort in middle school students. Work, 32(3), 275–283.

Kanagasabapathy, R. (1990) Value education: A vital component of higher education. VALUE EDUCATION TODAY: Explorations in Social Ethics J.T.K Daniel v& Nirmal Selvamony, Eds.). Delhi: Madras Christian College. PP. 9-11.

Kiaulehn, W. (1972). Teknoloji tarihi: Demir Melekler. [History of technology: The Iron Angels]. (H.Örs, Çev), İstanbul: Remzi Kitabevi.

Lemmens, J. S., Valkenburg, P. M., & Peter, J. (2009). Development and validation of a game addiction scale for adolescents. Media Psychology, 12(1), 77-95.

Li, L. & Liu, X. (2011). Experimental Studies of Physical Exercises to Improve Students Sleep Quality and Mental Health . Education and Educational Technology, Yuanzhi Wang (Ed.) Springer-Verlag Berlin Heidelberg, PP.65-72.

Li, G., Chen G. (2011). A novel enhanced education application of Cloud computing. Cloud Computing and Intelligence Systems (CCIS), 2011 IEEE International Conference on, 526 -529.

Loui, M.C. (2005). Educational Technologies and the Teaching of Ethics in Science and Engineering. Science and Engineering Ethics (2005) 11, 435-446.

Moravec, H. P. (1988). Mind Children: The Future of Robot and Human Intelligence. Harvard University Press.

Murphy, K. (2016). Is technology affecting our health? Nursing Made Incredibly Easy! 14(4): p 44-52, July/August 2016. | DOI: 10.1097/01.NME.0000484076.13136.7chttps://journals.lww.com/nursingmadeincrediblyeasy/fulltext/2016/07000/is_technology_affecting_our_health_.10.aspx

Mustafaoğlu, R., Zirek, E., Yasacı , Z. &Özdinçler, A.R. (2018). Dijital Teknoloji Kullanımının Çocukların Gelişimi ve Sağlığı Üzerine Olumsuz Etkileri. Addicta: The Turkish Journal on Addictions. 5(2), 227–247. DOI: 10.15805/addicta.2018.5.2.0051.

Nayar, P. K. (2014). Posthumanism. Cambridge and Malden, Massachusetts.

Oates, S., Evans, G., & Hedge, A. (1998). A preliminary ergonomic and postural assessment of computer work settings in American Elementary Schools. Computers in the Schools, 14(3), 4–12.

Ocak, M.E. (09.03.2023). Blokzincir Nedir? Nasıl Çalışır? [What is Blockchain? How It Works]. Retrieved from https://bilimgenc.tubitak.gov.tr/makale/blokzincir-nedir-nasil-calisir.

Olcott Jr. D., Carrera Farran, X., Gallardo Echenique, E. E., & González Martínez, J. (2015). Ethics and Education in the Digital Age: Global Perspectives and Strategies for Local Transformation in Catalonia. RUSC. Universities and Knowledge Society Journal, 12(2). pp. 59-72. doi http://dx.doi. org/10.7238/rusc. v12i2.2455

OECD. (2015). Students, Computers and Learning: Making the Connection, PISA, OECD Publishing. Retrieved from http://dx.doi.org.10.1787/9789264239555-en. http://www.keepeek.com/Digital-Asset-Management/oecd/education/students-computers-and-learning_9789264239555-en.

Oswald TK, Rumbold AR, Kedzior SGE, Moore VM. Psychological impacts of "screen time" and "green time" for children and adolescents: A systematic scoping review. PLoS One. 2020 Sep 4;15(9): doi: 10.1371/journal.pone.0237725. PMID: 32886665; PMCID: PMC7473739.

Rémond, J., Kern, L., ve Romo, L. (2014). [A cyberbullying study: Analysis of cyberbullying, com or bidities and coping mechanisms].

Rayport J.F., H. A. (2009). Envisioning the Cloud: The Next Computing Paradigm. Retrieved from http://www.marketspaceadvisory.com.

Rothman EF, & Adhia A (2016). Adolescent pornography use and dating violence among a sample of primarily Black and Hispanic, urban-residing, underage youth. Behavioral Sciences, 6(1), 1 10.3390/bs6010001.

Patchin, J.W. ve Hinduja, S. (2006). Bullies move beyond the school yard. Youth Violence and Juvenile Justice, 4(2), 148-169.

Prasanna. (May 16, 2023). Essay on Contribution of Technology in Education | Contribution of Technology in Education Essay for Students and Childre. Retrieved from https://www.aplustopper.com/essay-on-contribution-of-technology-in-education/.

Richards, N. M. (2013). The Dangers of Surveillance. Harvard Law Review, 126(7), 1934–1965. Retrieved from https://harvardlawreview.org/2013/05/the-dangers-of-surveillance/.

Ribble, Mike. (2009). Raising a Digital Child A Digital Citizenship Handbook for Parents. International Society for Technology in Education (ISTE).

Rosen, L. D., Lim, A., Felt, J., Carrier, L. M., Cheever, N. A., Lara-Ruiz, J., & Rokkum, J. (2014). Media and technology use predicts ill-being among children, preteens and teenagers independent of thenegative health impacts of exercise and eating habits. Computers in Human Behavior, 35, 364–375

Saettler, P. (1990) The Evolution of American Educational Technology Englewood CO: Libraries Unlimited.

Spatariu, A. Peach, A. & Bell, s. (2012). Enculturation of Young Children and Technology. Technology and Young Children: Bridging the Communication Generation Gap. Sally Blake, Denise Winsor, Lee Allen. Eds., nformation Science Reference (an imprint of IGI Global Pp. 24-48.

Straker, L. M., Coleman, J., Skoss, R., Maslen, B. A., Burgess-Limerick, R., & Pollock, C. M. (2008). A comparison of posture and muscle activity during tablet computer, desktop computer and paper use by young children. Ergonomics, 51(4), 540–555.

Selvi, O. & Küçüksille, E.U. (2012). Bulut Bilişimin Eğitim Alanında Uygulanması. *[Application of Cloud Computing in Education]*. Süleyman Demirel Üniversitesi, Fen Bilimleri Enstitüsü Dergisi, 16-3 (2012), 248-254.

Susser, D., Roessler, B. & Nissenbaum, H. (2019). Technology, autonomy, and manipulation. INTERNET POLICY REVIEW Journal on internet regulation. Volume 8 | Issue 2,1-22.

Tepe, H. (2008). Değer ve Anlam: Değerler Anlamlar Mıdır? *[Value and Meaning: Are Values Meanings*?] ODTÜ Felsefe Bölümü "Anlam" Kongresi 17-19 Aralık. Ankara.

The Edanz Team. (18 May 2023). https://www.edanz.com/blog/systematic-scoping-narrative.

Thiroux, J. P., Krasemann, Keith W. (2014). Ethics: Theory and Practices, Edinburg: Pearson Education Limited.

Thomas, A. (2006). 'MSN was the Next Big Thing after Beanie Babies': Children's Virtual Experiences as an Interface to Their Identities and Their Everyday Lives. E-Learning and Digital Media 3(2).126-142. DOI: 10.2304/elea.2006.3.2.126

Turkle, S. (1998). Playing with Artificial Life. Cyborg Babies From Techno-sex to Techno-tots. Edited by Robbie Davis-Floyd and Joseph Dumit. Routledge.

Turkle, S. (2003). Technology and human vulnerability. A conversation with MIT's Sherry Turkle. Harv Bus Rev. 2003 Sep;81(9):43-50, 131. PMID: 12964392. https://pubmed.ncbi.nlm.nih.gov/12964392/

UNICEF. (30 November 2020). Two thirds of the world's school-age children have no internet access at home, new UNICEF-ITU report says. Retrieved from https://www.unicef.org/press-releases/two-thirds-worlds-school-age-children-have-no-internet-access-home-new-unicef-itu.

UN. (15 July 2021). Children's right to privacy in the digital age must be improved. Retrieved from https://www.ohchr.org/en/stories/2021/07/childrens-right-privacy-digital-age-must-be-improved.

Urban Dictionary. (2023). https:// Retrieved from www.urbandictionary.com/define.php?term=Techno-Panic.

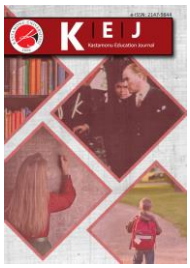
Van Rooji, A. J., Schoenmakers, T. M., Vermulst, A. A., Van den Eijnden, R. J., & Van de Mheen, D. (2011). Problematic video game use among adolescents: The relationship with school performance and problem behavior. Journal of Youth and Adolescence, 40(11), 1437-1447.

Wright PJ, Tokunaga RS, & Kraus A (2016). A meta-analysis of pornography consumption and actual acts of sexual aggression in general population studies. Journal of Communication, 66(1), 183–205. 10.1111/jcom.12201.

Yıldırım, H. (2018). Açık ve uzaktan öğrenmede blokzincir teknolojisinin kullanımı. [The use of blockchain technology in open and distance learning] Açıköğretim Uygulamaları ve Araştırmaları Dergisi, AUAd, 4(3), 142-153.

Zhai, X. , Chu , X., Chai, C.S., Jong, M.S.Y., Istenic, A., Spector, M., Jia-Bao Liu, J.B., Yuan,J.& Li, Y. (2021). A Review of Artificial Intelligence (AI) in Education from 2010 to 2020. Hindawi Complexity Volume 2021, Article ID 8812542, pp. 1-18 https://doi.org/10.1155/2021/8812542

Kastamonu Education Journal, 2024, Vol. 32, No:1, 159-167
doi: 10.24106/kefdergi.1426737



| Research Article / Araştırma Makalesi|

The Experiences of The Practicum Dyad: A Meta-Synthesis From Turkish EFL Case (2012-2022)

Öğretmenlik Uygulamasından Deneyimler: Bir Metasentez Çalışması (2012-2022)

Gizem Mutlu-Gülbak[1]

Keywords
1.Mentoring
2.Practicum
3.Language teacher education
4.Meta-synthesis
5.Student teachers

Anahtar Kelimeler
1.Mentorluk
2.Öğretmenlik uygulaması
3.Yabancı dil öğretmen eğitimi
4.Metasentez
5.Aday öğretmen

Received/Başvuru Tarihi
11.04.2023

Accepted / Kabul Tarihi
27.11.2023

Abstract

Purpose: The practicum component of teacher education programs and its active participants, mentor teachers (cooperating teachers) and student teachers, have a special place in teacher education programs. With a focus on the experiences of this practicum dyad, this meta-synthesis aims to describe a broader picture of practicum practices in the Turkish EFL context.

Design/Methodology/Approach: It investigates the recent qualitative studies published between 2012 and 2022 through a meta-synthesis

Findings: The synthesis identified three main themes: (1) challenges, (2) expectations, and (3) appreciation of both members, which were further categorized as practicum-based, profession-based, and school-based.

Highlights: The results provided not only valuable data to inform a mentor training program but also uncovered the concerns experienced by all three groups, which should be carefully examined, and necessary actions should be taken accordingly. Through a review of in-depth qualitative studies related to the experiences of the EFL practicum dyad, it provides a broader lens for the practicum studies conducted in language teacher education programs in Turkey and raised issues to be addressed by supervisors, mentors, student teachers, and policy makers, which could also lead to further inquiries for other teaching contexts.

Öz

Çalışmanın amacı: Öğretmenlik uygulamasının aktif katılımcıları olan mentor öğretmenler (uygulama öğretmenleri) ve aday öğretmenler, öğretmen eğitimi programlarında özel bir yere sahiptir. Bu ikilinin deneyimlerine odaklanan bu meta-sentez, Türkiye'deki öğretmenlik uygulamalarının daha geniş bir resmini tanımlamayı amaçlamaktadır.

Materyal ve Yöntem: Bu amaçla, 2012 ile 2022 yılları arasında yayınlanan son nitel çalışmaları bir meta-sentez yoluyla incelenmiştir.

Bulgular: Çalışmanın bulgularında, (1) zorluklar, (2) beklentiler ve (3) beğeniler şeklinde daha sonra uygulama temelli, meslek temelli ve okul temelli olarak kategorize edilen üç tema belirlenmiştir.

Önemli Vurgular: Sonuçlar, yalnızca bir mentor eğitim programını bilgilendirmek için değerli veriler sağlamakla kalmayıp, aynı zamanda her üç grubun da yaşadığı ve dikkatle incelenmesi ve buna göre gerekli önlemlerin alınması gereken endişeleri ortaya çıkarmıştır. Öğretmenlik uygulamasındaki deneyimlerin gözden geçirilmesiyle, Türkiye'deki dil öğretmeni eğitimi programlarında yürütülen öğretmenlik uygulamaları çalışmalarına daha geniş bir bakış açısı sağlanmıştır ve bu sonucun ayrıca diğer öğretim bağlamları için de daha fazla araştırmaya yol açması öngörülmüştür.

[1] **Corresponded Author,** Biruni University, Faculty of Education, English Language Teaching, İstanbul, TURKEY https://orcid.org/0000-0002-4248-8003

Citation/Alıntı: Mutlu-Gülbak, G. (2024). The Experiences of The Practicum Dyad: A Meta-Synthesis From Turkish EFL Case (2012-2022). *Kastamonu Education Journal, 32*(1), 159-167. doi: 10.24106/kefdergi.1426737

INTRODUCTION

Student teachers are introduced to the teaching profession during the practicum study, which consists of two practice teaching courses (Practice Teaching I and II), in the last year of the current undergraduate English language teaching program in Turkey. The requirements for Practice Teaching I include observation of a class with a focus on teaching strategies, individual or group microteaching exercises, class supervision, test administration, student progress evaluation, and reflection on the teachers' own methods (Higher Education Council-HEC, 2018). In addition to the skills covered in the first course, student teachers in the other course, Practice Teaching II, plan and teach classes independently, evaluated by the mentor teacher and the university supervisor. Collaboration is essential, especially between the student teacher and mentor teacher, who give the majority of the support to ensure that the candidates get the most out of this process (Farrell, 2001).

The duties and responsibilities of each party involved in the practicum process are prescribed by the Ministry of National Education (MoNE) (MoNE, 1998). Along with planning practicum activities with the mentor teacher and coordinator, the university supervisor is in charge of ensuring that student teachers are ready for practice teaching, providing them with regular supervision, assisting them when needed, and assessing their performance. The second party, the mentor teacher, is responsible for observing student teachers throughout the practicum activities, ensuring the activities are executed effectively, and documenting the student teachers' performance evaluations. The third-party, student teachers, are expected to progress their personal and professional competencies, keep a portfolio of their studies and practicum reports, and study in accordance with the directions of mentor teachers and university supervisors. Along with the Directive of MoNE for the Teaching Practicum in Schools, the Faculty-School Cooperation Guide (HEC, 1998) was released to help define roles and responsibilities during the practicum time and enhance cooperation between universities and schools. The HEC Guide outlines the responsibilities of mentor teachers, which can be summed up as working with the faculty supervisor, offering guidance and counseling, and evaluating the performance of student teachers.

The practicum dyad with active roles in the practicum process, namely student teachers and mentor teachers, and their experiences deserve special attention since the first step into the profession and the student teachers' equipment with essential theoretical and practical skills are shaped by the relationship between the two (Musset, 2010). It is underlined that the process should be handled with efficient supervision (Youngs & Bird, 2010). The previous research focused on the practicum process and the experiences in the practicum with the intention of understanding the nature of the process (e.g. Bal-Gezegin, Balıkçı & Gümüşok, 2019; Yıldırım & Örsdemir, 2014), reporting problems (e.g. Yavuz, 2011) and suggesting solutions to improve the training process with a wider lens (e.g. Başaran Uysal & Savaş, 2021; Ceylan, Uştuk & Çomoğlu, 2017). Considering the peculiarity of the practicum dyad in the process, the present study aims to fill a gap in the field with a focus on a review of recent qualitative research to locate and emphasize the issues mentioned for a broader picture of the fundamental issues surrounding the practicum dyad in Turkish EFL context.

The Practicum Dyad

Mentor Teachers

In literature and practice, cooperating teachers are identified as experienced educators who serve as mentors to student teachers in their classrooms. Because the interaction between cooperating teachers and student teachers is primarily defined within the framework of mentoring, they are often referred to as "mentor teachers" (Odel & Huling, 2000). With their training and experience in the classroom, cooperating teachers are seen as mentors who support the professional and personal growth of student teachers by imparting knowledge, offering support, and acting as role models (Anderson & Shannon, 1988).

Since mentoring has been conducted with varying interpretations of the roles (Zantig, Verloop & Vermunt, 2001), several definitions of the term have been presented (Ambrosetti & Dekkers, 2010). Healy and Welchert (1990) assert that mentoring is "a dynamic, reciprocal relationship in a work environment between an advanced career incumbent (mentor) and a beginner (protégé) aimed at promoting the career development of both. In other words, both the mentor and the protégé benefit, improve and expand their teaching repertoire" (p.17). Underlining the hierarchical relationship between mentor and student teacher, Smith's (2007) definition is as follows: "a particular mode of learning wherein the mentor not only supports the mentee but also challenges them productively so that progress is made" (p. 277). From a different perspective, Malderez (2009) sees mentoring "as being supportive of the transformation or development of the mentee and of their acceptance to the professional community" through a process of "support for the person during their professional acclimatization (or integration), learning, growth, and development" (p. 260). Moreover, Wright (2010) puts emphasis on the collaboration and partnership between mentor and mentee as integral processes in mentoring. Lai (2005) uses three components in the nature of the mentoring, relationship, process, and context to conceptualize mentoring. It is asserted that the relational dimension of mentoring is about the relationship between mentor and student teacher, the developmental dimension focuses on the mentoring behaviors and functions performed for the personal and professional development, and the contextual dimension is the effect of school culture on teacher learning. Drawing on this conceptualization, Ambrosetti and Dekkers (2010) proposed the following comprehensive definition:

> Mentoring is a non-hierarchical, reciprocal relationship between mentors and mentees who work towards specific professional and personal outcomes for the mentee. The relationship usually follows a developmental pattern within a specified timeframe and roles are defined, expectations are outlined and a purpose is clearly delineated. (p. 52)

In this reciprocal relationship between mentor and student teacher, the ultimate aim is the professional and personal development of both, the development of the latter being more important. It is underlined that the two parties, context, nature of the relationship, and means to promote development have different roles in the realization of development. Means for personal and professional development involve extending the knowledge of student teachers on teaching and giving them social and psychosocial support related to work or career in face-to-face meetings (Bozeman & Feeney, 2007). These practices, in turn, promote the professional development of mentor teachers through the new responsibilities they undertake, as those practices give mentors the ability to analyze their own teaching and environment from different perspectives.

Student Teachers and Mentoring

Student teachers are the senior-year students of teacher education programs who are assigned to a classroom for their practicum studies to improve their knowledge of classroom practice with the guidance of a mentor teacher and the supervision of a university instructor. In contrast with a great deal of research into the role of mentors in mentoring, a relatively limited number of research have tapped into the place of student teachers in this relationship, which may be due to its nature perceived to be hierarchical. In most cases, student teachers have been the focus of studies aiming at understanding their expectations related to the practicum process (e.g. Akcan, 2015; Hudson & Nguyen, 2008; Ilın, 2014; Iznidia, 2016; Koç, 2008). However, mentoring is a reciprocal and mutual process (Freeman, 2008), and the role of student teachers in mentoring is just as crucial as that of mentor teachers.

As opposed to the popular belief that student teachers are the receivers of support and guidance provided by cooperating teachers during the mentoring process, student teachers are actually active participants (Walkington, 2005). The reciprocal nature of the mentoring relationship is reflected in the connectedness of mentor and student teachers' roles. There is a clear link between the roles of mentor and student teachers, which underlines that any professional development would take place bidirectionally. It is well-documented that mentoring, on the one hand, has benefits for mentor teachers, such as self-improved work ethic, enhanced collegiality, and critical reflection on their own practices (Lai, 2005; McGee, 2001; Walkington, 2004). On the other hand, all these benefits serve as an important step that prepares student teachers for their future careers. Given the role of egalitarian structure in shaping the relationship between the two for the effective professional development of both (Bradbury, 2010), it is essential to understand their experiences to offer implications for improvement. Therefore, this meta-synthesis aims to present a review of recent qualitative research on the experiences of the dyad. The main research question guiding the synthesis is: "What are the experiences of the practicum dyad (i.e. mentors and student teachers) in practicum?". Based on the analysis in the scope of the current synthesis, an overview of the qualitative studies in three categories are introduced, and the findings are discussed with pedagogical implications.

Method

It is crucial to use a wider critical lens in order to provide a clear description of the issue discussed (Thorne et al., 2004). Thus, the meta-synthesis approach was adopted in the present study to reach the interpretive results by integrating and comparing the findings obtained from the relevant qualitative research (Sandelowski & Barroso, 2007). Through a "research on primary research" (Kinn et al., 2013, p. 1286), the study aimed at examining not a sample but related qualitative studies with a novel interpretation (Barroso et al., 2003).

The qualitative meta-synthesis as a method of inquiry includes problem identification, inclusion criteria, data retrieval, the definition of differences and similarities between the studies focused on, and analysis of the findings (Thorne et al., 2004). It begins by developing research questions and identifying relevant studies, then moves on to choosing what to include, evaluating the studies, and then reviewing them analytically (Erwin et al., 2011). Conducting a comprehensive search of the literature through a variety of techniques (e.g., journal runs, subject searches in bibliographies, and indexing services), meta-synthesis uses methodological and temporal boundaries for the research (Barroso et al., 2003).

In line with the described meta-synthesis procedures, several methodical steps were followed. The process started with the identification of research question(s). Next, in the phase of literature searching and selection of studies, the focus was on the international peer-reviewed articles published in English. The search for the articles was in August 2022 and the inclusion criteria were that the studies (i) focused on the experiences of student teachers and (ii) mentor teachers at practicum schools (iii) employing/including a qualitative research design and were published (iv) between 2012–2022 (v) with clearly stated research aims, questions and methodology (vi) in Turkish EFL context. Four electronic databases, The Education Resources Information Center (ERIC), Taylor & Francis Online, Scopus, and Web of Science, were searched for the related articles using keywords such as "mentor/cooperating teacher challenges in Turkey", "practice teaching experiences in Turkish EFL context" and "pre-service/student teachers' perspectives on practicum" etc. Excluding reviews, conference proceedings and analytical papers, the search was resulted in 24 articles. The studies with a different focus from the scope of this meta-synthesis such as mentoring in-service/novice teachers and practicum studies including other disciplines were removed from the final list of articles, which yielded

nine research articles selected for the synthesis aims. Following the article listing, a table was constructed providing descriptive information about the articles (e.g., participants, research focus, and data collection tools), as shown in Table 1 below.

Table 1. Analysis table

Title	Author	Participants	Data collection tool
Stress in English Language Teaching Practicum: the Views of All Stakeholders	Coşkun (2013)	11 school administrators, 31 mentors, 68 student teachers 7 supervisors	Open-ended surveys and interviews
Mentoring Expectations and Experiences of Prospective and Cooperating Teachers during Practice Teaching	Rakıcıoğlu-Söylemez & Eröz-Tuğa (2014)	22 student teachers, 4 mentor teachers	Reflective journals and semi-structured interviews
Student teaching from the perspectives of cooperating teachers and pupils	Altan & Sağlamel (2015)	21 mentor teachers	Open-ended questionnaire
Assessing the Performance in EFL Teaching Practicum: Student Teachers' Views	Merç (2015)	117 student teachers	Questionnaire and interviews
Evaluation of an ELT Practicum Programme from the Perspectives of Supervisors, Student Teachers and Graduates	Celen & Akcan (2017)	33 graduates 3 supervisors 55 student teachers	Survey, focus group interviews, individual interviews
Classroom Management Problems Pre-Service Teachers Encounter in ELT	Keser & Yavuz (2018)	44 student teachers	Interviews
Pre-Service English Teachers' Practicum Expectations and Attainments	Ulum (2020)	20 student teachers	Open-ended questions
Stress in Practicum: Voices of Preservice Teachers, Mentors, Supervisors and Administrators in An English Language Teacher Education (ELTE) Program	Ölmezer Öztürk (2021)	24 student teachers, 11 mentor teachers, 6 supervisors, 4 school administrators.	Journals and interviews
Mentoring Practices in ELT Practicum: What Do the Leading Actors Experience?	Aydın & Ok (2022)	194 student teachers, 10 supervisors, 10 mentor teachers	Scale and interviews

In the data analysis phase, the major findings of the studies in the form of themes were tabulated and included as data. Thematic analysis was employed to synthesize the filtered qualitative research (Thomas & Harden, 2008). Drawing on the methodological framework developed by Noblit and Hare (1988), each of the studies in the list was read, and the findings were listed by including codes, categories, and themes in order to identify how the studies were related. Then, the studies were compared to identify the similarities and differences, followed by the production of overarching themes. As an important criterion for a scientific inquiry to be trustable (Merriam & Tisdell, 2015), reliability was ensured via intra-rater reliability, and the same analysis process in the coding of the data was repeated by the researcher after three weeks. The first and second coding were compared to eliminate the differences, and conclusions were drawn after minor revisions. Finally, the analysis produced three broad themes. A sample for coding is presented in Table 2 below.

Table 2. Sample coding

Reference	Excerpt	Finding	Category
Rakıcıoğlu-Söylemez & Eröz-Tuğa (2014)	PTs considered CTs' responsibility for providing constructive feedback after observing the micro-teachings as an important facet of mentoring. PTs also emphasized the need for instructional support throughout the practice teaching.	The need for instructional support The need for feedback	Practicum-based expectation
Ölmezer Öztürk (2021)	The findings revealed that lack of classroom teaching experience, lack of experience with students were the major stress factors for PTs.	Lack of classroom experience Lack of experience with students	Practicum-based challenge

RESULTS AND DISCUSSION

The results showed that the studies conducted to gain insight into the practicum experiences are very scarce in the identified time period. The thematic analysis revealed three overarching themes for each part of the dyad under focus: student-teachers' and mentor teachers' (i) challenges, (ii) expectations, and (iii) appreciations. The three main themes emerged in the findings were further categorized as profession-based, practicum-based and school based. Profession-based findings refer to the reports of the participants related to the teaching profession itself, such as classroom experience or management skills. The second category, practicum-based, is used for the findings about the procedures or tasks to be followed throughout the practice teaching like support from parties of the practicum and paperwork. The school-based category implies the findings related to practicum school environments like school facilities that have an effect on the experiences of either mentors or student teachers. The details for each article are presented in the following sections along with the discussion of the results based on the related literature.

Challenges of The Practicum Dyad

The systematic review and synthesis of the research studies revealed that the members of the practicum dyad experienced profession-based, practicum-based, and school-based challenges in the Turkish EFL context. For student teachers, profession-based challenges were identified as a lack of classroom experience and experience with students (Ölmezer Öztürk, 2021), inadequate classroom management skills (Altan & Sağlamel, 2015; Coşkun, 2013; Keser & Yavuz, 2018), assessment and observation (Celen & Akcan, 2017; Coşkun, 2013; Merç, 2015). The student teachers' lack of classroom experience and experience with students was identified by Ölmezer Öztürk (2021) who invited student teachers to write reflection reports about their practicum experiences in an English language teacher education program. The study showed that classroom experience is one of the major sources of stress since it causes the student teachers to struggle to successfully control the class, which makes them anxious during instruction. The insufficient knowledge about the students, the presence of demotivated students with unexpected questions, and the students' use of the first language were among the challenges related to the lack of classroom experience.

In the same line with Ölmezer Öztürk (2021), portraying a direct relation between the lack of classroom experience and inadequate classroom management skills as a challenge for student teachers, Keser and Yavuz (2018) focused on the student teachers' classroom management skills on a broader sense and interviewed senior students at a department of English Language Teaching to gain insight into their reflections about classroom management. The researchers found that crowded classes with unmotivated students mainly affected their classroom management abilities and caused problems in the flow of their teaching. Similarly, classroom management was a source of challenge for mentor teachers. According to Altan & Sağlamel's (2015) study, in which the practice teaching was investigated from the mentor teacher perspectives through open-ended questions, the mentor teachers thought that letting student teachers take control of the lessons could create noise in the classroom and caused loss of the control.

Considering that classroom management is a tough skill for a teacher to acquire (Milner & Tenore, 2010), there is no doubt that student teachers with no or very limited classroom experience have problems in the control of a classroom. The difference and variety of sources causing the loss of control, such as demotivated students or unexpected questions, require a great amount of classroom time to find out and get used to using ways to overcome such sources of stress as exemplified by one of student teachers: "I do not know what to say or how to react when they say something weird in class or show up doing nonsense things" (Ölmezer Öztürk, 2021, p.25). The finding points to the need for mentor teachers' awareness of sharing pedagogical knowledge on classroom management and classroom orientation to compensate for the limited time spent in the teaching environment throughout practice teaching.

Challenges related to assessment and observation of student teachers' teaching performances were highlighted by Celen and Akcan (2017) in their findings of focus-group interviews with student teachers. It was found in student teachers' reports that the observation guidelines were unstructured, leading them to lose their focus. They also stated there was no transition between observing a mentor teacher and teaching in front of a class, emphasizing the necessity of small teaching tasks for student teachers before teaching a whole lesson. At this point, collaboration is essential to ensure a smoother transition from being a student to being a teacher (Wright, 2010). This collaboration should be supported by the enthusiasm of the student teacher in undertaking teaching responsibilities. Practicum courses that would address the importance of small teaching tasks could provide a solution on the part of the student teachers as it would do for the unenthusiastic student teachers' characteristics identified among the practicum-based challenges reported by mentors (Coşkun, 2013; Ölmezer Öztürk, 2021). The collaboration should also be supported by the mentors' guidance, emerged as a practicum-based challenge experienced by mentors. The mentors' challenges about guidance were reported by Aydın and Ok (2021) who interviewed mentor teachers about their roles as mentors. The findings showed that the mentor felt alone in the process and had trouble supporting the student teachers' professional development, given the heavy responsibilities. A training program with content that includes necessary mentoring skills, namely personal attributes and pedagogical knowledge (Hudson, 2004), is necessary for the guidance of mentors and the promotion of collaboration. The preparation for the mentoring position is also necessary to reduce the possibility that mentors' contributions to the professional growth of student teachers would simply be based on their own knowledge and common sense rather than on theoretical and pedagogical understanding.

The student teachers' practicum-based challenges included a lack of support from other practicum parties. The lack of support from other parties, namely, mentors, supervisors, and school administrators, was reported by Coşkun (2013). In the study, student teachers argued that they did not receive satisfactory guidance and were seen as substitute teachers. They also commented that they did not receive any administrative support. The lack of collaboration between universities and schools may be the cause of this issue (Hughes, 2002). According to Kasapoğlu's (2015) review of studies on practicum issues in Turkey, the school experience was not carried out in line with the objectives established by the universities and collaborating schools, highlighting the non-fulfillment of formal requirements, tasks, and responsibilities associated. The lack of cooperation between the school and universities is negatively reflected in the relationship between mentors and student teachers, causing communication problems between the two, as evidenced in the studies included in this meta-synthesis. Mentor teachers' expectations reported by the previous research fell under the practicum-based expectations, which were more cooperation from university supervisors and frequent communication. Aydın and Ok (2021) referred to this theme with their findings in mentor teachers' comments that underlined the necessity of frequent communication and collaboration to achieve effectiveness in practicum. The mentors thought that the disappearance of supervisors until final teaching tasks resulted in their unawareness of mentoring responsibilities, referring to the challenges described earlier.

The meta-synthesis also showed that self-perception of professional efficacy was among the profession-based challenges mentors experienced in the practicum period. As indicated by Ölmezer Öztürk (2021), they believed that student teachers potentially hold negative opinions about their language skills and the ability to make up and catch up with the curriculum, which made them stressed. Clarke et al. (2013) suggest that mentors may have concerns about and may not be able to trust their pedagogical content knowledge to provide various viewpoints. The finding, therefore, highlights the importance of training on the part of the mentor, which was also underlined by mentors themselves in previous studies (e.g., Hamilton, 2010).

Expectations of The Practicum Dyad

The systematic review and synthesis of the research studies showed the expectations stated by the practicum dyad. For student teachers, practicum-based expectations were instructional support and feedback from mentors (Rakıcıoğlu-Söylemez & Eröz-Tuğa, 2014; Ulum, 2020), rearrangements for practicum studies to include more opportunities for observation and teaching practices in different school settings (Celen & Akcan, 2017) and different assessment procedures (Merç, 2015).

The instructional support and feedback were reported by Rakıcıoğlu-Söylemez and Eröz-Tuğa (2014), who examined reflective journals of student teachers. The researchers found out that student teachers expected instructional support in the form of constructive feedback and discussion of the ways to improve future teaching practices instead of only observing mentors with the intention of learning how to teach. Similarly, Ulum (2020) indicated the student teachers' expectations for support from their mentors to improve their teaching skills in the interviews conducted with student teachers in an English language teacher education program. Given that teacher development cannot occur independently of other teachers (Darling-Hammond & Baratz-Snowden, 2005) and it is instead a social process reliant on communication and interaction, observing student teachers in action and providing feedback are crucial factors in determining how well they perform in their careers. According to previous research (e.g. Menegat, 2010), providing instructional support necessitates having a thorough awareness of mentoring duties, the requisite personal qualities, and pedagogical skills to approach student instructors. A lack of information about mentoring causes mentors to struggle to give the appropriate support.

The absence of enthusiasm and interest in the position might be an explaining factor contributing to the lack of understanding about mentoring (e.g. Koç, 2008), raising concerns about the mentors chosen. Practice teaching is typically seen as a process in which student teachers merely observe and conduct a class for a few hours. Practice teaching, however, is a process that should be framed by collaboration with high motivation and interest, addressing the importance of training of mentors.

The rearrangement of practicum studies, especially in terms of the inclusion of more opportunities for observation and practice, was reported by Celen and Akcan (2017). It was revealed in the study that student teachers wished to be introduced to the profession and start practicing teaching in the teacher education program earlier so that they would spend more time in real classrooms. The experience in different school settings, state-private schools or primary-high schools, was also reported as an expectation and student teachers expressed that experience at different school settings would provide valuable insights into their abilities to adapt their teaching abilities. In addition, it was found in the present meta-synthesis that student teachers had expectations about the assessment procedures used in the practicum process. In the interviews conducted with the student teacher members of the dyad, Merç (2015) found that they found planning-preparation, general organization, and assessment by university supervisors more effective means for assessing their performance compared to assessment by cooperating teachers, writing observation, and reflection reports. In the Turkish EFL context, it is very common for mentor teachers to perceive attendance as the most significant criterion in assessment due to the cooperation problems and unavailability of training on assessment.

The student teachers were also reported to have profession-based expectations. The studies showed that they expect to be oriented to the school and the profession to act and feel as a teacher. The participants in Rakıcıoğlu-Söylemez & Eröz-Tuğa's (2014) study stated that mentors are responsible for creating the context for student teachers to adjust and thus should act as socio-professional mediators at the practicum schools and introduce them to the students and school administration. As another theme

emerged related to the lack of knowledge on mentoring, the finding reminds of the criteria for teachers to be assigned as mentors. Years of teaching experience as a selection criterion for mentors is insufficient since it does not offer a suitable answer to issues with motivation. Given that mentors' motivation plays a significant role in their behavior and, consequently, practices, it is crucial to include this criterion in the list of requirements to be created based on field research.

Appreciations of The Practicum Dyad

Apart from the challenges and expectations of mentor and student teachers, the meta-synthesis revealed their appreciation, which deserves close attention for the safety of mentoring practices. It was found that the detected appreciations of both members in the practicum dyad were practicum-based. The student teachers were found to appreciate the opportunity to experience a real classroom environment, seminar discussions, peer experience, feedback they received after teaching (Celen & Akcan, 2017), and the good relationships with mentor teachers (Ulum, 2020). The results illustrate the importance of the focus on defining the "relationship" between mentors and student teacher in the related research (e.g. Healy & Welchert, 1990; Smith, 2007) and of the practice teaching in the professional development of student teachers (Farrell, 2008).

Likewise, on the part of the mentor teachers, practicum as a mutual learning process was appreciated (Altan & Sağlamel, 2015; Aydın & Ok, 2021). Preparation for real contexts, as well as the opportunities for the exchange of ideas through reflective practices that promote motivation, are perceived as valuable experiences. As evidenced by Aydın and Ok (2021), mentors viewed the process as one of mutual learning since, while student teachers had current knowledge in the area, the majority of mentors were unaware of recent developments in the field. The results indicated the reciprocity in mentor-student teacher relationship (Freeman, 2008), in contrast to the common interpretation of hierarchy in their interactions. The appreciation noted by the mentors underlined that student teachers are not the only receivers of support and guidance but are actually active participants (Walkington, 2005). Thus, reciprocity has the potential to transform the teachers involved, which makes the role of student teachers in mentoring as important as mentor teachers.

Given the challenges experienced by student teachers, it is important to state that the context plays a crucial role in the nature of the practicum experience. In Celen and Akcan's (2017) study, the student teachers were found to appreciate their engagement with teaching duties in a real school environment, which is similar to the findings reported by Ulum (2020), who observed such appreciation by some of the student teacher participants. Partial appreciation displayed in the studies showed the specific experiences of those participants and the variety in experiences, supporting the claim that mentoring practices are context-dependent and unique to each experience (Richards, 2008; Farrell, 2012). In addition, the studies provided evidence for the possibility of achieving effective practicum processes on the student teachers' side, which calls for further studies that investigate how successful practices are achieved.

CONCLUSION

Through a review of nine qualitative studies related to the experiences of EFL practicum dyad, this study provided a broader lens for the practicum studies conducted in language teacher education programs in Turkey and raised several issues to be addressed by supervisors, mentors, student teachers, and policy makers, which could also lead to further inquiries for other teaching contexts. The selection criteria in the current meta-synthesis resulted in only nine papers, therefore, the experiences discussed here can be incomplete. The limited number of qualitative studies is a call for further studies with in-depth analysis of practicum experiences. Moreover, further research studies should be conducted on the views of the practicum dyad with a focus on particular practices such as professional dialogues, observation conferences, and the language of feedback. Besides, comparisons are needed between successful and poor examples of such practices to understand the reasons behind the failures and suggest solutions.

Declaration of Conflicting Interests

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

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Statements of publication ethics

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

Researchers' contribution rate

All review, analysis and writing process was completed by the author.

Ethics Committee Approval Information

Ethical approval was not sought for the present study because its data were drawn from previously conducted studies.

REFERENCES

Note: References marked with an asterisk '*' are analyzed in this synthesis study.

Akcan, S. (2015). Novice non-native English teachers' reflections on their teacher education programmes and their first years of teaching. *PROFILE Issues in Teachers' Professional Development, 18*(1), 55-70. https://doi.org/10.15446/profile.v18n1.48608

*Altan, M. Z., & Sağlamel, H. (2015). Student teaching from the perspectives of cooperating teachers and pupils, *Cogent Education, 2*(1), 1086291. https://doi.org/10.1080/2331186X.2015.1086291

Ambrosetti, A., & Dekkers, J. (2010). The interconnectedness of the roles of mentors and mentees in pre-service teacher education mentoring relationships. *Australian Journal of Teacher Education, 35*(6), 42-55. 10.14221/ajte.2010v35n6.3

Anderson, E.M., & Shannon, A.L. (1988). Toward a conceptualizing of mentoring. *Journal of Teacher Education*, *39*(1), 38-42. https://doi.org/10.1177/002248718803900109

*Aydın, Ö. & Ok, A. (2022). Mentoring practices in ELT practicum: What do the leading actors experience? *The Journal of Language Teaching and Learning*, 12(1), 78-90. Retrieved from https://jltl.com.tr/index.php/jltl/article/view/390

Bal-Gezegin, B., Balıkçı, G. & Gümüşok, F. (2019). Professional development of pre-service teachers in an English language teacher education program. *International Online Journal of Education and Teaching (IOJET), 6*(3). 624-642

Başaran Uysal, B. Ç. & Savaş, P. (2021). Overview of the challenges of practicum practices in English language teaching in Turkey: A meta synthesis study on literature between 2004 and 2019, *Inönü University Journal of Education Faculty, 22*(2), 1669-1712. doi: 10.17679/inuefd.886731

Barroso, J., Gollop, C. J., Sandelowski, M., Meynell, J., Pearce, P. F., & Collins, L. J. (2003). The challenges of searching for and retrieving qualitative studies. *Western Journal of Nursing Research*, *25*(2), 153–178. https://doi.org/10.1177/0193945902250034

Bradbury, L. U. (2010). Educative mentoring: Promoting reform-based science teaching through mentoring relationships. *Science Education*, *94*(6), 1049-1071. https://doi.org/10.1002/sce.20393

Bozeman, B. & Feeney, M.K. (2007). Toward a useful theory of mentoring: A conceptual analysis and critique. *Administration and Society, 39* (6), 719-739. https://doi.org/10.1177/0095399707304119

*Celen, K. M., & Akcan, S. (2017). Evaluation of an ELT practicum programme from the perspectives of supervisors, student teachers and graduates, *Journal of Teacher Education and Educators, 6*(3), 251-274.

Ceylan, E., Uştuk, Ö., & Çomoğlu, İ. (2017). The ELT practicum in Turkey: A meta-synthesis of 2008-2017 qualitative research, *The Literacy Trek, 3*(2), 102-113.

Clarke, A., Triggs, V., & Nielsen, W. (2013). Cooperating teacher participation in teacher education: A review of the literature. *Review of Educational Research, 20*(10), 1-40. https://doi.org/10.3102/0034654313499618

*Coşkun, A. (2013). Stress in English language teaching practicum: The views of all stakeholders, *Hacettepe University Journal of Education, 28*(3), 97-110.

Darling-Hammond, L., & Baratz-Snowden, J. (2005). *A good teacher in every classroom: Preparing the highly qualified teachers our children deserve*. San Francisco, CA: Josey-Bass.

Erwin, E. J., Brotherson, M. J., & Summers, J. A. (2011). Understanding qualitative metasynthesis. *Journal of Early Intervention, 33*(3), 186-200. https://doi.org/10.1177/1053815111425493

Farrell, T. S. C. (Ed.). (2008). *Novice language teachers: Insights and perspectives for the first year*. Equinox.

Farrell, T. S. C. (2012). Novice-Service language teacher development: Bridging the gap between preservice and in-service education and development. *TESOL Quarterly, 46*(3), 435–449. https://doi.org/10.1002/tesq.36

Freeman, H. R. (2008). *Mentoring is a two way street: An examination of mentor/mentee relationships in a pre-service, residency-based, teacher education program* (Unpublished doctoral dissertation). Boston College, Boston, USA.

Hamilton, J. (2010). *Cooperating teachers: An investigation into their needs and training as mentors and supervisors of student teachers* (Unpublished PhD Thesis). University of San Francisco, San Francisco, USA.

Healy, C.C., & Welchert, A. J. (1990). Mentoring relations: A definition to advance research and practice, *Educational Researcher, 19.* https://doi.org/10.3102/0013189X019009017

HEC [The Council of Higher Education]/World Bank. (1998). *Fakülte-okul işbirliği* [Faculty-school cooperation]. Ankara, Turkey: HEC.

HEC [The Council of Higher Education]. (2018). *İngilizce öğretmenliği lisans programı* [English language teaching undergraduate program]. Ankara, Turkey: HEC.

Hudson, P. (2004). Specific mentoring: A theory and model for developing primary science teaching practices. *European Journal of Teacher Education, 27*(2), 139- 146. https://doi.org/10.1080/0261976042000223015

Hudson, P. B., & Nguyen, Th. (2008). What do preservice EFL teachers expect from their mentors? *Australian Association of Research in Education (AARE), 30*, 1-10.

Hughes, M. (2002). *Mentor teacher programs: A survey of practices and program features across Virginia* [Unpublished PhD Thesis]. University of Virginia.

Izadinia, M. (2015). A closer look at the role of mentor teachers in shaping preservice teachers' professional identity, *Teaching and Teacher Education, 15,* 1-10. https://doi.org/10.1016/j.tate.2015.08.003

Ilın, G. (2014). Practicum from the ELT student teacher's eye: Expectations and gains. *International Journal of Language Academy, 2*(1), 191-207.

Kasapoğlu, K. (2015). A review of studies on school experience and practice teaching in Turkey. *Hacettepe University Journal of Education Faculty, 30*(1), 147-162.

*Keser, K. & Yavuz, F. (2018). Classroom management problems pre-service teachers encounter in ELT. *Cypriot Journal of Educational Science. 13*(4), 511–520.

Koç, E. M. (2008). *An investigation of cooperating teachers' roles as mentors during the teaching practicum at distance B.A. program in ELT at Anadolu University Open Education Faculty* [Unpublished doctoral dissertation]. Anadolu University.

Kinn, L. G., Holgersen, H., Ekeland, T. J., & Davidson, L. (2013). Meta-synthesis and bricolage: An artistic exercise of creating a collage of meaning. *Qualitative Health Research, 23*(9), 1285-1292. https://doi.org/10.1177%2F1049732313502127

Lai, E. (2005). *Mentoring for in-service teachers in a distance teacher education programme: Views of mentors, mentees and university teachers.* [Paper presenation]. Australian Association for Research in Education International Education Research Conference, Sydney, Australia.

Malderez, A. (2009). Mentoring. In Burns, A. & Richards, J.C. (Eds), *The Cambridge guide to second language teacher education* (pp. 209-217). Cambridge: CUP.

McGee, C. D. (2001). Calming fears and building confidence: A mentoring process that works. *Mentoring and Tutoring: Partnerships in Learning, 9*(3), 201-209. https://doi.org/10.1080/13611260120111987

*Merc, A. (2015). Assessing the Performance in EFL Teaching Practicum: Student Teachers' Views, *International Journal of Higher Education, 4*(2), 44-56. doi:10.5430/ijhe.v4n2p44

Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative research: A guide to design and implementation* (4th ed.). John Wiley & Sons.

Milner, H. R., & Tenore, F. B. (2010). Classroom management in diverse classrooms. *Urban Education, 45*, 560-603. doi:10.1177/0042085910377290

MoNE [Ministry of Education]. (1998). Öğretmenlik uygulamasına ilişkin yönerge. [Directive on Practice Teaching]. *Tebliğler Dergisi*, No 2493. Retrieved on August 20, 2022 from https://oygm.meb.gov.tr/meb_iys_dosyalar/2018_06/25172143_YYnerge.pdf

Musset, P. (2010). Initial teacher education and continuing training policies in a comparative perspective: current practices in OECD countries and a literature review on potential effects, *OECD Education Working Papers*, *48*, OECD Publishing. doi: 10.1787/5kmbphh7s47h-en

Noblit, G. W., & Hare, R. D. (1988). *Meta-ethnography: Synthesizing qualitative studies.* Sage Publications.

Odell, S. J., & Huling, L. (Eds.). (2000). *Quality mentoring for novice teachers.* Indianapolis: Kappa Delta Pi.

Orland, L. (2001). Reading a mentoring situation: One aspect of learning to mentor. *Teaching and Teacher Education, 17*(1), 75-88. https://doi.org/10.1016/S0742-051X(00)00039- 1

*Ölmezer Öztürk, E. (2021). Stress in practicum: Voices of pre-service teachers, mentors, supervisors and administrators in an English language teacher education (ELTE) program. *I-manager's Journal on Educational Psychology*, *14*(4), 22-33.

*Rakicioglu-Soylemez, A., & Eroz-Tuğa, B. (2014). Mentoring expectations and experiences of prospective and cooperating teachers during practice teaching. *Australian Journal of Teacher Education, 39*(10), 146-168.

Richards, J. C. (2008). Second language teacher education today, *RELC, 39*(2), 158-176.

Sandelowski, M., & Barroso, J. (2007). *Handbook for synthesizing qualitative research*. Springer.

Smith, A. (2007). Mentoring for experienced school principals: Professional learning in a safe place. *Mentoring and Tutoring, 15*(3), 277-291. https://doi.org/10.1080/13611260701202032

Thomas, J., & Harden, A. (2008). Methods for the thematic synthesis of qualitative research in systematic reviews. *BMC Medical Research Methodology, 8*(1), 45. https://doi.org/10.1186/1471-2288-8-45.

Thorne, S., Jensen, L., Kearney, M. H., Noblit, G., & Sandelowski, M. (2004). Qualitative metasynthesis: Reflections on methodological orientation and ideological agenda. *Qualitative Health Research*, *14*(10), 1342–1365. https://doi.org/10.1177/1049732304269888.

*Ulum, Ö. G. (2020). Pre-service teachers' practicum expectations and attainments, *Turkish Studies - Education*, 15(2), 1287-1297. https://dx.doi.org/10.29228/TurkishStudies.41629

Walkington, J. (2004). *Mentoring pre-service teachers: Recognising the importance of the teachers' personal and professional self in the mentoring relationship* [Paper presentation]. Third International Biennial SELF conference. University of Western Sydney, Australia.

Walkington, J. (2005). Becoming a teacher encouraging development of teacher identity through reflective practice. *Asia-Pacific Journal of Teacher Education, 33*, 53-64. https://doi.org/10.1080/1359866052000341124

Wang, J., & Odell, S. J. (2002). Mentored learning to teach according to standards-based reform: A critical review. *Review of Educational Research*, *72*, 481–546. https://doi.org/10.3102/00346543072003481

Wright, T. (2010). *How to be a brilliant mentor: Developing outstanding teachers.* London: Routledge.

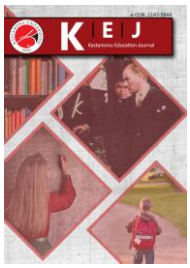
Yavuz, A. (2011). The problematic context of mentoring: evidence from an English language teaching department at a Turkish university. *European Journal of Teacher Education, 34*(1), 43-59. https://doi.org/10.1080/02619768.2010.516431

Youngs, P, & Bird, T. (2010). Using embedded assessment to promote pedagogical reasoning among secondary teaching candidates. *Teaching and Teacher Education, 26*(2), 185-198. https://doi.org/10.1016/j.tate.2009.03.011

Yıldırım, R., & Orsdemir, E. (2014). *Mentoring practices in the practicum: Voices of ELT student teachers* [Paper presentation]. Innovations in Pre-service Education: The Teaching Practicum Symposium, Ankara, Turkey.

Zanting, A., Verloop, N., & Vermunt, J.D. (2001). Student teachers' beliefs about mentoring and learning to teach during teaching practice. *British Journal of Educational Psychology, 71*, 57-80. 10.1348/000709901158398

Kastamonu Education Journal, 2024, Vol. 32, No:1, 168-179
doi: 10.24106/kefdergi.1426742



| Research Article / Araştırma Makalesi |

A Multiple Case Study of the Motivational Effects of a High-Stakes Examination

Yüksek Riskli Bir Sınavın Motivasyonel Etkilerine İlişkin Bir Çoklu Durum Çalışması

Gökhan Özaslan[1], **Aslı Özaslan**[2],

Keywords

1. Student motivation
2. High-stakes examinations
3. Goal-setting theory
4. High performance cycle
5.Multiple case study

Anahtar Kelimeler

1. Öğrenci motivasyonu
2. Yüksek riskli sınavlar
3. Hedef belirleme kuramı
4. Yüksek performans döngüsü
5. Çoklu durum çalışması

Received/Başvuru Tarihi
19.05.2023

Accepted/Kabul Tarihi
27.11.2023

Abstract

Purpose: The purpose of this qualitative multiple-case study is to understand whether success on the High School Entrance Examination (HSEE) has a motivational effect on subsequent high-stakes exams by viewing it from the perspective of the High Performance Cycle Model (HPC).

Design/Methodology/Approach: Two rounds of interviews were conducted with eight dyads, each consisting of an eighth-grade student and a parent. The first interview took place approximately two months before the HSEE exam and the second approximately six months after the exam. Interview data were subjected to matrix analysis.

Findings: The research results show that consistent with the assumption of the HPC model, three participating students who scored highest on the HSEE expressed a desire to begin preparing for the university exam because they experienced an increase in their self-efficacy. It can be concluded that, consistent with the assumptions of the HPC model, a high score on the HSEE may provide students with self-renewing test motivation.

Highlights: Based on the findings, it is recommended that students be given behavioral and learning goals rather than performance goals, and the HPC model should be used for students' holistic development so that they can demonstrate their potential.

Öz

Çalışmanın amacı: Bu nitel çoklu durum çalışmasının amacı, Yüksek Performans Döngüsü Modeli (YPD) perspektifinden bakarak Liselere Giriş Sınavı'ndaki başarının, öğrencinin gelecekte gireceği yüksek riskli sınavlara yönelik motivasyonu üzerinde etkisi olup olmadığını anlamaktır.

Materyal ve Yöntem: Her biri bir sekizinci sınıf öğrencisi ve bir veliden oluşan sekiz çift katılımcı ile iki tur görüşme yapılmıştır. İlk görüşmeler LGS sınavından yaklaşık iki ay önce, ikincisi ise sınavdan yaklaşık altı ay sonra gerçekleştirilmiş ve görüşme verileri üzerinde matris analizleri yapılmıştır.

Bulgular: Araştırma sonuçları, YPD modelinin varsayımına uygun olarak, LGS'de en yüksek puanı alan üç katılımcı öğrencinin, öz yeterliliklerinde bir artış yaşadıkları için üniversite sınavına hazırlanmaya başlama arzusunu dile getirdiklerini göstermektedir. YPD modelinin varsayımına uygun olarak, LGS'deki yüksek puanın öğrencilere kendini yenileyen bir test motivasyonu sağlayabileceği sonucuna varılabilir.

Önemli Vurgular: Bulgulara dayanarak, öğrencilere performans hedefleri yerine davranış ve öğrenme hedefleri verilmesi ve YPD modelinin, öğrencilerin potansiyellerini gösterebilmelerini sağlamak üzere, bütünsel gelişimleri için kullanılması önerilmektedir.

[1] **Corresponding Author,** Necmettin Erbakan University, Konya, Turkey. ozaslangokhan@gmail.com. https://orcid.org/0000-0003-2237-4233
[2] Ministry of National Education, Konya, Turkey. https://orcid.org/0000-0001-6329-8797

Citation/Alıntı: Özaslan, G., & Özaslan, A. (2024). A Multiple Case Study of the Motivational Effects of a High-Stakes Examination. *Kastamonu Education Journal, 32*(1), 168-179. doi: 10.24106/kefdergi.1426742

INTRODUCTION

In the present study, we focused on the effects of a typical example of high-stakes exams, the High School Entrance Examination (hereafter HSEE), on students' motivation to take high-stakes exams in subsequent years. Based on our very close observations, we can say that the stress eighth graders feel at this stage of their lives is very high and not at all unreasonable. They know that if they do poorly on this test, they will not even be accepted to certain private high schools. Moreover, there is a high probability that they will be assigned to religious high schools, where students are taught in single-gender classrooms, due to the Turkish Ministry of Education's address-based assignment system. This is a real risk, not an exaggeration, and some eighth graders are aware of how much is at stake for them. Amrein and Berliner (2002, p. 1) define high-stakes tests as "tests from which results are used to make significant educational decisions about schools, teachers, administrators, and students." Given the consequences of the poor performance on the HSEE noted above, we can rightly apply the term "high-stakes test" to the HSEE. There is another reason why the HSEE deserves a high-stakes title. For example, if students do not take the other high-stakes exams because they are sick on the day of the exam, or if they do not like the result of the exam, they can always take it again. This is not the case with HSEE. Students cannot receive the results of a whole year's work just because they got sick on the day of the exam. The fact that students and parents are aware of this situation makes HSEE one of the most worrisome high-stakes exams. The fact that exams have such negative effects on students is not only a problem in Turkey. McDonald (2001) concluded that fear of exams and exam situations is widespread and appears to be becoming more common, possibly because of the increasing frequency and importance given to such exams in educational systems.

One can also look at the HSEE from another angle. The Turkish education system is full of ceaseless high-stakes multiple-choice tests. Four years after the HSEE, Turkish students who want to enroll in a college must take the Higher Education Institutions Examination and then, if they want to work in public service, the Public Personnel Selection Examination. If they want to apply for a master's or doctoral program, they must take the Academic Personnel and Postgraduate Education Entrance Examination; or the Medical Specialist Examination if they are already medical doctors. In short, from the perspective of eighth graders, there is no end in sight for high-stakes multiple-choice tests in their near future. Some of our acquaintances are well aware that the HSEE is not the last, but only the first of a series of tests that will seal the fate of their children. Based on our anecdotal observations, we can say that most parents view the year leading up to the HSEE as the time when their children lay the groundwork for the test motivation and sense of self-efficacy they will need in the years to come. Parents often expect the HSEE experience to make their children more confident in the face of their future high-stakes tests.

After this brief contextualization, we can turn to the topic that piques our curiosity. High-stakes testing is far from an underdeveloped area of research, but our review of the relevant literature revealed that its self-renewing effect on student motivation is still a mystery. Can we hope that this year-long severe stress, which obviously diminishes the quality of life of thirteen-year-old Turkish girls and boys, at least gives them a challenge-seeking attitude and a strong sense of self-efficacy? Given the research showing that even teachers can have both positive and negative evaluations of high-stakes exams (Jones & Egley, 2004; Shepard & Dougherty, 1991), we had to put aside all our preconceptions about this test to see, from a scientific and objective standpoint, whether the test could have a motivational effect. We were familiar with the motivational theories commonly used in student motivation research (e.g., self-determination theory, self-efficacy theory, achievement orientation model, or goal orientation theory), but the perspective of another model, the HPC model, which assumes that a specific and difficult goal will lead a person to set higher goals, clearly indicated that this would indeed be the case. To find answers to our questions, we designed a multiple-case study in collaboration with eight dyads of study participants to see how students' motivation for future exams evolved as a function of exam scores. To be more explicit, the purpose of this multiple-case study was to look through the lens of the High Performance Cycle (HPC) model developed by Latham and Locke (2007) to understand whether the specific and difficult goal of scoring high on the HSEE can motivate students to set higher educational goals. When we compared our pre- and post-exam interviews in which we asked questions prepared according to the HPC model, we found that, as predicted by the HPC model, students who scored high on the exam were eager to succeed on their future high-stakes exams due to their increased self-efficacy perceptions.

We would like to clarify one point: The present study is not about the general characteristics of the HSEE (its validity and reliability or what it does or does not offer students in the context of educational equity) but about the motivational effects of a high-stakes exam. Therefore, we did not dwell at length on the details of the HSEE. We could have chosen another high-stakes exam as the setting for our study, rather than the HSEE. We chose the HSEE because we were very familiar with it, and it was taking place right before our eyes. We hoped that the results of our study would not only satisfy our desperate curiosity about our real problem but also provide some important insights into the literature on student motivation with respect to its intersection with high-stakes testing. Below are the details of the theoretical framework we chose to organize our research and discover the aspects of the phenomenon that interested us.

Theoretical Framework

Edwin Locke and Gary Latham's Goal-setting theory, which is at the core of the High Performance Model (HPC), posits that a specific and difficult goal leads to higher performance compared to vague or easy goals or the nonexistence of a goal. In other words, the more difficult the specific goal is for employees to achieve, the more they perform their tasks (Latham & Locke, 2018;

Locke & Latham, 2015). Based on their experience with goal-setting studies, Locke and Latham (1990) developed the HPC model, which reflects their understanding of the self-repeating process of setting higher and higher goals.

In one of the versions of the model (Latham & Locke, 2007, p. 292), the process described above begins with the "demands" dimension, which includes an employee's specific and high goal on one or more meaningful and growth-facilitating tasks and his or her confidence in the ability to achieve that goal, in other words, his or her sense of self-efficacy.

The next dimension of the model is a group of variables called "mediators." This dimension explains how the contents of the demands dimension affect high performance. The mediators dimension includes (1) "direction," as the goal causes employees to concentrate on goal-relevant activities; (2) "effort," as the goal causes them to increase their efforts; (3) "persistence," as the goal causes them to show persistence in the face of difficulties; and (4) "task-specific strategies," as the goal causes them to develop plans and methods, they deem necessary.

The third dimension of the model is "moderators." This dimension includes four components that moderate the relationship between high goals and high performance: (1) "ability," which employees need to achieve their goals; (2) "commitment," without which employees are unable to overcome the obstacles to achieving their goals; (3) "feedback," as employees need it to adjust their efforts and strategies; and (4) "situational constraints," as their magnitude determines goal achievement.

A specific, high goal mediated and moderated by the above variables leads employees to high performance. Because it explains a cyclical process, the model does not end at this point. Employees are rewarded for their high performance and feel satisfied by the rewards. The feeling of satisfaction increases employees' sense of self-efficacy and commitment to their organization, thus their willingness to take on even higher challenges.

The HPC model does not consider job satisfaction as a direct cause of high performance but as a result of high performance. The model goes further and posits that job satisfaction is one of the reasons for the recursive nature of the HPC model because it causes employees to become committed to their employing organizations. This means that job satisfaction cannot produce high performance without commitment (Latham & Locke, 2007; Locke & Latham, 1990). Commitment to the organization is important in the HPC model because it influences employees' willingness to stay with their organization and set higher and higher goals (Latham et al., 2002).

Because of its inductive nature, the content of the HPC model differs in the publications of the two theorists (Latham, 2007; Latham et al., 2002; Latham & Locke, 2007; Locke & Latham, 1990; Locke & Latham, 2002). In the present study, we based our theoretical framework on one of these theorists (Latham & Locke, 2007) that we found most useful. These two theorists did not mention the moderator "task complexity" in their two most recent publications (Latham & Locke, 2018; Locke & Latham, 2015), so we preferred not to include it in our theoretical framework. To clarify what we mean by HPC in the context of the phenomenon we are interested in, we have presented in Figure 1 a hypothetical example based on the HPC model presented by Latham and Locke (2007, p. 292).

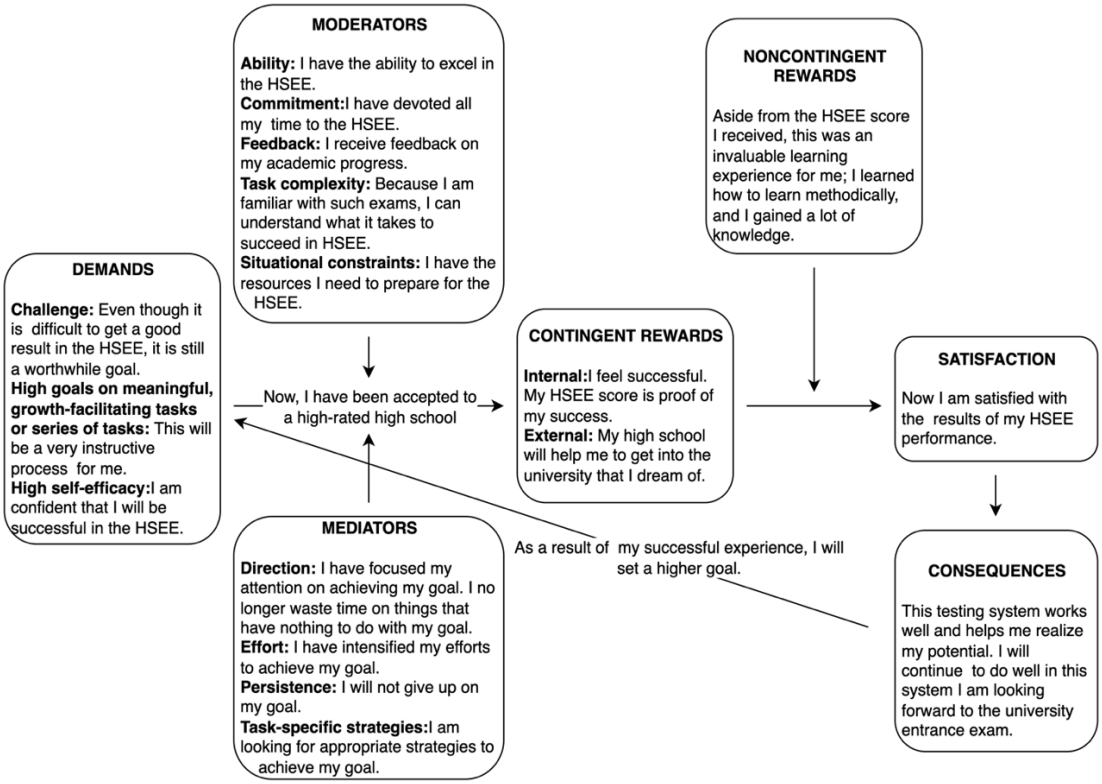


Figure 1. Hypothetical example of the motivation development process of an HSEE test taker.

Edwin Locke and Gary Latham developed their HPC model in 1990, based on the results of 400 studies conducted up to that time (Latham & Locke, 2018). The literature review by Latham et al. (2002), which focused on studies conducted within a decade of the HPC model's appearance, also showed evidence for the existence of the relationships that the model posits.

METHOD/MATERIALS

We designed our study as a multiple case study with embedded units of analysis (Yin, 2003). To guide our data collection and analysis, we followed the advice of Yin (2003) and developed the following theoretical proposition: "A high score on the HSEE is a specific and difficult goal, and achieving this goal increases willingness to undertake the following high-stakes tests."

Informants

Given the ideal balance between depth and breadth of findings, we concluded that for the literal replication of the verification of this proposition across cases, eight test-takers would be enough. In forming our informant group, however, we went beyond the test-taker level and used a dyad-level design in which each dyad consisted of an eighth-grade test-taker and his or her parent. In this design, our units of analysis, in other words, our cases were the test takers. Their parents were not our cases, but they were still our informants, providing us with valuable data about our cases.

We felt it necessary to conduct a cross-case analysis of three variables that we thought might influence the findings. These variables were (a) parent teaching experience to see the motivational effect of a teacher-parent, (b) the sector of school to see the motivational effect of schools' orientations, and (c) gender of HSEE test-takers. Accordingly, four test-takers had a teacher-parent, and four did not; four test takers were from private middle schools who knew they had the option to continue their education at private high schools even if they scored poorly on the HSEE, and four were from public middle schools. Table 1 presents the main characteristics of each case. In this table, we coded the participating students with the first eight letters of the Greek alphabet according to their HSEE scores. The term "HPC trio," which we will use throughout this study, refers to the first three highest-scoring students (Alpha, Beta, Gamma) who appeared to enter the high-performance cycle. Please note that the school sector (public/private) here refers to the participating students' middle schools and should not be confused with the high schools to which they were accepted based on their HSEE scores.

Table 1. An overview of the cases and the abbreviations we created for each participant.

		Parents' Teaching Experience	
		Having a teacher-parent	Not having a teacher-parent
Test-takers' school type	Public school	Gamma (Girl) (3rd)	Zeta (Boy) (6th)
		Delta (Boy) (4th)	Theta (Girl) (8th)
	Private school	Alpha (Girl) (1st)	Eta (Boy) (7th)
		Beta (Boy) (2nd)	Epsilon (Girl) (5th)

In our informant group, three of the parents were friends with one of us (A.Ö.), so we had the opportunity to develop a deeper understanding of the dyads. However, we were aware of the backyard research problems (Creswell, 2014) that can arise in such situations, so we selected the remaining dyads from those we did not know before beginning the present study.

Data Collection and Analysis

We began data collection only after obtaining the necessary permissions for data collection. Using Zoom software, one of us (A.Ö.) conducted digitally recorded semi-structured interviews with each participant and their parents once before (in April 2021) and once after the HSEE (from December 2021 to the end of January 2022). We performed data analysis in the following steps:

1. Transcription: Since I was not involved in the data collection, I (G. Ö.) transcribed the interviews using MAXQDA transcription mode and MacOS speech recognition software so that I could familiarize myself with the content of the interviews.

2. Matrix Analysis: This step consists of the following sub-steps:

   a. Following the matrix models of Miles et al. (2014), we created our matrix model, which we call "Multiple-Variable Case-Ordered and Conceptually Clustered Matrix." In our matrix model, although each case was selected based on his or her unique characteristics, we ordered each of our cases into rows according to the two most obvious common characteristics, gender, and school sector (hence the term "Multiple-Variable Case-Ordered" in the name of our matrix model). We placed interview questions in columns and clustered the question columns that focused on the same subdimension into result columns (hence the term "Conceptually Clustered" in the name of our matrix model). To make the analysis process more manageable, we created seven separate matrices (for the subdimensions of demands, moderators, mediators, contingent rewards, noncontingent rewards, consequences, and a final one we needed, cross-case questions). In these matrices, there were three rows for each dyad. The first row contained a summary of the pre-HSEE interviews, the second row contained a summary of the post-HSEE interview, and the

third row contained a summary of the results we extracted from the two rows above. In each cell of the first two rows, the statements of the participating student and then those of his parents were summarized in two short sentences. As a validation measure at this stage, we, the two researchers, created the results row (i.e., the third row) independently to draw conclusions from the pre- and post-HSEE summaries and then compared the results we arrived at. Figure 2 shows all the rows before the removal of the rows used to create the third row. The average number of words in each researcher's files that contained these matrices was about 15,000.

Cases	Moderators							
	Ability	Commitment		Feedback		Task Complexity	Situational Constraints	
	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13
PreHSEE Interview	case/parent	case/parent	case/parent	case/parent	case/parent	case/parent	case/parent	case/parent
PostHSEE Interview	case/parent	case/parent	case/parent	case/parent	case/parent	case/parent	case/parent	case/parent
Zeta	Conclusion	Conclusion	Conclusion	Conclusion	Conclusion	Conclusion	Conclusion	Conclusion

Figure 2. The three rows that we used to draw a conclusion for each dyad (only the first case)

b. After agreeing on the findings, we had taken from the statements of the dyads, we removed the pre-HSEE and post-HSEE lines, and by doing so, we could see the overall landscape of each dimension at a glance using seven separate matrices. Figure 3 illustrates how we saw the subdimension of the moderator variables when we removed the lines pre-HSEE and post-HSEE.

Cases	Moderators							
	Ability		Commitment		Feedback		Task Complexity	Situational Constraints
	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13
Zeta	Conclusion	Conclusion	Conclusion	Conclusion	Conclusion	Conclusion	Conclusion	Conclusion
Delta	Conclusion	Conclusion	Conclusion	Conclusion	Conclusion	Conclusion	Conclusion	Conclusion
Beta	Conclusion	Conclusion	Conclusion	Conclusion	Conclusion	Conclusion	Conclusion	Conclusion

Figure 3. Multiple-Variable Case-Ordered and Conceptually Clustered Matrix (only the first three cases)

c. Member Checking. We conducted a final round of phone calls with participants to confirm our case-level findings and verify our results against their assessments. We performed these confirmation calls, which lasted, on average, fifteen minutes each, only with participating students. If a participating student's statement contradicted his or her parent's statement, we read the conclusion we had created through abductive reasoning, and if the participating student did not object to it, we accepted that conclusion as correct. After the completion of each confirmation interview, we thanked the students for their participation and offered to help them shape their future academic plans if they needed it.

d. We performed our cross-case analyses using the final forms of our matrices. We then reflected on the results of our cross-case analyses, discussed our conclusions, and wrote the findings section.

Credibility and Ethics

We conducted two rounds of semi-structured interviews with study participants. The second round of interviews helped us in two ways: First, we had completed the first round a month before the HSEE so as not to negatively impact our study participants; the second round allowed us to collect data on participating students' motivations immediately before the HSEE. Second, we had the opportunity to obtain participants' retrospective, and thus calmer, view of the motivational process they underwent. In addition, the second round served to cross-check the data we had collected in the first round of interviews.

As commonsense realist qualitative researchers (see Mark et al., 2000, for a detailed account of this stance), we, the two researchers, hold as axiomatic that there is an external world and its reality shaped by invisible underlying mechanisms. Our biases impede our efforts to access this reality. Considering the potential benefits of properly discovering and disclosing this external reality, it is nevertheless worthwhile to take steps -absolutely scientific and honestly limited- that will allow us to get closer to this

external reality. We need to explain at this point that as nonpositivist researchers, we also believe that using ostensibly objective language (writing in the third person singular/plural or passive voice) and objectifying study participants and researchers do not improve the validity of our study. We, the two researchers, conducted the present study, and we cannot deny its responsibility through disingenuous rhetoric. Finally, we should note that we, the authors of the present study, both have teaching experience in middle school English education and, as we mentioned earlier, were parents of an eighth-grade student at the time of data collection and analysis. These experiences allowed us to delve deeper into the phenomenon that is the subject of our study and to develop an emic perspective. However, we were aware that these experiences could also be the cause of our bias. Therefore, following our epistemological axioms, we had to take the following measures to improve the validity and reliability of our case study:

1. We diversified our study participants with respect to a number of variables that we thought might affect our findings.
2. We recruited a parent informant for each case to triangulate interview data with our cases.
3. We began data collection and analysis 4½ months before the HSEE and ended it six months after the HSEE; thus, our interaction with our study participants spanned ten months.
4. We used a clearly described theoretical framework for our data collection and analysis.
5. We conducted our analyses separately to see if we achieved thematic similarity.
6. We called participating students to confirm our case-level findings and benefited from their assessments of the accuracy of our analysis.

We would also like to address a delimitation of our study: We ended our data collection six months after the HSEE. We were able to extend the data collection phase until our participants' next high-stakes examination that is their university entrance examination. We chose not to do this because, in this case, we might have encountered many other confounding variables that would have affected our participants' test motivation, apart from the self-renewing motivational effect of the HSEE. However, there is a limitation that arises from this delimitation. Because we did not extend the data collection phase until our participants' next high-stakes examination, our findings of the self-renewing motivational effect of the HSEE remain limited to the self-reports of our cases and the perceptions of their informant parents.

Limitations

We must point out to our readers the three limitations of our research. We conducted the first round of interviews during the distance learning period caused by the pandemic. This may cause students to experience different psychological difficulties than in previous years. A second limitation of the study was that none of the students addressed the problem of not having the necessary opportunities to prepare for the HSEE. This means that our study does not reflect the motivational barriers that may be caused by families' lack of financial resources. The third limitation to consider in interpreting the results is that we attempted to overcome the lack of field observations by involving parents to cross-check the reports of our cases (i.e., eighth graders). However, our study is still based on the dyad perspective.

FINDINGS

Three of the participating students in our study (we will refer to them from now on as the "HPC trio" and add "HPCT" to their codes) achieved higher success in the HSEE than the other five participants, and they felt motivated to study to succeed in the university exam, consistent with the prediction of the HPC model. For other participating students, the opposite was the case. For example, Delta's score was only a few points lower than Gamma's, but he could not feel the joy of success and motivation to study that Gamma felt after the HSEE. Before we begin to present the findings of our research under the subdimensions of the HPC model, it is appropriate to provide some details about the HPC trio.

Alpha. With a discount of 80%, she was admitted to the science department of a private high school known for its successful students. She was pleased with her exam performance and looked forward to her university exam.

Beta. With a discount of 80%, he was admitted to the science department of a private high school known for its successful students. We felt that he earned his success through his high cognitive potential rather than through hard work. He did not rate his HSEE score as a great success because he believed his potential was far beyond that. However, he was also aware that he had achieved an obvious success. Since he discovered his potential during the HSEE process, he would like to achieve even greater success in the university exam, this time through hard work.

Gamma. She was admitted to a high-profile public high school. Her motivation development process was the typical example of the HPC model. She is quite indifferent to her cognitive potential because she has discovered that she can achieve her dreams as a diligent test taker and brims with self-confidence because of this discovery. She looks forward to taking the exams in the future.

Demands

In our study, the demands dimension consisted of three subdimensions: (1) challenge, (2) growth facilitating tasks, and (3) high self-efficacy. We obtained data on these subdimensions mainly from pre-HSEE interviews.

Challenge. There were only two participating students (Gamma and Alpha) who perceived HSEE as a challenge in which they had to succeed, and these two students had great test anxiety. Beta, the other member of the HPC trio –although he did not call the test a challenge– felt anxiety before the exam because his mother had a high expectation of success, meaning that Beta felt he had to succeed.

We noticed one factor that contributed to Alpha and Gamma's (but not Beta's) tendency to see the HSEE as a challenge: competitiveness. Alpha ("The competitive environment at the test preparation center was more enjoyable.") and Gamma ("To outdo the others and achieve something good in the future.") differed from the other six participating students in this characteristic. In contrast, Theta, for example, described the impact of competition on herself, saying, "For example, when I'm studying something, let's say I'm trying hard, but when I see someone doing better than me, it completely ruins my morale."

Growth Facilitating Task. All students except Delta stated that this exam gave them skills that will give them an advantage in future exams, such as a greater sense of responsibility and the ability to study regularly and hard. What caught our attention was that not a single participating student indicated that this exam gave them qualities such as a general culture, a broader perspective, or curiosity in learning. We believe that the HSEE has no meaning to the participating students other than access to a high school that will enable them to succeed in the university exam.

High Self-Efficacy. In our pre-HSEE interviews, we saw that the HPC trio and two other participating students who scored relatively high were anxious about the upcoming HSEE. Alpha had some sense of self-efficacy, but described her high level of anxiety by saying, "I got so nervous that I remember dropping my pen from my hand four or five times during a practice test." Gamma's sense of self-efficacy for the exam was low, and her anxiety was very high. Beta, on the other hand, had a strong sense of self-efficacy but also felt some anxiety because his mother had a high expectation of success from him. As a result, we did not see a relationship between high self-efficacy and the success of the participating students in the first high-stakes exam of their lives. On the other hand, as a result of the HSEE, we saw an increase in self-efficacy perception only in the HPC trio, and thanks to this increase, they entered the high-performance cycle.

Moderators

In our study, the moderators dimension consisted of five subdimensions: (1) ability, (2) commitment, (3) feedback, (4) task complexity, and (5) situational constraints. We obtained data on these subdimensions mainly from pre-HSEE interviews.

Ability. The participating students and their parents did not mention any problems related to intelligence and ability. They all tended to think that studying a lot would be the most important factor for success at HSEE.

Commitment. Alpha and Gamma had long dreamed of the success of the HSEE and were able to dedicate themselves to this goal and organize their daily lives accordingly. In contrast, none of the other six participating students had long dreamed of great success in the exam, nor had they dedicated themselves to this goal. For Eta, the only goal of achieving a high score on the HSEE was "a computer and a proper cell phone," which his family would give him as a reward. Beta, the other member of the trio, showed such commitment to the HSEE in part, not entirely, but he realized that he could do more when he achieved high success in the exam thanks to his high intellect. At this point, one possibility occurred to us: an achievement made can trigger a desire to achieve a higher level of success –this time by putting in effort– even if one does not invest much emotional and behavioral commitment to that achievement.

Feedback. All participants indicated that they were able to get the feedback they needed from their teachers or parents on the appropriateness of their work pace and methods.

Task Complexity. Six of the eight participating students, including the HPC trio, said they were familiar with the upcoming HSEE thanks to the practice tests they had taken during the year they were preparing for the exam. Epsilon and Theta talked about the problems of not being able to adapt to the next generation of math questions.

Situational Constraints. None of the participating students expressed that they did not have the opportunities they needed to be successful at HSEE. Participating students expressed a number of barriers that may have affected their success, but we believe that dedication is the critical factor, and these barriers were not of the kind that a student who is fully committed to her HSEE goal cannot overcome. In fact, participating students also tended to view their motivation to study as the most important factor and did not need to mention these barriers unless we asked about them.

Mediators

In our study, the mediators dimension consisted of four subdimensions: (1) direction, (2) effort, (3) persistence, and (4) task-specific strategies. We obtained data on these subdimensions mainly from pre-HSEE interviews.

Direction. Our cross-case analysis clearly showed that the four students (HPC trio and Delta) who aligned their daily lives with the exam and were able to turn away from non-goal relevant activities were able to achieve high scores, although none of them were happy with this situation. We also saw that the extent to which the participating student can tolerate being restricted in her favorable non-goal relevant activities was also an important factor. Gamma and Alpha had this tolerance. Alpha recalled, "Whenever I asked for something, they said 'after HSEE.' It was hard for me to be restricted in reading books. Still, I'm grateful to my family for that."

Effort. Our findings showed that all participating students studied much more in the year of exam preparation than in the years before the exam. Six months after the HSEE, Eta, who obviously does not like to study, illustrated this trend by saying, "If I'd known I wouldn't take the exam, I wouldn't have studied as much as I did in eighth grade. I'm not studying again right now."

However, the level of difficulty varied from student to student. Some began to struggle over 300 questions, but others began to feel that strain with as few as 100 questions (participating students and parents tended to express daily study with the number of questions solved). Epsilon described her efforts by saying, "I am not a person who can study much; I could solve at most 100 questions, which is the maximum. I can't even remember when I did that. I knew it was a mistake, but I couldn't fix it." In contrast, Gamma's father described his daughter's efforts by saying, "... For example, she never dropped below 250 questions a day. Other than those 250 questions, I had her complete a practice test every day." Alpha and Gamma clearly put in more effort than the other participating students.

Persistence. Our findings suggested that the participating students who showed persistence during the HSEE preparation were Alpha and Gamma. Beta, the other member of the trio, seems to have achieved his success through some degree of persistence, though not entirely. When we looked at the other participating students, we found that although the other three students, who had lower scores, showed no persistence at all, Epsilon and Delta, who had relatively higher HSEE scores, showed some degree of persistence.

Task-Specific Strategies. We have not seen any effects of the participating students' tendencies on whether they developed task-specific strategies on the other subdimensions.

Before turning to the reward dimensions, we should note that we have seen that the factors determining the HSEE performance of participating students are their ability to sit and study for long periods of time, to spread preparation throughout the day, and to endure withdrawal from activities other than exam preparation, and to maintain this pace consistently for a year. These behaviors manifest themselves in the subdimensions of commitment, effort, direction, and persistence.

Contingent Rewards

In our study, the contingent (score-based) rewards dimension consisted of two subdimensions: (1) internal contingent rewards and (2) external contingent rewards. We obtained data on these subdimensions from post-HSEE interviews.

Internal Contingent. Of the HPC trio, we observed that only Gamma and Alpha felt a distinct sense of pride in their performance. Alpha said, "I felt proud when I realized that I had achieved a good result. Without this feeling, there's nothing left." We saw that the expectation of the participating student was decisive in this subdimension of the HPC model. Beta, for example, did not feel the pride and sense of achievement because, believing in his great potential, he had hoped for a very high score, but the three participating students who scored lower than him were able to experience this feeling, albeit to some extent.

External Contingent. We did not see any relationship between participating students' feelings of pride and achievement based on their HSEE scores and their assessment of whether the high school to which they were admitted would give them an advantage on the university exam or whether they entered the performance cycle. Even the students who did not feel pride and achievement based on their scores seemed satisfied with their high schools, except for only one student, Theta.

Noncontingent Rewards

This subdivision, whose data we obtained from post-HSEE interviews, is included in the HPC model as a dimension in itself, separate from the score-based rewards. We did not see any relation between the participating students' perceptions of their non-score-based rewards and whether they entered the performance cycle. Beta and Epsilon, who were not satisfied with their test scores, talked about their noncontingent (score-independent) rewards of HSEE. Alpha, on the other hand, said, "If I didn't get a good score, I'd say, 'So what did I learn from this!' and thought I had suffered a great loss." At this point, immediately after Alpha's statement about the "great loss," we should point out that the participating students were also aware that they were deprived of

development opportunities in other areas of interest because they had to prepare intensively for the exam. To give just one or two examples: They complained about not having time to read books (Alpha and Gamma), learn computer programming (Beta), or play basketball (Epsilon), and almost all participating students complained about not being able to spend time with their friends.

Before turning to the consequences subdimension, we must note that we have not seen any relationship between external contingent and noncontingent rewards and getting into the cycle. Only Alpha and Gamma felt the pride and sense of achievement, that is, the internal reward. Beta, the third member of the trio, discovered his potential, which can also be seen as a kind of intrinsic reward. This means that for the participating students, it was the intrinsic rewards that caused them to get into the cycle.

Consequences

In our study, the consequences dimension consists of two subdimensions: (1) commitment to the organization (we adopted this as the commitment to the exam system) and (2) willingness to accept future challenges. We obtained data on this subdimension from post-HSEE interviews.

Commitment to the Testing System. A striking finding of our study was that all participating students viewed the high school entrance exam as a necessary practice. Two of the participating students criticized the level of difficulty of the exam, and five students criticized that the exam did not take into account the students' abilities, but no one questioned the necessity of the exam. Gamma, who was the most diligent, persistent, and dedicated participant in our study, had a different perspective on this exam than any of the other participants. She saw the exam as a mechanism to achieve equity in access to qualified education:

I think that's good. Before I took HSEE, I wished that these exams didn't exist, that everyone could get into schools without exams, but now I think that without HSEE, the children of those in the upper ranks would get into good high schools, and we wouldn't. At least this test selects us. There's no unfairness here. It's fair.

Willingness to Accept Future Challenges. We found that after the HSEE experience, in the ninth grade, there were only three participating students who started planning to work hard and became more willing to take the upcoming (university) exam, and these were the students with the highest scores (the HPC trio). Although Beta did not score as highly as he had expected, he had achieved a significant high. So, his willingness to take his high score even higher by working even harder this time is in line with the basic logic of HPC.

The HSEE experience had no impact on three of the remaining five students. The experience had a diminishing effect on the goals of two students with relatively big dreams. Zeta summed it up well, "We have seen the difficulty of the exam. When we're little, we dream, we dream. I want to be an architect, I want to be a doctor; but when we learn how difficult these things are, we begin to shrink the goals."

We would like to point out one more thing: Delta, whom we did not include in the HPC trio, scored close to Gamma. Beta, whom we included in the HPC trio, was dissatisfied with his HSEE result, as was Delta. Why did we include Beta in the HPC trio and not Delta? We did it because Beta differs from Delta in one very important respect: Beta's dissatisfaction stemmed from the fact that he believed his score was below his potential, even though he had achieved a very high level of success. We attribute his dissatisfaction to the fact that his mother set the bar extremely high. The mother, a math teacher, complained that her son, who was in the top 2%, was not ambitious enough. She said, "He never had any desire to be in the 1% or to do all the questions in full. No, I am afraid he lacks that part. He's a laid-back kid." Beta did not speak negatively about his exam performance or the school he attended; he only spoke about exam questions he could not solve. Delta's assessment of his exam performance was more severe:

Aslı Özaslan: How did you manage to keep it up without giving up?

Delta: Actually, I did not manage to do it. I did not. I wish I had done it. Although I got into a science high school, I did not get into a good high school. This is the reason why I think like this.

For this reason, unlike Beta, Delta was not able to develop motivation for the university examination and stated that he had downgraded the university goals he had before the HSEE. According to HPC logic, one must first feel clear success to enter the performance cycle. Private high schools in Turkey attract students who score very highly in the HSEE with very high discount rates and, thanks to these students, advertise themselves as a school that has achieved great success in the university exam. Let us take a look at Beta's statement: "The private school I attend now gave me an 80% discount. I took 40% of that school's scholarship exam before the HSEE. They gave me double the discount." Beta realized that he was a student who was pursued by the private schools because he would succeed in the university exam and that his success was due to his exam preparation between the scholarship exam of this school and the HSEE. He was upset that he had gotten a few math questions wrong on the exam, but he was also aware that thanks to his current score, he was a student who was being pursued.

Our cross-case analysis revealed that there were only three participating students who became more willing to take the university exam after HSEE and made intensive study plans for the university exam beyond what was required by their schools and embarked on intensive study plans for the university exam. These three participating students, i.e., the HPC trio, were the ones with the highest HSEE scores in the research group. Based on our results, we can conclude that, just as the HPC model predicts, a high score on the HSEE may provide students with self-renewing test motivation.

In Table 1, in addition to the codes of the cases, you can see how high their test scores place them among the other cases. One of the dimensions of variation we felt was necessary in selecting participants was the teaching experience of the parents. This dimension of variation may appear to readers to have an impact on students' self-renewing test motivation. However, considering that Delta, who also had a teacher-parent, had no desire to tackle the subsequent high-stakes exam work, we can say that there is no direct relationship between having a teacher-parent and entering the performance cycle, and that this relationship can only be possible through the increase in self-efficacy that comes from feeling of clear success in the HSEE; therefore, this dimension of variation is not crucial for self-renewing motivation.

DISCUSSION AND IMPLICATIONS

A Turkish proverb says that "The beaten wrestler cannot get enough of wrestling.". What is meant by this proverb is that people who are defeated feel compelled to continue the match to prove themselves. The HPC model asserts the opposite, that the victorious wrestler cannot get enough of wrestling. Our research has shown that the HPC model's prediction is more accurate, at least in the context of the HSEE. Three participating students whose self-efficacy perceptions increased as a result of the HSEE expressed a desire to begin preparing for the university exam, their next high-stakes exam.

The concept of self-efficacy is almost central to the logic of the HPC model. Our study confirms the accuracy of this understanding. Moreover, the results of our study show that, just as the model predicts, satisfaction is not the cause of high performance but the result of it. In HPC logic, satisfaction with rewards leads to commitment to the organization, and this commitment is considered a key variable because it leads people to set organizationally relevant goals (Latham, 2007). This is the reason why the model includes a satisfaction component. However, Latham et al. (2002) noted that additional research is needed to deepen "understanding of how the consequences of high performance affect satisfaction and subsequent organizational commitment." (p. 201). In the case of Gamma, we have seen that she made a great effort and was able to enter the high school of her choice, thanks to the examination system that protected her from injustice. Based on this result, we can say that high performance can promote trust in the organization (in our study, the central examination system) as a mechanism that ensures equity and the necessary environment for the development of self-efficacy perceptions and hope for the future.

Our results suggest that for participating students, intrinsic rewards were critical for entry into the high-performance cycle and that there were no discernible effects of external contingent and noncontingent rewards on entry into the cycle. This finding suggests that the extent to which the reward components of the model work depend on the context in which they are used; in some contexts, some reward components may be dysfunctional. However, the HPC literature does not provide a detailed interpretation of the meaning and functions of the three different reward factors included in the model.

Our research findings seem to contradict in a certain point the findings of Martin and Marsh (2006), who showed that five factors –control, confidence (self-efficacy), planning, low anxiety, and persistence– predict academic resilience. In our study, however, two members of the HPC trio (Alpha and Gamma) were the most diligent (and thus resilient) students, but they were also the ones who expressed the greatest anxiety. This contradictory conclusion may be due to the fact that Martin and Marsh (2006) conducted their study in an educational setting, but not in the context of high-stakes testing. This fact suggests that high-stakes testing is a separate dimension in education and leads to different internal experiences than the other dimensions. There is also another possibility: if we consider that trait (i.e., inherent) anxiety has been shown to be a significant predictor of TEOG (the predecessor version of high school entrance examination, which was implemented four years before the LGS) success (Çakır & Gazioğlu, 2021) and grade point average (McEwan & Goldenberg, 1999), Alpha's mother's statement that "she is already a very anxious child" suggests that anxiety is not a problem in high-stakes exams and may even be an advantage. Thus, we would like to point out that although we recognize the value of simplicity in models to explain human behavior, we believe that future research focused on enabling the HPC model to account for personality differences such as anxiety and competitiveness can significantly increase its explanatory power. Latham and Locke's (2007) assessment that "Missing from the HPC is an emphasis on personality" (p. 292) suggests that the inventors of the model noticed this deficiency long before we did.

We believe that the HPC model does not go deep enough in explaining human motivation to explain why people need to set themselves bigger goals. After all the hardships, why does the HPC trio continue to work now, this time with a heartfelt desire? We cannot explain it simply by saying, "because they experienced an increase in self-efficacy." At this point, an explanation, for example, from Maslow's self-actualization or evolutionary psychology, can help us develop a much deeper understanding of

increasing human motivation. We recommend investigating psychological phenomena of increased self-efficacy and setting higher goals with designs such as phenomenology and phenomenography and using the results to deepen the perspective of the HPC model.

In the context of the meaning of the goal, we propose a recommendation: The goal set for students in the HSEE is a performance goal. Performance goals direct attention to intended outcomes, such as cost-related performance (Latham & Locke, 2018). However, there are also two other types of goals defined in the related literature: Behavioral goals, which focus on behaviors that lead to an intended outcome, such as behaviors that increase effectiveness, and learning goals, which include goals related to the acquisition of knowledge or skills, such as identifying effective strategies (Latham & Seijts, 2016). In the present study, the participating students –even those who did not achieve the score they wanted– were happy with acquiring the ability to study longer hours than in previous years and strengthen their academic skills. In other words, our participants enjoyed developing academic skills. We believe that this mastery orientation in students should not be overlooked. Çakır and Gazioğlu (2021), in their study of variables predicting success in the TEOG test (the predecessor version of HSEE), found that students' mastery approach orientation (i.e. motivation to develop skills and competencies) is the strongest predictor of TEOG score, and, in relation to our argument here, they have presented this finding in support of a considerable number of field studies on mastery orientation showing that mastery orientation is highly beneficial to students' academic motivation. Given these benefits, we believe it is necessary to give students behavioral and learning goals rather than performance goals.

The aim of our study was to understand whether HSEE initiates a high-performance cycle. Therefore, we could not address the difficulties that students and their families suffered for at least a year. But even those who finally felt the pride and joy of success told us in detail about their anxiety, sadness, and developmental lag outside of their test-solving skills. This finding is consistent with the findings of Aydın and Yazıcı (2022) who, based on data from interviews with a group of Turkish secondary school teachers about the HSEE exam, found that some teachers believed that the HSEE exam increased anxiety and stress even in high-achieving students. Educational systems obsessed with high-stakes tests can cause students to fall behind in some developmental areas that are much more important than solving test questions. At this point, we would like to issue a warning: Locke and Latham (1990) have argued that the problem with the educational system in the United States is that students are expected to do much less than they are capable of and that the HPC model can be used to address the shortcomings of that system. We do not question the veracity of this claim. On the other hand, as researchers who know very well what a high-stakes exam is, we must express that the HPC model should be used for the holistic development of students so that they can demonstrate their potential. Neither Locke and Latham's recommendation above nor our study should be taken as a call to use the HPC model in high-stakes exams.

In conclusion, our research findings on the effects of HSEE on participating students' test motivation are consistent with the underlying assumption of the HPC model that increased self-efficacy resulting from the achievement of a specific and difficult goal has a self-renewing effect. In the context of a high-stakes examination, the HPC model is explanatory, but with some of the modifications we recommend, its explanatory power can be enhanced. We hope that using the HPC model to achieve the behavioral and learning goals of self-development rather than the performance goals of high-stakes exams can jump-start students' motivation to realize their potential throughout their lives.

Disclosure Statement

The authors declare no potential conflicts of interest related to the research, authorship, and/or publication of this article.

Declaration of Conflicting Interests

The authors declare no potential conflicts of interest related to the research, authorship, and/or publication of this article.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

Statements of publication ethics

We hereby declare that the study has no unethical issues and that research and publication ethics have been carefully followed.

Researchers' contribution rate

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

Ethics Committee Approval Information

Data collection began after (1) the Ethics Committee of Necmettin Erbakan University gave its approval (Number: 2021/133), (2) the Provincial Directorate of National Education and two private schools gave their approval, and (3) parents signed informed consent and (4) parental consent after being informed of their rights as participants in the present study. Participating students were also informed of their rights prior to the interviews.

REFERENCES

Amrein, A. L., & Berliner, D. C. (2002). An analysis of some unintended and negative consequences of high-stakes testing. Education Policy Research Unit, Education Policy Studies Laboratory, College of Education, Division of Educational Leadership and Policy Studies, Arizona State University.

Aydın, B., & Yazıcı, H. (2022). Teacher perspectives on secondary school students' reactions to school achievement in the high school transition system. *Journal of Qualitative Research in Education*, 30, 132-160. https://doi.org/10.14689/enad.30.6

Ersöz Çakir, O., & İşmen Gazioğlu, A. E. (2021). The role of psychological and academic variables in predicting transition from primary to secondary education exam achievement in Turkey. *Psychology in the Schools, 58*(9), 1858–1876. https://doi.org/10.1002/pits.22545

Latham, G. P. (2007). *Work motivation: History, theory, research, and practice.* Sage.

Latham, G. P., & Locke, E. A. (2007). New developments in and directions for goal-setting research. *European Psychologist, 12*(4), 290–300. https://doi.org/10.1027/1016-9040.12.4.290

Latham, G. P., & Locke, E. A. (2018). Goal setting theory: Controversies and resolutions. In D. S. Ones, N. Anderson, C. Viswesvaran, & H. K. Sinangil (Eds.), *The SAGE handbook of industrial, work & organizational psychology: Organizational psychology* (pp. 145–166). Sage Reference.

Latham, G. P., & Seijts, G. H. (2016). Distinguished scholar invited essay: Similarities and differences among performance, behavioral, and learning goals. *Journal of Leadership & Organizational Studies, 23*(3), 225–233. https://doi.org/10.1177/1548051816641874

Latham, G.P., Locke, E.A., Fassina, N.E. (2002). The high performance cycle: Standing the test of time In: Sonnentag S, (Ed.), *Psychological Management of Individual Performance.* Chichester, p.p. 199–228, Wiley.

Locke, E. A., & Latham, G. P. (1990). Work motivation and satisfaction: Light at the end of the tunnel. *Psychological Science, 1*(4), 240–246.

Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist, 57*(9), 705–717. https://doi.org/10.1037/0003-066X.57.9.705

Locke, E. A., & Latham, G. P. (2015). Breaking the rules: a historical overview of goal-setting theory. In Elliot, A. J. (Ed.). *Advances in motivation science* (Vol. 2, pp. 99–126). Elsevier. https://doi.org/10.1016/bs.adms.2015.05.001

Mark, M. M., Henry, G. T., & Julnes, G. (2000). *Evaluation: An integrated framework for understanding, guiding, and improving policies and programs*. Jossey-Bass.

Martin, A. J., & Marsh, H. W. (2006). Academic resilience and its psychological and educational correlates: A construct validity approach. *Psychology in the Schools, 43*(3), 267–281. https://doi.org/10.1002/pits.20149

McDonald, A. S. (2001). The prevalence and effects of test anxiety in school children. *Educational Psychology, 21*(1), 89–101, https://doi.org/10.1080/01443410020019867

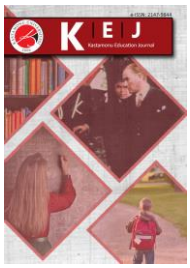
McEwan, L., & Goldenberg, D. (1999). Achievement motivation, anxiety, and academic success in first year Master of Nursing students. *Nurse Education Today, 19*(5), 419–430. https://doi.org/10.1054/nedt.1999.0327

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook.* Sage.

Yin, R. 2003. *Case study research design and methods*. Sage.

Zimmerman, B. J., & Dibenedetto, M. K. (2008). Mastery learning and assessment: Implications for students and teachers in an era of high-stakes testing. *Psychology in the Schools, 45*(3), 206–216. https://doi.org/10.1002/pits.20291

Kastamonu Education Journal, 2024, Vol. 32, No:1, 180-192
doi: 10.24106/kefdergi.1426743



| Research Article / Araştırma Makalesi |

Investigation of Burnout Levels and Reasons of Teachers Teaching Languages (Language Trainers) to Foreign Primary School Students

Yabancı Uyruklu İlkokul Öğrencilerine Dil Öğreten Öğretmenlerin (Türkçe Öğreticilerin) Tükenmişlik Düzeyleri ve Nedenlerinin İncelenmesi

Ceren Çevik Kansu[1], **Musa Çalışır**[2]

Keywords
Turkish language trainers
Burnout
PIKTES
Syrian kids
International students

Anahtar Kelimeler
Türkçe öğreticiler
Tükenmişlik
PIKTES
Suriyeli çocuklar
Yabancı uyruklu öğrenciler

Received/Başvuru Tarihi
16.03.2023

Accepted / Kabul Tarihi
10.10.2023

Abstract

In this study, it was aimed to examine the burnout levels of teachers (Turkish language instructors) working in the Project for the Integration of Syrian Children into the Turkish Education System (PIKTES). The study was conducted with mixed method. Quantitative data were collected through personal information form and Maslack Burnout Inventory (MBI), while qualitative data were collected through semi-structured interviews. Nonparametric tests were used to analyze quantitative data, and thematic analysis was used to analyze qualitative data. The sample of the study consists of 301 Turkish language instructors from different cities and branches, who were determined by simple random sampling method, one of the probability sampling methods. According to the findings of the research, as a result of quantitative data analysis, it was determined that Turkish Language Teachers were moderately exhausted in the emotional exhaustion sub-dimension, highly exhausted in the depersonalization sub-dimension and low in the personal accomplishment sub-dimension. It was found that the burnout levels of Turkish language instructors differed significantly in the sub-dimensions of the scale according to their views on age, branch and workload, but did not differ significantly according to the number of students. As a result of the qualitative analyses, Turkish language instructors stated that the fact that they were working under the labor law within the scope of PIKTES negatively affected them emotionally and that there were cases where they received negative reactions from their colleagues and supervisors. It was concluded that working with foreign national students negatively affected them physically and emotionally and that PIKTES had a negative impact on their motivation due to working conditions.

Öz

Bu araştırmada Suriyeli Çocukların Türk Eğitim Sistemine Entegrasyonu Projesi (PIKTES)'te görev yapmakta olan öğretmenlerin (Türkçe öğreticilerin) tükenmişlik düzeylerini incelemek amaçlanmıştır. Araştırma karma yöntem ile gerçekleştirilmiştir. Nicel veriler kişisel bilgi formu ve Maslack Tükenmişlik Ölçeği (MBI), nitel veriler ise yarı yapılandırılmış görüşmeler ile toplanmıştır. Nicel verilerin analizinde non parametrik testler, nitel verilerin analizinde ise tematik analiz kullanılmıştır. Araştırma örneklemini farklı şehirlerde ve branşlardan olasılıklı örnekleme yöntemlerinden basit tesadüfi örnekleme yöntemi ile belirlenen 301 Türkçe öğretici oluşturmaktadır. Araştırma bulgularına göre nicel veri analizleri sonucunda Türkçe Öğreticilerin duygusal tükenme alt boyutunda orta düzeyde, duyarsızlaşma alt boyutunda yüksek düzeyde ve kişisel başarı alt boyutunda düşük düzeyde tükenmiş oldukları tespit edilmiştir. Türkçe öğreticilerin tükenmişlik düzeylerinin yaş, branş, iş yükleri hakkındaki görüşlerine göre ölçeğin alt boyutlarında anlamlı düzeyde farklılaştığı, öğrenci sayısına göre ise anlamlı şekilde farklılaşmadığı bulgularına ulaşılmıştır. Nitel analizler sonucunda Türkçe öğreticilerin PIKTES kapsamında iş kanununa bağlı görev yapıyor olmasının duygusal olarak kendilerini olumsuz şekilde etkilediği ve meslektaş ve amirlerinden olumsuz tepkiler aldıkları durumlar olduğunu belirtmişlerdir. Yabancı uyruklu öğrenciler ile çalışıyor olmanın fiziksel ve duygusal olumsuz şekilde kendilerini etkilediği ve PIKTES'in çalışma şartları kaynaklı motivasyonlarını olumsuz etkilediği sonuçlarına ulaşılmıştır.

[1] **Corresponded Author,** Ondokuz Mayıs University, Education Faculty, Basic Education Department, Samsun, TURKİYE; https://orcid.org/0000-0003-4444-7165
[2] Sakarya University, Education Faculty, Basic Education Department, Sakarya, TURKİYE; https://orcid.org/0000-0001-8647-9005

Citation/Alıntı: Çevik Kansu, C., & Çalışır, M. (2024). Investigation of Burnout Levels and Reasons of Teachers Teaching Languages (Language Trainers) to Foreign Primary School Students. *Kastamonu Education Journal, 32*(1), 180-192. doi: 10.24106/kefdergi.1426743

INTRODUCTION

Freudenberger (1974, 1975) coined the term "burnout," which was prevalent in the USA in the 1970s (Leiter et al., 2015). He defined burnout as exhaustion among social workers who feel under pressure because they feel obliged to achieve, overcome, and meet needs with their continuous long-term service to society, resulting in behavior change due to disappointments after trying harder to overcome that pressure (1975). Maslach and Jackson (1981) argue that social workers working under challenging conditions experience chronic stress and emotional exhaustion, resulting in burnout. In short, burnout is the last stage of being unable to cope with chronic stress (Cherniss, 1985). Freudenberger's work paved the way for further systematic and empirical research in the 1980s (Maslach et al., 2001).

Unlike acute depression, burnout is accumulated stress in response to work-related stressors. For this reason, burnout has become an essential concept in work and social life thanks to developments in personal rights (Maslach & Leiter, 1997). Maslach and Leiter (1997, 2005) categorized the factors of burnout into six factors: workload, control, reward community, fairness, and values. Working harder (e.g., teachers dealing with more students), doing work that requires more extended time, and working in jobs that involve multitasking increase workload. An individual's workload is one of the directly affecting factors on burnout. Every individual wants to feel that they have accomplished something in their work. For this reason, limitations in the autonomy and participation of the individual in their work reduce the individual's control over their work and increase burnout. The inability of the individual to obtain adequate wages, appreciation, or satisfaction in their work increases burnout due to the failure to provide proper rewards. Community in an organization is a critical component of the organizational atmosphere. The breakdown of the community leads to less support and respect among the people in the organization and an increased sense of isolation in the individual, which increases burnout. For the individual to maintain their commitment to work and for the community in the organization to establish open communication and mutual respect, there must be fair management. Lack of trust, openness, and care in the organization directly affects burnout. Finally, the incompatibility between the values of the organization and the values of the individual is also a factor that increases burnout (Maslach & Leiter, 1997).

People experiencing burnout undergo a spiritual erosion, leading to physiological problems, but more often to psychological and social problems (Maslach & Leiter, 1997, 2016). According to Maslach (1993), there are three dimensions of burnout. Maslach based his Maslach Burnout Inventory (MBI) on these three dimensions since he believed each size affects everyone differently and significantly. These dimensions are emotional exhaustion, depersonalization, and decreased personal accomplishment.

Emotional exhaustion describes extreme emotions (sudden bursts of anger, crying spells, etc.) and the depletion of an individual's physical and emotional resources (Maslach, 1993). Emotional exhaustion damages organizational commitment and decreases job performance (Cropanzano et al., 2003; Moon & Hur, 2011). There is also a predictive relationship between turnover and emotional exhaustion (Cropanzano et al., 2003). In addition, the psychological tension caused by emotional exhaustion at work is an essential factor that negatively affects an individual's family life (Liang, 2015).

Depersonalization is a continuous or recurrent attack of feeling separated or alienated from the sense of self and others (Maslach, 1993). (Hollet-Haudebert vd., 2011). Depersonalization leads to decreased organizational commitment (Hollet-Haudebert et al., 2011) and reduced attention and perception of the work (Guralnik et al., 2000). Besides, depersonalization decreases job satisfaction (Arabacı, 2010), and decreased job satisfaction increases depersonalization (Kalliath & Morris, 2002). Hence, desensitization and job satisfaction can affect each other in a cycle.

Decreased personal accomplishment is defined as a feeling of failure and incompetence in an individual's job (Maslach, 1993). Individuals need social support mechanisms to feel personal accomplishment in their work and that their knowledge and skills are essential for society (Guenette & Smith, 2018). An individual feeling accomplished in work increases task performance and is more creative (Karaboga et al., 2022). The lack of control over an individual's work negatively affects personal accomplishment (Hollet-Haudebert et al., 2011).

Emotional exhaustion affects depersonalization (Diestel & Schmidt, 2010) and personal accomplishment (Civelek & Pehlivanoğlu, 2019). Additionally, higher levels of depersonalization lead to higher levels of emotional exhaustion (Taris et al., 2005) and lower levels of personal accomplishment (Diestel & Schmidt, 2010; Taris et al., 2005). Hence, though the three dimensions defined by Maslach are caused by different reasons and produce different results, they critically affect each other. So, each dimension of burnout can be considered to be crucial.

Teachers Burnout

Unlike other professions, being a teacher demands incredibly intimate human relationships. Although the best part of the relationship between students and teachers is that the first is learning, the second becomes much too vulnerable to emotional exhaustion and frustration. Burnout due to emotional exhaustion and frustration significantly damages teachers' relationships with students and colleagues. Teachers who suffer from burnout tend to be much more likely to underperform, preventing students from learning (Maslach & Leiter, 1999). Capel (1992) stated that many factors are intertwined in teacher burnout and suggested that individual, environmental, and psychological factors will be influential.

Individual characteristics of the teacher are one of the factors affecting teacher burnout. Certain teachers are more sensitive and likely to burnout than others (Maslach & Leiter, 1999). Generally, personality characteristics affect emotional exhaustion (Basim et al., 2013). Many individual factors such as locus of control and stability of personality (Capel, 1992), neuroticism (Basim et al., 2013; Kokkinos, 2007), extraversion (Basim et al., 2013), conscientiousness (Kokkinos, 2007) are related to teacher burnout. According to Kokkinos (2007), teachers' personality traits are more related to the personal accomplishment dimension of burnout.

Environmental factors include the teaching profession and factors related to the work. Factors directly related to teaching, such as educating children, maintaining discipline and crowded classrooms, unmotivated students, challenging classrooms, students not accepting teachers' authority, lack of equipment, inadequate facilities, and lack of participation in decision-making (Capel, 1992) are associated with teacher stress and burnout (Iannucci et al., 2021). School atmosphere also affects teachers' burnout levels because schools have complex structures. Workload and social and administrative structure significantly affect teachers' motivation (Maslach & Leiter, 1999). In addition, the social and organizational structure of the school is the most significant support for protecting teachers from emotional exhaustion (Greenglass et al., 1996). The political, economic, and social environment in which schools are located is also essential. Violence, poverty, or adaptation problems in the school region affect students ' learning and teachers' burnout levels (Maslach & Leiter, 1999). There is an inverse relationship between teachers' job satisfaction and burnout (Lee & Brotheridge, 2006). Therefore, it can be said that students' profiles, attitudes, behaviors, and social and

economic environments, which significantly impact job satisfaction, significantly affect teachers' burnout levels. In addition, not meeting teachers' motivational needs, such as rewards, is one of the factors affecting burnout (Sarros & Sarros, 1987). According to Kokkinos (2007), environmental factors are more related to emotional exhaustion and depersonalization dimensions of burnout.

Psychological factors consist of factors related to teachers' role conflict and ambiguity. Role conflict and ambiguity teachers suffer are also associated with stress and burnout (Capel, 1987, 1992). Additionally, rapid change and transformation in educational institutions require teachers to adapt to tougher working conditions. This continuous cycle increases the feeling of burnout in teachers (Kariou et al., 2021).

International Students in Türkiye

The Syrian civil war has been the most complex conflict since the 2011 Arab uprisings. It sparked the largest humanitarian crisis. Millions of refugees poured into Türkiye. Today, Türkiye hosts more than 3.5 million Syrians [Directorate General of Migration Management (DGMM, 2020)] and almost half a million refugees from other countries [United Nations High Commissioner for Refugees (UNHCR), 2021]. Türkiye has 1,838,324 Syrian children aged 0-18 (DGMM, 2020). Therefore, the Ministry of National Education (MNE, 2014) has regulated and expanded the scope of educational activities according to national and international conventions. The Delegation of the European Union launched the project "Promoting Integration of Syrian Kids into the Education System" (PICTES) in 2016 to help children under temporary protection access Turkish education and social adaptation (Delegation of the European Union; PIKTES, 2021). Within the scope of this project, a total of more than four thousand language trainers, including classroom, Turkish, literature, Arabic teachers, and guidance and psychological counselors, were employed in schools inside and outside the camps to teach international students Turkish and help them integrate into the Turkish society [Directorate General for Life-Long Learning (DGLLL), 2020]. The project is still in progress in 26 provinces of Türkiye. Turkish language trainers are recognized as "temporary workers."

Turkish language trainers work in all kinds of schools with a sufficient number of international students, especially in schools with very limited working conditions in camps, tent cities, and satellite cities. Turkish language trainers work in what is called "integration classes," which consist of international students with poor language skills at the third-grade level of primary school. After one year of education, students return to their classrooms. The following year, integration classes are reopened with new students. If there are not enough international students in a school, Turkish language trainers are transferred to other schools.

Turkish language trainers provide education to traumatized victims of war who have had to leave their country and live in adverse social and economic environments. Research shows that Turkish language trainers are more likely to experience burnout (Uştu & Tümkaya, 2021). We think that Turkish language trainers working under adverse conditions to provide education to international students are also more likely to experience burnout. Therefore, this study focused on the burnout levels of Turkish language trainers.

Aim of the Research

This study investigated the burnout levels of Turkish language trainers working for PIKTES. The sample consisted of 301 Turkish language trainers from different cities and branches. Quantitative data were collected using the Maslach Burnout Inventory (MBI).

The research questions are as follows:

- What MBI overall and subscale scores do participants have?
- Do participants' MBI overall and subscale scores significantly differ by sociodemographic characteristics (age, number of students, branch and workload)?
- What do participants think about the factors causing burnout?

METHOD

This study addressed the burnout levels of Turkish language trainers and investigated what they thought about the factors causing burnout. The study adopted an exploratory design model, a mixed research design, to analyze a situation as it is (Creswell & Plano Clark, 2017). Participants were interviewed to collect qualitative data, which was used to support the quantitative data (Büyüköztürk et al., 2012; Sönmez & Alacapınar, 2016; Türnüklü, 2000). The research was completed by analyzing and interpreting the quantitative and qualitative data.

Study Group

The study population consisted of 4.057 Turkish language trainers working for PIKTES in 26 provinces (Adana, Adıyaman, Ankara, Antalya, Batman, Bursa, Çorum, Diyarbakır, Eskişehir, Gaziantep, Hatay, İstanbul, İzmir, Kahramanmaraş, Kayseri, Kilis, Kocaeli, Konya, Malatya, Mardin, Mersin, Osmaniye, Sakarya, Samsun, Şanlıurfa, and Yalova) in the 2020-2021 academic year. This study focused on Turkish language trainers because, since 2016, they have been working with international students who are at risk and do not have Turkish language and culture knowledge. Participants were recruited using simple random sampling, a probability sampling method. Simple random sampling allows every case of the population to have an equal probability of inclusion in the sample (Karasar, 2020). The sample consisted of 301 Turkish language trainers from different cities and branches.

Table 1. Sociodemographic Characteristics

Variables		f	%
Branch	Classroom teacher	150	49.8
	Turkish teacher	88	29.2
	Literature teacher	49	16.3
	Psychological Counselor and Guide	14	4.7
Age	26-29	150	49.8
	30+	151	50.2

Variables		f	%
Number of students	0-19	171	56.8
	20+	130	43.2
Views on workload	I cannot cope with my workload.	27	9.0
	I have a heavy workload, but I can somehow cope with it.	229	76.1
	I am happy about my workload.	45	15.0

Three hundred and seven teachers participated in the study. However, six teachers were excluded from the study because they failed to fill out the data collection tools or comply with the research protocol. Therefore, the sample consisted of 301 teachers. Table 1 shows all participants' sociodemographic characteristics.

Data Collection Tools

The quantitative data were collected using a personal information form and the Maslach Burnout Inventory (MBI), while the qualitative data were collected using a five-item structured interview questionnaire.

Maslach Burnout Inventory

The Maslach Burnout Inventory (MBI) was developed by Maslach and Jackson (1981) and adapted into Turkish by Ergin (1992). The inventory consists of 22 items and three subscales: emotional exhaustion (nine items), depersonalization (five items), and reduced personal accomplishment (nine items).

Personal Information Form

The personal information form elicited information on sociodemographic characteristics (branch, region, age, number of students, place of duty, views on workload, views on the effectiveness of PIKTES, views on future, and working in camps or temporary education centers).

Structured Interview Questionnaire

The researchers developed the structured interview questionnaire. The questionnaire consisted of six closed- or open-ended questions on participants' views of the factors that might affect their burnout levels. Two experts were consulted to check the intelligibility and relevance of the questionnaire, which was then revised after a pilot study.

Data Collection and Analysis

The data were collected online due to the COVID-19 pandemic. Participation was voluntary, which was specified in the personal information form. The data were analyzed using an information processing package. Arithmetic means, and standard deviations were calculated. The Kolmogorov-Smirnov test was used for normality testing. The results showed that the data were nonnormally distributed. Therefore, the Mann-Whitney U-test was used for two groups, while the Kruskal-Wallis test was used for more than two groups. The Mann – Whitney U test was used to determine the source of significant differences. The Maslach Burnout Inventory had a Cronbach's alpha (α) of .711. $0 < \alpha < 0.4$ = unreliable; $0.4 < \alpha < 0.6$ = low reliability; $0.6 < \alpha < 0.8$ = reliable; $0.8 < \alpha < 1$ = highly reliable (Uzunsakal & Yıldız, 2018). Therefore, the inventory was reliable. Table 2 shows the skewness, kurtosis, and Kolmogorov- Smirnov test results of the MBI.

Table 2. Skewness, Kurtosis, and Kolmogorov- Smirnov Test Results

MBI Subscales	Skewness	Kurtosis	Kolmogorov- Smirnov
Emotional exhaustion	.360	.321	.000
Depersonalization	.915	.226	.000
Reduced personal accomplishment	.666	.896	.000

Although the MBI subscales had skewness and kurtosis coefficients of -1 to +1, the Kolmogorov-Smirnov test value was $p<0.5$ because the sample was larger than 50. This result showed that the data were nonnormally distributed.

The Mann-Whitney U test was used to calculate the effect size of the variables causing significant differences. Pearson's correlation coefficient (r) was used for analysis. An absolute value of r around 0.1 is considered a small effect size. An absolute value of r around 0.3 is considered a medium effect size. An absolute value of r greater than 0.5 is considered a large effect size. R-squared (R2) expresses how much of the variation in a dependent variable can be explained by a set of independent factors. Eta squared (η2) was used to calculate the effect size of the Kruskal-Wallis H test analysis. An absolute value of η-squared (η2) around 0.01 is considered a small effect size. An absolute value of η-squared (η2) greater than 0.06 is considered a medium effect size. An absolute value of η-squared (η2) greater than 0.14 is considered a large effect size. The value of η2 also expresses how much of the total variance is explained (Cohen et al., 2017).

The qualitative data were analyzed using thematic analysis. Thematic analysis is a technique for finding, examining, and summarizing patterns (themes) in data, and organizes your data set very simply and provides (in-depth) descriptions of it (Braun & Clarke, 2006). Among the different thematic analysis approaches, the reflexive approach was preferred. The thematic analysis was the method of choice because this study investigated what participants thought were the factors affecting burnout. Frequency values were expressed numerically to increase the reliability of the qualitative data and to ensure its reproducibility. An expert checked the codes and themes for reliability after a literature review. Direct quotations were used to provide an accurate and coherent picture of participants' views.

FINDINGS

This section addressed the results based on variables. Table 3 shows the descriptive statistics of the MBI data.

Table 3. Descriptive Statistics

MBI Subscales	n	Mean	Standard Deviation (SD)	Min	Max
Emotional exhaustion	301	2,8	0,89	1.0	5.0
Depersonalization	301	1,8	0,74	1.0	4.4
Reduced personal accomplishment	301	3,7	0,59	1.3	5.0

Participants had a mean MBI "emotional exhaustion" subscale score of 2,8±0,89, indicating moderate levels of burnout. They had a mean MBI "depersonalization" subscale score of 1,8±0,74, indicating high levels of burnout. They had a mean MBI "reduced personal accomplishment" subscale score of 3,7±0,59, indicating low levels of burnout. This is probably because participants underachieve or cannot fully follow their own achievements in different conditions. The Mann-Whitney U test was used to determine whether participants' MBI subscale scores significantly differed by age. Table 4 shows the results.

Table 4. Mann-Whitney U Test Results for the Distribution of MBI Subscale Scores by Age

MBI Subscales	Age	n	Mean Rank	Rank Sum	Mann W.U	p
Emotional exhaustion	26-29	150	157.54	23631.50	10343.500	.193
	30+	151	144.50	21819.50		
Depersonalization	26-29	150	167.58	25136.50	8838.500	.001*
	30+	151	134.53	20314.50		
Reduced personal accomplishment	26-29	150	148.68	22302.50	10977.500	.644
	30+	151	153.30	23148.50		

*p<.05

The Mann-Whitney U test was used to determine whether participants' MBI subscale scores significantly differed by age (Table 4). The results showed that their MBI "emotional exhaustion" and "personal accomplishment" subscale scores did not significantly differ by age (p>.05). However, their MBI "depersonalization" subscale scores significantly differed by age (p<.05). Participants aged 26-29 had a significantly higher mean MBI "depersonalization" subscale score than those older than 29. The value of r was 0.19, which indicated a moderate effect size. Age accounted for 3% of the total variance. This result suggests that teachers with high emotional exhaustion and little experience are more likely to suffer from depersonalization. The Mann-Whitney U test was used to determine whether participants' MBI subscale scores significantly differed by the number of students. Table 5 shows the results.

Table 5. Mann-Whitney U Test Results for the Distribution of MBI Subscale Scores by the Number of Students

MBI Subscales	Number of Students	n	Mean Rank	Rank Sum	Mann W.U	p
Emotional exhaustion	0-19	171	155.18	26535.00	10401.000	.339
	20+	130	145.51	18916.00		
Depersonalization	0-19	171	155.72	26627.50	10308.500	.277
	20+	130	144.80	18823.50		
Reduced personal accomplishment	0-19	171	148.97	25474.00	10768.000	.642
	20+	130	153.67	19977.00		

The Mann-Whitney U test was used to determine whether participants' MBI subscale scores significantly differed by the number of students. The results showed no significant differences (p>.05). This is probably because teachers have a similar number of students.

Table 6. Kruskal Wallis-H Test Results for the Distribution of MBI Subscale Scores by Branch

MBI Subscales	Branch	n	Mean rank	X2	p	Sig.*
Emotional exhaustion	Classroom teacher	150	149.25	3.318	.345	-
	Turkish teacher	88	149.83			
	Literature teacher	49	146.71			
	Psychological Counseling and Guidance Teacher	14	192.07			
Depersonalization	Classroom teacher	150	152.70	9.533	.023*	1 - 3 2 - 3 4 - 3
	Turkish teacher	88	158.69			
	Literature teacher	49	120.90			
	Psychological Counseling and Guidance Teacher	14	189.86			
Reduced personal accomplishment	Classroom teacher	150	155.64	10.329	.016*	1 - 4 2 - 4 3 - 4
	Turkish teacher	88	149.51			
	Literature teacher	49	159.79			

MBI Subscales	Branch	n	Mean rank	X2	p	Sig.*
	Psychological Counseling and Guidance Teacher	14	79.96			

*p<.05

The Kruskal Wallis-H test was used to determine whether participants' MBI subscale scores significantly differed by branch. The results showed that their MBI "emotional exhaustion" subscale scores did not significantly differ by branch (p>.05). However, their MBI "depersonalization" and "reduced personal accomplishment" subscale scores significantly differed by branch (p<.05). The Mann–Whitney U test was used to determine the source of the significant difference. Literature teachers had a significantly lower MBI "depersonalization" subscale score than classroom, Turkish, and psychological counselor and guidance teachers. The difference had a moderate effect size (η2 = 0.03), indicating that "branch" explained 3% of the total variance. Psychological counseling and guidance teachers had a significantly lower mean MBI "reduced personal accomplishment" subscale score than classroom, Turkish, and literature teachers. The difference had a moderate effect size (η2 = 0.03), indicating that "branch" explained 3% of the total variance.

Table 7. Kruskal Wallis-H Test for the Distribution of Participants' MBI Subscale Scores by Their Views of Their Workloads

MBI Subscales	Views on workload	n	Mean rank	X2	p	Sig.*
Emotional exhaustion	I am happy about my workload.	27	247.11	50.880	.000*	1 - 2
	I have a heavy workload, but I can somehow cope with it.	229	150.44			1 - 3
	I cannot cope with my workload.	45	96.17			2 - 3
Depersonalization	I am happy about my workload.	27	204.17	12.001	.002*	1 - 2
	I have a heavy workload, but I can somehow cope with it.	229	147.79			1 - 3
	I cannot cope with my workload.	45	135.42			
Reduced personal accomplishment	I am happy about my workload.	27	79.11	21.096	.000*	1 - 2
	I have a heavy workload, but I can somehow cope with it.	229	160.11			1 - 3
	I cannot cope with my workload.	45	147.79			

*p<.05

The Kruskal Wallis-H test was used to determine whether participants' MBI subscale scores significantly differed by their views of their workloads. The results showed that their MBI subscale scores significantly differed by their views of their workloads (p<.05). The Mann-Whitney U test was used to determine the source of the significant difference.

Participants who could not cope with their workloads had a significantly higher mean MBI "emotional exhaustion" subscale score than those who could somehow cope with heavy workloads and those who were happy with their workloads. Participants who could somehow cope with heavy workloads had a significantly higher mean MBI "emotional exhaustion" subscale score than those who were happy with their workloads. This difference had a large effect size (η2 = 0.16), indicating that participants' views of their workloads accounted for 16% of the total variance.

Participants who could not cope with their workloads had a significantly higher mean MBI "depersonalization" subscale score than those who could somehow cope with heavy workloads and those who were happy with their workloads. This difference had a moderate effect size (η2 = 0.04), indicating that participants' views of their workloads accounted for 4% of the total variance.

Participants who could not cope with their workloads had a significantly higher mean MBI "reduced personal accomplishment" subscale score than those who could somehow cope with heavy workloads and those who were happy with their workloads. This difference had a moderate effect size (η2 = 0.07), indicating that participants' views of their workloads accounted for 7% of the total variance.

Table 8. How are you affected by the fact that you work under the Labor Law and are not recognized

Theme	Subtheme	Category	Code	Quotations
Negative Effects	Emotional Effects (383)	Personal (260)	"Badly" (33)	"It affects me badly, I mean, not being seen as a teacher. It hurts more when I think about how much I try to teach." P.205
			Adverse effects on motivation (32)	"It's terrible. I do my best and maybe more, but it doesn't say 'teacher' next to my name. We are teachers, this is my fifth year, but I don't have a teacher card. It demotivates me." P.7
			Upsetting (25)	"I feel worthless and unhappy. I feel like they're going to dump me when they're done with me, which makes me feel sad." P.148
		Social (123)	Not seeing/not being seen as a teacher (40)	"Wherever I go, I'm reminded that I'm not a teacher. Let's say I wanna buy something in installments. It takes me a while to prove that I'm a teacher. I'm also subjected to mobbing by the administration. I feel really down in the dumps when I hear that I'm not registered as a teacher on the system. Of course, not all administrators are like that, but I think most are." P.91

Theme	Subtheme	Category	Code	Quotations
			"Worthless" (26)	"I feel worthless. Not being called a teacher or being called a tutor makes me feel worthless." P.215
	Physical Effects (3)		"Exhausting" (2)	"I feel exhausted. It's frustrating that I put so much effort, but it's all overlooked." P.70

Participants' responses to the first interview question were grouped under two themes: emotional effects and physical effects. Almost all participants stated that working under the Labor Law affected them emotionally. The theme of "emotional effects" consisted of two categories: personal and social. Participants noted that working as language trainers but not as teachers under the Labor Law made them feel bad, sad, and demotivated. They remarked that people did not see them as teachers because they were referred to as language trainers by the system. They expressed that they were subjected to mistreatment that permanent teachers would never be subjected to. Some participants added that they were mentally and physically exhausted working under the Labor Law.

Table 9. What kind of reactions did you/do you get from your colleagues and supervisors at the schools or temporary education centers you work for?"

Theme	Subtheme	Category	Code	Quotations
Negative reactions from colleagues and supervisors	Varies (35)		Varies from school to school (30)	"It varies from school to school and from administrator to administrator. Some see us not as teachers but as babysitters and try to dump on us as much work as possible because we're not equal to them. But some others never treat us differently; they treat us like they would other teachers." P.7
	Negative reactions (261)	Social isolation (60)	Condescending (12)	"There is so much othering and disdain… Almost all teachers are like, 'why bother yourself with those students?' This is so sad…PIKTES language trainers are strong and efficient despite all social pressure." P.18
			Exclusion (9)	"I wasn't invited to the teachers' day event. Once I wasn't added to a WhatsApp group for one and a half years. And there is more." P.299
		Mobbing/ Mobbing-like attitudes (69)	Too much workload (26)	"They think we're obligated to anything they dump on us because there's an article on our contract. So I end up doing a lot of stuff that has nothing to do with teaching." P.179
			Mobbing (33)	"Our superior lashes at us almost every day. He says, 'you have to do this because that's what you're paid for.' We end up doing tons of stuff that has nothing to do with teaching. He's mobbing us. I let go and let God." P.31 "I used to work for an Imam Hatip high school. The principal said some hurtful things to me. He said my look was not suitable for an Imam Hatip high school and that's why they didn't want me there. If I were a permanent teacher, they wouldn't be able to say such things." P.91
			Pressure (8)	"They pressure us and threaten us like they would never do to permanent teachers." P.131
			Scolding (5)	"The principal hasn't wanted us there since day one. He is just scolding us all the time." P.154
		Discrimination (100)	Not being seen as a teacher (32)	"The principal of the temporary education center has scolded me a couple of times like a little kid in front of my students. No one sees me as a teacher. They dump tons of stuff on me and make me do all the donkey work." P.216
				"They see us as temps, and that's how they treat us. They don't take us seriously when we express our opinions. They don't even invite us to the teacher's day events." P.10
			Different from permanent teachers (20)	"Some see us not as teachers but as babysitters and try to dump on us as much work as possible because we're not equal to them." P.7

Participants' responses to the second interview question were grouped under one theme, "negative reactions from colleagues and supervisors," which consisted of the subthemes of "varies" and "negative reactions." Participants stated that they were often transferred from one school to another due to the integration class system. They noted that they were appreciated and treated with respect in some schools but were not "wanted" or made to feel worthless in others. However, they emphasized that it varied from institution to institution. They remarked that they were subjected to mobbing/mobbing-like attitudes and social isolation and discrimination. They expressed that they were "othered," "excluded," and "looked down on" in some institutions. An important point was that some participants used the term "mobbing" and stated they were subjected to mobbing-like attitudes. They also stated that their superiors sometimes "pressured" and "scolded" them. Another

important point was that participants noted that they were discriminated against. They remarked that their superiors and colleagues did not see them as “teachers” and treated them in a way they would never be treated if they were permanent teachers.

Table 10. How does working with international students affect you?

Theme	Subtheme	Category	Code	Quotations
Negative Effect of Working with International students	Emotional (60)	Personal (23)	Backbreaking (6)	“I feel like I'm all burnt out because it's exhausting to work with a difficult group and always to give and give. I try hard to teach my language and culture to kids whose language and culture I have no idea about. Sometimes, it just doesn’t work, which is frustrating.” P.174
		Professional (37)	Students' problems (24)	“When I first started working for the project, all my students were traumatized by the war. Some of my students lost their arms, some lost their legs, and most lost their parents. This is mentally frustrating. I try hard to make sure that I don't use any words that would remind them of the war. I even hesitate to say ‘mom’ and ‘dad’ because I don’t wanna upset them. Some students don’t have parents. So they need education but also compassion. So, as a teacher, I have to do more than just teach.” P.204
	Physical (191)		Challenging (43)	“Some students are violent, making it hard for me to manage the classroom and use different teaching methods.” P.164
			Heavy workload (143)	“Most students are problematic and can’t speak the language. So we end up working more and more.” P.127 “I work harder because I’m doing something important for my country. I do my best to be more productive.” P.104

Participants' responses to the fourth interview question were grouped under two subthemes: emotional and physical. Participants stated that working with international students for a long time affected them emotionally. They noted that it was exhausting and frustrating to work with international students. They remarked that students brought their problems to school with them. Most participants also added that working with international students was physically exhausting because they had to deal with a heavy workload.

Table 111. What do you think about PIKTES and your future?

Theme	Category	Code	Quotations
Views on the Future	Personal solutions (1)	Leaving the project (1)	I don’t wanna be a part of this project anymore. I don’t wanna be tenured under these circumstances either. It's exhausting, and I can't exercise my rights. Although I took the public personnel selection examination (PPSE) and got appointed, I wanna prepare for the exam again and leave the project. I believe what we do is important, but we’re never acknowledged. We’re all disappointed by the salary and vacations.” P.140
	Unclear Opinions (170)	Uncertain (103)	"They should either say 'the project is over; you can go now' or 'we'll appoint you as teachers.' I wanna be able to make plans. I expect the project to be over every year, but they just keep extending it. So, we're clueless about our futures, with all the uncertainty and inconsistency." P.220
		Wishes (67)	“I don’t trust PIKTES, but I want to. It’s very unlikely that I’ll be appointed anyway, so I’m just being patient” P.65
	Clear Opinions (118)	Being tenured (66)	"I believe things are gonna be OK. Not everybody can do this job. I think that people will wanna study this major in the future." P.272
		Project Termination/Unemployment (31)	“The minister tells us to take the exam. Well, we already took the exam and got interviewed and got security clearance. I think I'll end up jobless. I hope I won't. I've been working for five years; I hope it's not in vain..." P.31
		Extension of the Project (21)	"PIKTES will go on as long as it gets funded by the European Union. They'll get new teachers to replace the current ones. After all, I don't see myself in this project or even working as a teacher." P.233

Participants’ responses to the fifth interview question were grouped under three categories. More than half the participants were uncertain about their futures. They were also uncertain about the future of PIKTES. Some participants hoped they would get appointed as teachers after the project was over. However, some believed that they would end up jobless after the project was over. Some others thought that the Ministry of Education would extend the project as long as there were international students in Türkiye.

CONCLUSION AND RECOMMENDATIONS

This study investigated the burnout levels of Turkish language trainers working for the Promoting Integration of Syrian Kids into the Education System (PIKTES) project. Participants had a mean MBI “emotional exhaustion” subscale score of 25.91±8.03, indicating moderate levels of burnout. They had a mean MBI “depersonalization” subscale score of 22.00±9.07, indicating high levels of burnout. They had a mean MBI “reduced personal accomplishment” subscale score of 30.09±4.78, indicating low levels of burnout. There is a large body of research on burnout

among teachers. However, few studies have investigated the burnout levels of Turkish language trainers. Kurt and Küçüksüleymanoğlu (2020) found that Turkish language trainers in Bursa had moderate levels of emotional exhaustion, high levels of depersonalization and reduced personal accomplishment. Mahfouz et al. (2020) conducted a study with Lebanese teachers and administrators and reported two results. First, teachers and administrators were socioemotionally affected by Syrian students. Second, teachers were emotionally exhausted because they had a heavy workload and because Syrian students had gaps in their academic knowledge and experienced trauma due to forced migration. Chatzea et al. (2018) reported that administrators working with immigrants had high levels of burnout. Teachers working with traumatized students are more likely to experience burnout (Brunzel et al., 2018). They experience higher levels of burnout when they have to work with international students with traumatic life experiences and gaps in their academic knowledge.

Age affected our participants' MBI "depersonalization" subscale scores. There is a negative correlation between age and burnout (Diab et al., 2018). However, Akyürek (2020) did not find a correlation between age and burnout. On the other hand, Yakut and Certel (2016) determined that teachers over 30 years of age had higher levels of burnout than those younger than 30. This is probably because young Turkish language trainers are more concerned about their futures than their older counterparts. Although research shows the opposite (Kurt & Küçüksüleymanoğlu, 2020), the number of students did not affect our participants' MBI scores. This is probably because integration classrooms had a set number of students, unlike temporary education centers. Branch affected our participants' MBI "depersonalization" and "reduced personal accomplishment" subscale scores. Literature teachers had a significantly lower mean MBI "depersonalization" subscale score than classroom, Turkish, and psychological counseling and guidance teachers. This is probably because literature teachers feel inadequate and experience depersonalization when working with primary school students because they have been trained to work with high school students. Psychological counseling and guidance teachers had a significantly lower mean MBI "reduced personal accomplishment" subscale score than classroom, Turkish, and literature teachers. Officials dealing with refugees and their problems experience burnout (Eriksson et al., 2013). According to teachers, school psychologists should deal with children's mental problems (Reinke et al., 2011). Psychological counseling and guidance teachers are assigned to more than one school and deal not only with students' educational problems but also with their traumatic life experiences. Therefore, this is probably why they feel reduced personal accomplishment.

Our participants' views of the workload affected their burnout levels. Most participants found PIKTES activities moderately or highly effective. However, they also stated that they had a heavy workload, making them more likely to experience burnout (Erdem & Öztürk, 2020; Jomuad et al., 2021; Van Droogenbroeck et al., 2014). International students cause administrators to work harder because they have extra paperwork (Dolapcı & Kavgacı, 2020; Durak & Seferoğlu, 2017). Moreover, teachers also have to work harder because international students need them emotionally (Duman, 2019) and academically (Tiryaki & Oğraş, 2020). Turkish language trainers experience high levels of burnout for three reasons. First, they do not have a specific job description. Second, they cannot exercise their rights properly. Third, they have a heavier workload because they work with international students.

The qualitative results showed that our participants were emotionally and physically affected because they worked under the Labor Law. They were also affected socially and emotionally because they were not recognized as teachers and could not exercise their rights as much as they were entitled to. Schwab and Iwanicki (1982) argue that the role confusion and uncertainty surrounding their job description cause teachers to experience burnout. Durak and Seferoğlu (2017) reported that teachers felt pressure on their shoulders and suffered from a heavy workload because their position did not have a specific job description, putting them in a position where they were made to accomplish other tasks that had nothing to do with teaching. In short, Turkish language trainers experience high levels of burnout for three reasons. First, they are not recognized as teachers. Second, they do not have a specific job description. Third, they cannot exercise their rights.

Our participants stated that they were treated poorly by their colleagues and superiors because they could not exercise their rights. They noted that they were excluded from the organizational structure, although it varied from school to school. They remarked that superiors and colleagues assigned them unrelated tasks, subjected them to mobbing, failed to view them as teachers, and treated them differently from permanent teachers. Mobbing is defined as psychological pressure, emotional harassment, or a kind of moral violence performed in the workplace by those who have power. Therefore, being excluded from the organizational structure, being discriminated against, and being exposed to condescending remarks can be considered mobbing. Tanhan & Çam (2011) reported a positive correlation between mobbing and burnout. Poor working conditions, ineffective professional relationships, heavy workloads, and limited opportunities are potential stressors (İra et al., 2021; Richardson et al., 2018). Turkish language trainers experience high stress levels because superiors do not acknowledge their effort and do not do anything to motivate them (Karkouti et al., 2021). In short, Turkish language trainers working with international students are subjected to mobbing and experience high levels of burnout for five reasons. First, their labor is not recognized. Second, they do not receive any administrative and professional support. Third, they are excluded from the social structure. Fourth, they are discriminated against. Fifth, they are not viewed as teachers.

Not only do international students have traumatic life experiences, but they also suffer from educational problems as they cannot go to school and have many gaps in their academic knowledge. Therefore, they need more psycho-emotional and academic support. Our participants stated they exerted much effort to attend to their students to meet their needs despite unfavorable conditions. However, they noted that they could not attend to each student equally due to student- and family-related reasons. They remarked that working with international students placed a heavy workload on their shoulders and affected them emotionally, not only as teachers but also as individuals, because those students needed cognitive, affective, and social support. How students behave affects how well teachers perform (Zee et al., 2017). Aydın and Kaya (2019) stated that the biggest challenge of working with Syrian students was their war trauma. Zabel and Zabel (1982) also found that teachers of special and inclusive students had the highest levels of emotional exhaustion. Teachers have difficulty communicating with international students (Ekin & Yetkin, 2021), affecting them negatively (İra et al., 2021). Karkouti et al. (2021) determined that teachers experienced high stress levels for three reasons. First, they were unprepared for the influx of international students into their schools. Second, they did not believe that they had enough knowledge and experience. Third, they realized that international students had academic and emotional needs. In short, Turkish language trainers have high levels of burnout for three reasons. First, they have to work with international students, although they have not received any training in it. Second, they have to work harder than they can tolerate. Third, international students have emotional needs in addition to academic ones.

Poor working conditions adversely affect Turkish language trainers. They are concerned about the future because they work under a temporary contract. They cannot exercise the personal rights that permanent teachers enjoy. Therefore, they have a hard time viewing

themselves as teachers. Heavy workload, poor working conditions, students with low motivation, and limited opportunities are stressors (Antoniou et al., 2013). Turkish language trainers experience high levels of stress (Çalışır, 2021) because they have a heavy workload (Koomen, 2017). Therefore, administrators should recognize that working with international students places a heavy burden on Turkish language trainers' shoulders. Authorities should clearly define the job description of Turkish language trainers. Moreover, Turkish language trainers are concerned about the future, as half of our participants stated that they viewed the future as something uncertain and unpredictable. Some Turkish language trainers believe they will be appointed as permanent teachers after the project is over. However, some others believe that they will be out of work after it is over. Koomen (2017) reported that Lebanese teachers working with international students experienced uncertainty and stress due to regulatory issues. Uncertainty and stress affect the quality of education adversely, causing anxiety, fatigue, burnout, and poor academic performance (Helsing, 2007). Turkish language trainers experience high levels of burnout because an uncertain future awaits them after the project is over.

Pedagogical Implications

The following are recommendations based on the results:

-The Ministry of Education should recruit more Turkish language trainers younger than 30. In this way, a standard teacher-student ratio will be ensured at all schools.

-Authorities should provide refugee children with psychosocial support and encourage parents to participate in projects for socialization. This could reduce the workload of Turkish language trainers who find themselves in a situation where they have to achieve tasks that have nothing to do with their job description. We believe this could also reduce their burnout levels.

-Authorities should involve all refugee children in similar projects. They should provide Turkish language trainers with training to teach them how to approach international students. They should also offer citizenship education to refugee children and their parents to ensure they adapt to the host society.

Declaration of Conflicting Interests

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

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Statements of Publication Ethics

We hereby declare that the study has no unethical issues and that research and publication ethics have been observed carefully.

Researchers' contribution rate

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

Ethics Committee Approval Information

This research was investigated with the ethics committee of social and human sciences researches of Ondokuz Mayıs University dated 28.05.2021 and decision number 2021-490.

REFERENCES

Akyürek, M. İ. (2020). Öğretmenlerde tükenmişlik. *Dicle Üniversitesi Ziya Gökalp Eğitim Fakültesi* Dergisi, *1*(37), 35–47. https://dergipark.org.tr/tr/pub/zgefd/issue/54277/657574

Antoniou, A. S., Ploumpi, A. & Ntalla, M. (2013). Occupational stress and professional burnout in teachers of primary and secondary education: The role of coping strategies. *Psychology*, *4*(3), 349–355. doi:10.4236/psych.2013.43A051

Arabacı, I. B. (2010). The effects of depersonalization and organizational cynicism levels on the job satisfaction of educational inspectors. *African Journal of Business Management*, *4*(13), 2802–2811. https://academicjournals.org/article/article1380723987_arabaci.pdf

Aydın, H. & Kaya, Y. (2019). Education for Syrian refugees: the new global issue facing teachers and principals in Turkey. *Educational Studies - AESA*, *55*(1), 46–71. doi:10.1080/00131946.2018.1561454

Basim, H. N., Begenirbas, M., & Can Yalcin, R. (2013). Effects of teacher personalities on emotional exhaustion: mediating role of emotional labor. *Educational Sciences: Theory and Practice*, *13*(3), 1488–1496. https://eric.ed.gov/?id=ej1017705

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Brunzel, T., Stokes, H. & Waters, L. (2018). Why do you work with struggling students? Teacher perceptions of meaningful work in trauma-impacted classrooms. *Australian Journal of Teacher Education*, *43*(2), 115-142.

Büyüköztürk, Ş., Çakmak, E. K., Akgün, Ö. E., Karadeniz, Ş. & Demirel, F. (2012). *Bilimsel araştırma yöntemleri* (12th ed.). Pegem Yayınları. doi:10.14527/9789944919289

Çalışır, M. (2021). Uyum sınıfları hakkında öğretmen görüşleri. Conference paper presentation at ERPA International Congresses on Education. Sakarya, Turkey. https://www.researchgate.net/publication/353620454_Uyum_Siniflari_Hakkinda_Ogretmen_Gorusleri.

Capel, S. A. (1987). The incidence of and influences on stress and burnout in secondary school teachers. *The British Journal of Educational Psychology*, *57*(3), 279–288. https://doi.org/10.1111/j.2044-8279.1987.tb00857.x

Capel, S. A. (1992). Stress and burnout in teachers. *European Journal of Teacher Education*, *15*(3), 197–211. https://doi.org/10.1080/0261976920150305

Chatzea, V.-E., Sifaki-Pistolla, D., Vlachaki, S.-A., Melidoniotis, E. & Pistolla, G. (2018). PTSD, burnout and well-being among rescue workers: Seeking to understand the impact of the European refugee crisis on rescuers. *Psychiatry Research*, 262, 446–451. doi:10.1016/j.psychres.2017.09.022

Cherniss, C. (1985). Stress, burnout, and the special services provider. *Special Services in the Schools*, *2*(1), 45–61. doi:10.1300/J008v02n01_04

Civelek, M. E., & Pehlivanoğlu, M. Ç. (2019). Ilaç sektöründe tükenmişlik sendromu ve satış performansı arasındaki ilişki. *OPUS Uluslararası Toplum Araştırmaları Dergisi, 11*(18), 2071 -2086. https://doi.org/10.26466/opus.566917

Cohen, L., Manion, L., & Morrison, K. (2017). *Research methods in education (8th ed.)*. Routledge.

Creswell, J. W., & Plano Clark, V. L. (2017). *Designing and conducting mixed methods research (3rd ed.)*. SAGE Publications.

Cropanzano, R., Rupp, D. E., & Byrne, Z. S. (2003). The relationship of emotional exhaustion to work attitudes, job performance, and organizational citizenship behaviors. *The Journal of Applied Psychology*, *88*(1), 160–169. https://doi.org/10.1037/0021-9010.88.1.160

Delegation Of The European Union. (y.y.). *Promoting integration of syrian kids into the education system (PIKTES) II | EU Delegation to Turkey*. https://www.avrupa.info.tr/en/project/promoting-integration-syrian-kids-education-system-piktes-ii-10396. Accessed January 26, 2022.

DGLLL. (2020). *İzleme ve Değerlendirme Raporu - 2019*. https://hbogm.meb.gov.tr/meb_iys_dosyalar/2021_06/07091759_08201728_RAPOR05.05.2021.pdf.

DGMM. (2020, September 23). *Geçici koruma istatistikleri*. https://www.goc.gov.tr/gecici-koruma5638

Diab, S. Y., Palosaari, E. & Punamäki, R. L. (2018). Society, individual, family, and school factors contributing to child mental health in war: The ecological-theory perspective. *Child Abuse and Neglect*, 84, 205–216. doi:10.1016/j.chiabu.2018.07.033

Diestel, S., & Schmidt, K.-H. (2010). Direct and interaction effects among the dimensions of the Maslach Burnout Inventory: Results from two German longitudinal samples. *International Journal of Stress Management*, *17*(2), 159–180. https://doi.org/10.1037/a0018967

Dolapcı, E. & Kavgacı, H. (2020). Öğretmenlerin çok kültürlü özyeterlik algısı ve okul iklimi ile mülteci öğrencilere yönelik tutumları arasındaki ilişkilerin incelenmesi. *Eğitim Bilimleri Dergisi*, *52*(52), 687–706. doi:10.15285/maruaebd.669692.

Duman, T. (2019). Toplumsal uyum için eğitimin önemi: Türkiye'deki suriyeliler örneği. *Selçuk Üniversitesi Edebiyat Fakültesi Dergisi*, (41), 343–368. doi:10.21497/sefad.586638

Durak, H. Y. & Seferoğlu, S. S. (2017). Öğretmenlerde tükenmişlik duygusunun çeşitli değişkenler açısından incelenmesi. *Gazi Üniversitesi Gazi Eğitim Fakültesi Dergisi*, *37*(2), 759–788.

Ekin, S. & Yetkin, R. (2021). Teachers' attitudes to Syrian refugee students in Turkey. *Eurasian Journal of Applied Linguistics*, *7*(1), 383–396. doi:10.32601/ejal.911458

Erdem, M. & Öztürk, M. A. (2020). Sınıf öğretmenlerinin iş yükü algısı ile mesleki tükenmişlik düzeyleri arasındaki ilişki. *Yüzüncü Yıl Üniversitesi Eğitim Fakültesi Dergisi*, *17*(1), 926–958. doi:10.33711/yyuefd.751859

Ergin, C. (1992, September 22). Doktor ve hemşirelerde tükenmişlik ve Maslach tükenmişlik ölçeğinin uyarlanması. Conference paper presentation at VII. Ulusal Psikoloji Kongresi, Hacettepe Üniversitesi, Ankara, Turkey.

Eriksson, C. B., Lopes Cardozo, B., Ghitis, F., Sabin, M., Gotway Crawford, C., Zhu, J., … Kaiser, R. (2013). Factors associated with adverse mental health outcomes in locally recruited aid workers assisting Iraqi refugees in Jordan. *Journal of Aggression, Maltreatment & Trauma*, *22*(6), 660–680. doi:10.1080/10926771.2013.803506

Freudenberger, H. J. (1974). Staff burn-out. *Journal of Social Issues*, *30*(1), 159–165. doi:10.1111/j.1540-4560.1974.tb00706.x

Freudenberger, H. J. (1975). The staff burnout syndrome in alternative institutions. *Psychotherapy: Theory, Research & Practice*, *12*(1), 73–82. doi:10.1037/h0086411

Greenglass, E., Fiksenbaum, L., & Burke, R. J. (1996). Components of social support, buffering effects and burnout: Implications for psychological functioning. *Anxiety, Stress & Coping*, *9*(3), 185–197. https://doi.org/10.1080/10615809608249401

Guenette, J. P., & Smith, S. E. (2018). Burnout: job resources and job demands associated with low personal accomplishment in united states radiology residents. *Academic Radiology*, *25*(6), 739–743. https://doi.org/10.1016/j.acra.2017.12.002

Guralnik, O., Schmeidler, J., & Simeon, D. (2000). Feeling unreal: Cognitive processes in depersonalization. *The American Journal of Psychiatry*, *157*(1), 103–109. https://doi.org/10.1176/ajp.157.1.103

Helsing, D. (2007). Regarding uncertainty in teachers and teaching. *Teaching and Teacher Education*, *23*(8), 1317–1333. doi:10.1016/j.tate.2006.06.007

Hollet-Haudebert, S., Mulki, J. P., & Fournier, C. (2011). Neglected burnout dimensions: effect of depersonalization and personal nonaccomplishment on organizational commitment of salespeople. *Journal of Personal Selling & Sales Management*, *31*(4), 411–428. https://doi.org/10.2753/PSS0885-3134310404

Iannucci, C., Richards, K. A. R., & MacPhail, A. (2021). The relationships among personal accomplishment, resilience and teachers' experience of teaching multiple school subjects role conflict. *European Physical Education Review*, *27*(3), 613–635. https://doi.org/10.1177/1356336X20980777

İra, N., Yalçınkaya Önder, E. & Çetin, T. G. (2021). An investigation into the views of refugee students' teachers on their subjective well-being: A qualitative descriptive study. *Educational Policy Analysis and Strategic Research*, *16*(2), 354–365. doi:10.29329/epasr.2020.345.16

Jomuad, P. D., Mabelle Antiquina, L. M., Cericos, E. U., Bacus, J. A., Vallejo, J. H., Dionio, B. B., … Clarin, A. S. (2021). Teachers' workload in relation to burnout and work performance. *International Journal of Educational Policy Research and Review*, *8*(2), 48–53.

Kalliath, T., & Morris, R. (2002). Job satisfaction among nurses: a predictor of burnout levels. *JONA: The Journal of Nursing Administration*, *32*(12), 648–654. https://journals.lww.com/jonajournal/abstract/2002/12000/job_satisfaction_among_nurses__a_predictor_of.10.aspx

Karaboga, T., Erdal, N., Karaboga, H. A., & Tatoglu, E. (2022). Creativity as a mediator between personal accomplishment and task performance: A multigroup analysis based on gender during the COVID-19 pandemic. *Current Psychology*, *42*(15), 1–13. https://doi.org/10.1007/s12144-021-02510-z

Karasar, N. (2020). *Bilimsel araştırma yöntemi; Kavramsal ilkeler teknikler* (36th eds.). Nobel Yayınevi.

Kariou, A., Koutsimani, P., Montgomery, A., & Lainidi, O. (2021). Emotional labor and burnout among teachers: a systematic review. *International Journal of Environmental Research and Public Health*, *18*(23). https://doi.org/10.3390/ijerph182312760

Karkouti, I. M., DeVere Wolsey, T., Bekele, T. A., & Toprak, M. (2021). Empowering teachers during refugee crises: Social support they need to Thrive. *Teaching and Teacher Education*, *107*(103471). https://doi.org/10.1016/j.tate.2021.103471

Kokkinos, C. M. (2007). Job stressors, personality and burnout in primary school teachers. *The British Journal of Educational Psychology*, *77*(1), 229–243. https://doi.org/10.1348/000709905X90344

Koomen, S. (2017). The working conditions and motivation of teachers of refugees a comparative study of host country teachers and Syrian refugee teachers in Lebanon [Master dissertation, University of Oslo]. DUO Research Archive. https://www.duo.uio.no/bitstream/handle/10852/61347/RefugeeTeachersSKoomen.pdf?sequence=1&isAllowed=y.

Kurt, A. & Küçüksüleymanoğlu, R. (2020). Suriyeli öğrenciler için görevlendirilen pictes öğretmenlerinin tükenmişlik düzeyleri: Bursa örneği. *Sakarya Üniversitesi Eğitim Fakültesi Dergisi*, *39*(39), 24–45.

Lee, R. T., & Brotheridge, C. M. (2006). When prey turns predatory: Workplace bullying as a predictor of counteraggression/bullying, coping, and well-being. *European Journal of Work and Organizational Psychology*, *15*(3), 352–377. https://doi.org/10.1080/13594320600636531

Leiter, M. P., Maslach, C., & Frame, K. (2015). Burnout. In *The Encyclopedia of Clinical Psychology* (pp. 1–7). John Wiley & Sons, Inc. doi:10.1002/9781118625392.wbecp142

Liang, H.-L. (2015). Are you tired? Spillover and crossover effects of emotional exhaustion on the family domain. *Asian Journal of Social Psychology*, *18*(1), 22–32. https://doi.org/10.1111/ajsp.12075

Mahfouz, J., El-Mehtar, N., Osman, E. & Kotok, S. (2020). Challenges and agency: Principals responding to the Syrian refugee crisis in Lebanese public schools. *International Journal of Leadership in Education*, *23*(1), 24–40. doi:10.1080/13603124.2019.1613570

Maslach, C. (1993). Burnout: A multidimensional perspective. In W. B. Schaufeli, C. Maslach, & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 19–32). Taylor & Francis. doi:10.4324/9781315227979-3

Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Organizational Behavior*, *2*(2), 99–113. doi:10.1002/job.4030020205

Maslach, C., & Leiter, M. P. (1997). *The truth about burnout: how organizations cause personal stress and what to do about it*. Jossey-Bass.

Maslach, C., & Leiter, M. P. (1999). Teacher burnout: A research agenda. In R. Vandenberghe & A. M. Huberman (Eds.), *Understanding and preventing teacher burnout: A sourcebook of international research and practice* (pp. 295–303). Cambridge University Press. https://doi.org/10.1017/CBO9780511527784.021

Maslach, C., & Leiter, M. P. (2016). Burnout. In Fink, G. (Ed.), *Stress: concepts, cognition, emotion, and behavior* (pp. 351–357). Elsevier. doi:10.1016/B978-0-12-800951-2.00044-3

Maslach, C., Schaufeli, W. B. & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology*, *52*(1), 397–422. doi:10.1146/annurev.psych.52.1.397

Maslach, C., & Leiter, M. P. (1997). *The truth about burnout: How organizations cause personal stress and what to do about it*. Jossey-Bass.

Maslach, C., & Leiter, P. M. (2005). Reversing burnout: How to rekindle your passion for your work. *Stanford Social İnnovation Review*, *3*(4), 43–49. https://ssir.org/articles/entry/reversing_burnout

MNE. (2014). 2014/21 Sayılı Genelge. http://mevzuat.meb.gov.tr/dosyalar/1715.pdf

Moon, T. W., & Hur, W.-M. (2011). Emotional intelligence, emotional exhaustion, and job performance. *Social Behavior and Personality: An İnternational Journal*, *39*(8), 1087–1096. https://doi.org/10.2224/sbp.2011.39.8.1087

Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (4th ed.). SAGE Publications.

PIKTES. (2021, May 6). *Suriyeli çocukların Türk eğitim sistemine entegrasyonun desteklenmesi projesi*. https://piktes.gov.tr/.

Reinke, W. M., Stormont, M., Herman, K. C., Puri, R. & Goel, N. (2011). Supporting children's mental health in schools: Teacher perceptions of needs, roles, and barriers. *School Psychology Quarterly*, *26*(1), 1–13. doi:10.1037/a0022714

Richardson, E., MacEwen, L. & Naylor, R. (2018). *Teachers of refugees: a review of the literature*. Education Development Trust. https://files.eric.ed.gov/fulltext/ED588878.pdf

Sarros, J. C., & Sarros, A. M. (1987). Predictors of teacher burnout. *Journal of Educational Administration*, *25*(2), 216–230. https://doi.org/10.1108/eb009933

Schwab, R. L. & Iwanicki, E. F. (1982). *Perceived role conflict, role ambiguity, and teacher burnout*. Educational Administration Quarterly, 18(1), 60–74. doi:10.1177/0013161X82018001005

Sönmez, V. & Alacapınar, F. G. (2016). *Örneklendirilmiş bilimsel araştırma yöntemleri* (4th ed.). Anı Yayıncılık.

Tanhan, F. & Çam, Z. (2011). The relation between mobbing behaviors teachers in elementary schools are exposed to and their burnout levels. *Procedia - Social and Behavioral Sciences*, *15*, 2704–2709. doi:10.1016/J.SBSPRO.2011.04.174

Taris, T. W., Le Blanc, P. M., Schaufeli, W. B., & Schreurs, P. J. G. (2005). Are there causal relationships between the dimensions of the Maslach Burnout Inventory? A review and two longitudinal tests. *Work & Stress*, *19*(3), 238–255. https://doi.org/10.1080/02678370500270453

Tiryaki, E. nur & Oğraş, İ. (2020). Türkçe dersinin Suriyeli öğrencilere öğretim sürecine ilişkin öğretmen. *Uluslararası Türkçe Edebiyat Kültür Eğitim Dergisi*, *9*(4), 1581–1601.

Türnüklü, A. (2000). Eğitim bilim araştırmalarında etkin olarak kullanılabilecek nitel bir araştırma tekniği: Görüşme. *Kuram ve Uygulamada Eğitim Yönetimi Dergisi*, *6*(4), 543-559.

UNHCR. (2021, November 9). *Refugees and Asylum Seekers in Turkey – UNHCR Turkey*. https://www.unhcr.org/tr/en/refugees-and-asylum-seekers-in-turkey.

Uştu, H. & Tümkaya, S. (2021). The impact of the refugee student factor on primary school teachers' burnout and occupational commitment. *Revista De Education*, *393*(8), 66–96.

Uzunsakal, E. & Yıldız, D. (2018). Alan araştırmalarında güvenilirlik testlerinin karşılaştırılması ve tarımsal veriler üzerine bir uygulama *Uygulamalı Sosyal Bilimler Dergisi*, *2*(1), 14–28.

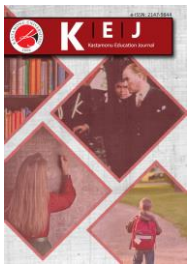
Van Droogenbroeck, F., Spruyt, B. & Vanroelen, C. (2014). Burnout among senior teachers: Investigating the role of workload and interpersonal relationships at work. *Teaching and Teacher Education*, *43*, 99–109. doi:10.1016/j.tate.2014.07.005

Yakut, S. & Certel, H. (2016). Öğretmenlerde yalnızlık düzeyinin çeşitli değişkenler açısından incelenmesi. *Birey ve Toplum Sosyal Bilimler Dergisi*, *6*(1), 69–94.

Zabel, R. H. & Zabel, M. K. (1982). Factors in burnout among teachers of exceptional children. *Exceptional Children*, *49*(3), 261–263. doi:10.1177/001440298204900312

Zee, M., de Jong, P. F. & Koomen, H. M. Y. (2017). From externalizing student behavior to student-specific teacher self-efficacy: The role of teacher-perceived conflict and closeness in the student–teacher relationship. *Contemporary Educational Psychology*, *51*, 37–50. doi:10.1016/j.cedpsych.2017.06.009

Kastamonu Education Journal, 2024, Vol. 32, No:1, 193-200
doi: 10.24106/kefdergi.1426747



| Research Article / Araştırma Makalesi |

The Effect of Preschool Teachers' Engagement in Collaborative Professional Practices on Pedagogical Practices

Okul Öncesi Öğretmenlerinin İşbirlikçi Mesleki Uygulamalara Katılımının Pedagojik Uygulamalara Etkisi

Mehmet SAĞLAM[1], **Osman Tayyar ÇELİK**[2], **Yunus TUNÇ**[3]

Keywords

1. Preschool education,
2. Collaborative professional learning,
3. Pedagogical practices,

Anahtar Kelimeler

1. Okul öncesi eğitim
2. İşbirlikçi mesleki öğrenme
3. Pedagojik uygulamalar

Received/Başvuru Tarihi
12.05.2023

Accepted / Kabul Tarihi
17.12.2023

Abstract

Purpose: Preschool teachers are crucial in meeting children's needs and supporting their learning and development. This study explored the link between preschool teachers' engagement in collaborative professional practices and their pedagogical practices to meet children's needs.

Design/Methodology/Approach: This research used survey data from 1546 preschool teachers in Turkey who took part in the TALIS Starting Strong Survey 2018 by the Organization for Economic Co-operation and Development. Descriptive statistics and structural equation modeling were used for data analysis.

Findings: The findings indicated that preschool teachers' engagement in collaborative professional practices positively predicted their pedagogical practices regarding children's needs. Furthermore, engagement in collaborative professional practices accounted for approximately 7% of the variance in pedagogical practice.

Highlights: These results provide compelling evidence for the positive impact of teachers' collaborative professional learning on their pedagogical practices, which in turn can contribute to children's learning and development in preschool education. Collaborative professional practices in preschool education effectively support children's learning and development.

Öz

Çalışmanın amacı: Okul öncesi eğitimde çocukların ihtiyaçlarına cevap verebilecek, öğrenme ve gelişimini destekleyecek uygulamalarda öğretmen anahtar bir role sahiptir. Bu araştırmada okul öncesi öğretmenlerinin işbirlikçi mesleki uygulamalara katılımları ile öğretmenlerin çocukların ihtiyacına uygun pedagojik uygulamaları arasındaki ilişkiyi belirlemek amaçlanmıştır.

Materyal ve Yöntem: Araştırmada, Ekonomik İş Birliği ve Kalkınma Örgütü tarafından gerçekleştirilen TALIS Güçlü Başlangıç Araştırması 2018'e Türkiye'den katılan okul öncesi öğretmeni anket verileri kullanılmıştır. TALIS Güçlü Başlangıç Araştırmasına Türkiye'den 1605 öğretmen katılırken bu araştırmada veri analizleri kayıp ve hatalı verilerin çıkarılması sonucu 1546 öğretmen verisi üzerinden yürütülmüştür. Verilerin analizinde betimsel istatistiklerden ve yapısal eşitlik modellemesinden (YEM) yararlanılmıştır.

Bulgular: Araştırma sonucunda okul öncesi öğretmenlerinin işbirlikçi mesleki uygulamalara katılımının çocukların ihtiyacına uygun pedagojik uygulamalarını pozitif yönde anlamlı şekilde yordadığı belirlenmiştir. Ayrıca işbirlikçi mesleki uygulamalara katılımın pedagojik uygulamalardaki varyansın yaklaşık %7'sini açıklayabildiği tespit edilmiştir.

Önemli Vurgular: Araştırma sonuçları öğretmenlerin işbirlikçi mesleki öğrenmelerinin pedagojik uygulamalarına pozitif yönlü etkisine yönelik kanıtlar sunmaktadır. Bu sonuçlar öğretmenlerin mesleki gelişimlerinin okul öncesi eğitimde süreç kalitesine etkisi bağlamında tartışılmıştır.

[1] İnönü University, Faculty of Health Sciences, Department of Child Development, Malatya, TURKEY; https://orcid.org/0000-0003-1784-4472
[2] İnönü University, Faculty of Health Sciences, Department of Child Development, Malatya, TURKEY; https://orcid.org/0000-0003-3951-7261
[3] **Corresponded Author,** Iğdır University, Vocational School of Health Services, Department of Child Development, Iğdır, TURKEY; https://orcid.org/0000-0003-0762-9728

Citation/Alıntı: Sağlam, M., Çelik, O. T., & Tunç, Y. (2024). The Effect of Preschool Teachers' Engagement in Collaborative Professional Practices on Pedagogical Practices. *Kastamonu Education Journal, 32*(1), 193-200. doi: 10.24106/kefdergi.1426747

INTRODUCTION

There are general assumptions and empirical research results that preschool education has a significant impact on children's cognitive and social-emotional development and learning (Bakken et al., 2017; Pianta et al., 1997). Quality preschool education supports children's social and economic development and educational life, as well as their development and learning. A quality preschool education is generally characterized by structural features such as student-teacher ratio and organizational form, and environmental features such as teacher quality, material and process quality of preschool educational institutions (Vermeer et al., 2016). Structural arrangements and environmental improvements in preschool education are mostly aimed at improving the quality of education and training process and indirectly supporting student learning and development.

As in other school levels, teachers play a key role in preschool education. Considering the interaction time of teachers with children during the day, it can be said that teachers have more influence on children's learning and development in preschool education compared to other school levels. Teachers contribute significantly to the quality of the process by arranging the learning environment, guiding children's behavior, and providing rich experiences for them. A key element of process quality is teachers' adaptive pedagogical practices in the classroom. Adaptive pedagogical practices include activity-based practices designed according to individual needs, aiming to provide children with various skills and competencies beyond transferring knowledge in preschool education.

Pedagogical adaptations aimed at providing learning experiences for individual needs also have a significant impact on children's learning and development. Therefore, revealing the individual, organizational, and environmental factors that affect teachers' adaptive pedagogical practices can guide practitioners and policymakers in the arrangements to be made. In this context, this research aims to reveal the extent to which teachers' engagement in collaborative professional practices predicts their adaptive pedagogical practices based on the Turkey data of the TALIS Starting Strong Survey 2018.

Conceptual Framework

Adaptive pedagogical practices

Process quality is a key factor for children's learning, well-being, and development in different areas of preschool education. The two main indicators of process quality in preschool education are structural features and quality interactions with children (Melthuis et al., 2016). Structural features refer to features that can be measured directly, such as student-teacher ratio, number of staff, and teachers' leadership characteristics (educational level, age, etc.). Interactions within the school are generally the relationships between teachers and children, teachers and parents and children with each other (Barros et al., 2016; OECD, 2020). All these relationships affect the physical, social, cognitive, and emotional development of children and improve the quality of preschool education (Erdoğan & Canbeldek, 2015; Karlıdağ & Gönen, 2018).

Children's interactions with teachers play materials, and peers in school are mostly through planned processes. Teachers have an important role, especially in managing, organizing, and directing interactions in the classroom. Teacher-child interactions consist of emotional climate, behavior management, and instructional and pedagogical quality components (OECD, 2018). As an indicator of process quality, pedagogical practices include developmental and educational activities in the classroom and the methods, techniques, and strategies in these activities.

Pedagogical practices are one of the important factors affecting process quality. While pedagogy means changing behavior or the work of teaching, pedagogical practices in preschool have a wide scope that includes activities to provide children with knowledge, skills, and behavior. Teachers' pedagogical understanding and practices make a difference in children's experiences (Stephen, 2010). Teachers' child-centred pedagogical approach, requires the inclusion of activities for individual needs. An important concept discussed in recent years within the scope of a student-centered teaching approach is pedagogical adaptations. Pedagogical adaptation, which is discussed under the headings of inclusive education, differentiated instruction, instructional adaptation, and individualization of instruction in the literature, is to make appropriate changes in the teaching processes, methods and materials, and learning environment in order to ensure the active participation of all students in the teaching process (Sandall et al., 2016).

Pedagogical adaptations for the needs in the classroom may include activities according to student interests, developmental levels, and cultural differences (OECD, 2019). Broader adaptations require that the curriculum be designed according to individual needs. Adaptations designed by teachers consciously introduce children to academic language, literacy, arithmetic, mathematics, and science (Melthuis et al., 2016). Eventually, such adaptations become a motivational factor for children and ensure their active participation in the process. Adaptive pedagogical practices in preschool education are extremely important in closing the gap between the child's actual developmental area and the potential developmental area (Vaughn & Parsons, 2013). There are studies emphasizing the positive impact of adaptive practices on children's achievement in preschool classrooms (Mavidou & Kakana, 2019). In addition, the research of Wulschleger et al. (2022) reveals that professional development practices for preschool teachers can support adaptive teaching at macro and micro levels. Consequently, it can be said that adaptations to the needs will directly affect children's learning and development. Thus, it becomes important to determine what factors affect teachers' pedagogical adaptations. The results of this research will shed light on the effect of collaborative learning on pedagogical adaptations.

Collaborative professional learning

Teachers' professional development has become the focus of researchers in recent years and has also begun to be addressed in educational policy documents to increase teacher quality (Çelik et al., 2021). It is possible to divide the professional development of teachers into three main periods. These are pre-service training, initial training, and in-service training. Pre-service training is the period in which teacher candidates acquire theoretical knowledge and receive a teaching certificate by completing the curriculum. Initial training refers to the adaptation and preparatory training given within the framework of the orientation program for new teachers. In-service training, on the other hand, includes formal training and informal learning processes organized centrally or locally while teachers pursue their profession.

There are increasing criticisms that formal in-service training for teachers cannot be transferred to classroom practices and, therefore, are ineffective (Uştu et al., 2016). Thus, it is argued that especially informal learning practices such as mentoring, coaching and collaborative learning activities within the school are more effective in teacher learning and reflection of these learnings on pedagogical practices (Lefstein et al., 2020). Moreover, collaborative professional learning activities can also act as a barrier to the feeling of isolation that results from teachers fulfilling their roles behind closed doors.

Collaborative professional learning refers to the informal learning process through knowledge sharing in joint activities and discussions with colleagues (OECD, 2020). Collaborative learning is a learning process that is context-sensitive, reflected in school practices, and includes social interactions between teachers. Since professional learning is primarily for learning and practice, collaborative learning allows teachers to evaluate and make inferences about their practices (Nolan & Molla, 2018). Collaborative professional learning can take place in the school setting or different places with families and teachers. In their research, Markussen-Brown et al. (2017) revealed the positive effects of in-service training about language and literacy, including studies conducted in both center and family-based environments, on teacher knowledge, as well as on structural empowerment and process quality in preschool education institutions. In an experimental study conducted by Sonmez et al. (2019), it was reported that professional development programs to increase teachers' competencies in inclusive education positively affect teachers' self-efficacy and knowledge.

Collaborative professional learning in preschool education institutions may include teachers giving feedback on practices, exchanging ideas on children's well-being and learning (OECD, 2020), classroom observations, joint evaluation of new practices, and developing joint projects with other teachers. Learning opportunities embedded in such processes provide a supportive environment for teachers (Camburn & Han, 2017). Collaborative professional practices can not only help teachers learn but also affect their pedagogical practices and, therefore, children's well-being, and cognitive, social, and emotional development. Durksen et al. (2017) revealed in their research that collaborative practices create a motivational structure for teachers. Colmer (2017) revealed in his research that collaborative practices in preschool education strengthen teacher communication by promoting positive professional relationships. Garner et al. (2021) found that preschool teachers' participation in collaborative professional learning workshops improved their appreciation of other teachers' professional practices and values, while Irvine and Price (2014) found that collaborative practices support reforms and practice changes in preschool education. Although policy recommendations are presented in international reports on creating conditions to support collaborative professional learning among preschool teachers (OECD, 2020), studies on the reflection of such professional learning in classroom practices are limited. In this context, there is a need for research-based evidence on the impact of engagement in professional development activities, and in particular in collaborative professional learning, on structural processes and educational processes.

TALIS Starting Strong 2018

TALIS Starting Strong 2018 is the data development project initiated by the Organization for Economic Co-operation and Development (OECD) in 2013 to improve early childhood and care practices. It is based on the OECD's Teaching and Learning International Survey (TALIS) in primary and secondary education (OECD, 2019). TALIS Starting Strong Survey is the first international large-scale survey to determine the quality of preschool education and the qualifications and practices of teachers and leaders. TALIS Starting Strong aims to identify opportunities for improvement and develop policy recommendations by focusing on the process quality, strengths, and weaknesses of preschool education in different countries (Nilsen et al., 2020). Nine countries (Turkey, Israel, Chile, Norway, Denmark, Germany, Korea, Iceland, and Japan) participated in the TALIS Starting Strong Survey. The teachers and school leaders of the participating countries were asked questions about their practices in the school, the general characteristics of the preschool educational institution, and their individual characteristics (OECD, 2020).

TALIS Starting Strong Survey focuses on key processes that improve child development, well-being, and learning and pedagogical practices related to staff-child or child-child interactions (Sim et al., 2019). In the TALIS conceptual framework, teachers' engagement in professional development activities is considered as a variable that affects the process quality. However, questions remain as to which professional development activities have what kind of impact (Egert et al., 2018; Markussen-Brown et al., 2017).

The research results on the effect of teachers' engagement in professional development activities on the quality of preschool education processes can guide practices and policies in the field. Improvements in the structural processes in preschool education and the quality of interaction between school stakeholders will affect children's learning, development, and well-being. Based on this idea, it was aimed to determine the effect of teachers' engagement in collaborative professional practices on their pedagogical adaptations in this study.

METHOD

Based on the TALIS Starting Strong Survey 2018 data, this research, which aims to determine the effect of teachers' engagement in collaborative professional practices on their pedagogical adaptations, is a correlational study. Correlational studies are divided into two. These are exploratory and predictive correlational studies (Fraenkel & Wallen, 2006). This research was designed as predictive correlational research. In predictive correlational studies, one of the variables is tried to be predicted from the other. Among the research variables, collaborative professional practices were considered as the predictive variable, while pedagogical adaptations were considered as the predicted variable. In the research, the relationship between the variables was examined by structural equation modeling (SEM). The model is presented in Figure 1.

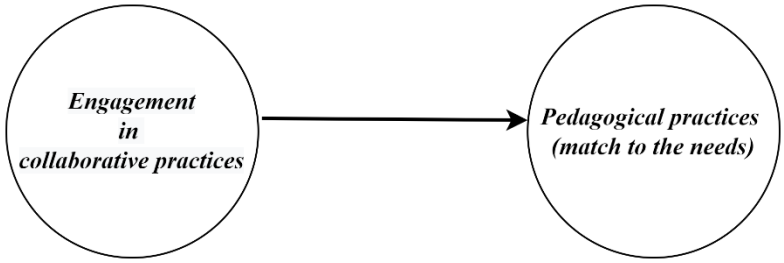


Figure 1. Research model

The model includes engagement in collaborative professional practices as an independent variable, and teachers' pedagogical adaptations are included as the dependent variable. Both variables are included in the model as latent variables together with the observed variables.

Participants and Procedure

Nine countries participated in the TALIS Starting Strong Survey 2018. The data were obtained from the questionnaires applied to the teachers and school leaders participating in this research. The sample design was adapted from the TALIS sample design template. While sampling, early childhood education institutions serving 0-3 age and ISCED 02 level were determined first, and in the next step, 8 participants, including school principals, were randomly selected from each institution. The data were collected only from institutions at the ISCED 02 level in Turkey. In Turkey, ISCED 02 consists of kindergartens, nursery classes, and practice classes (OECD, 2019).

In Turkey, 354 public preschool education institutions were included in the TALIS Starting Strong Survey sample, but as a result of removing the unsuitable ones, 340 were included. 1605 teachers working in these preschool education institutions constitute the sample of TALIS Starting Strong 2018. These data, openly available on the OECD website (see https://www.oecd.org/education/school/oecdtalisstartingstrongdata.htm), were downloaded and saved on a computer, and missing and erroneous data were examined. In this research, 59 participants with missing and erroneous data were excluded from the analysis, and the analyses were carried out on the data of 1546 participant teachers.

Data Collection Tools

"Staff Pedagogical Practices (match to the needs)" and "Engagement in Collaborative Professional Practices" scales were used as data collection tools in the research. Both scales were developed within the TALIS Starting Strong Survey 2018 (OECD, 2018).

The “Staff Pedagogical Practices (match to the needs)” scale is for measuring teachers' in-class pedagogical adaptation practices. The response options for the 4-point Likert scale are never or almost never (1), occasionally (2), frequently (3), always or almost always (4). There are 5 items in total on the scale and: "I set daily goals for the children", "I give different activities to suit different children's level of development", "I adapt my activities to differences in children's cultural background." are sample items (OECD, 2019). As a result of the validity and reliability analyses, the Omega value was found to be .82, CFI=.95, TLI=.91, RMSA=.069 for the ISCED 02 level in the Turkey sample.

The “Engagement in Collaborative Professional Practices” scale is for measuring engagement in collaborative professional practices. The response options for the 5-point Likert scale are never (1), less than monthly (2), monthly (3), weekly (4), and daily (5). There are 7 items in total on the scale. “Engage in discussions about approaches to children’s development, well-being and learning”, “Exchange learning or pedagogical materials with colleagues”, “Work with other to discuss the evaluation of children’s development and well-being” are sample items (OECD, 2019). As a result of the validity and reliability analyses, the Omega value was found to be .90, CFI=.97, TLI=.96, RMSA=.043 for the ISCED 02 level in the Turkey sample.

Data Analysis

Data analysis in the research was carried out in three steps. Firstly, the data of the Turkey sample were taken from the OECD official website and examined, and missing and erroneous data were removed from the data file. In the second step of the data analysis, the suitability of the data for multilevel analysis was examined for normality assumptions. As a result of the analysis, it was determined that the skewness and kurtosis values of the scales varied between (-.60, -.90) and (-.27, 1.17), respectively. Within the scope of multivariate normality, Mardia's critical ratio (c.r.) and multivariate normality coefficient were calculated. As

a result of the calculation, the critical ratio value (53.60) and the Mardia coefficient (57.90) were found. These values do not meet the reference values specified in the literature (Bayram, 2016; Yuan et al., 2005). Since the multivariate normality assumptions were not met, the Bootstrap method, which can be used in cases where the normality assumptions were not met, was used. Finally, in the third step of the data analysis, analyses for descriptive statistics and structural equation modeling were carried out and presented in tables.

FINDINGS

The relationship between research variables, mean scores, standard deviation, maximum and minimum scores are presented in Table 1.

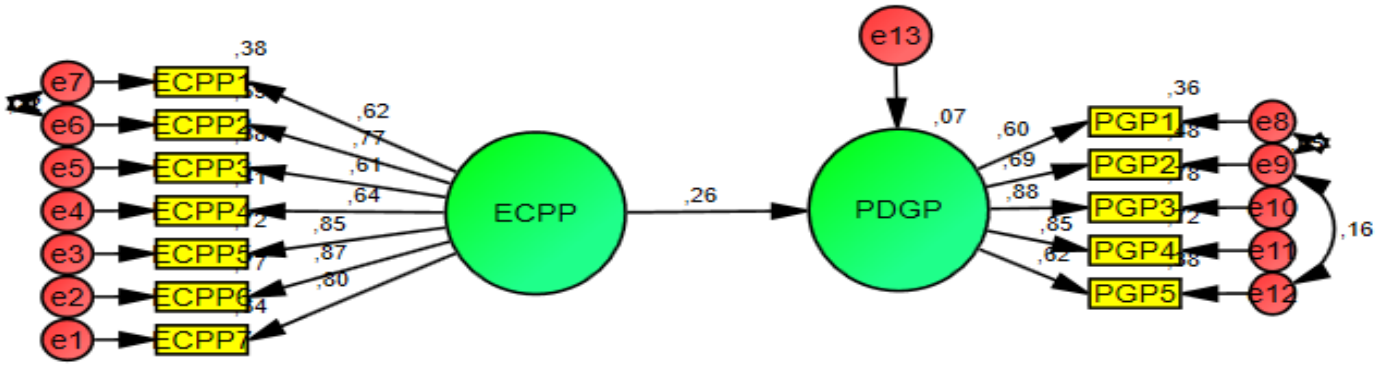
Table 1. Descriptive statistics

Variable	N	Min.	Max.	$\bar{x}$	sd	ECPP
Engagement in collaborative professional practices	1546	7	35	25.54	6.68	
Pedagogical practices (match to the needs)	1546	5	20	17.16	2.68	.27**

*Correlation is significant at the 0.01; ECPP (Engagement in collaborative professional practices)

As seen in Table 1, considering the maximum and minimum scores obtained from the scales, it can be said that preschool teachers' engagement in collaborative professional practices ($\bar{x}$=25.54) and pedagogical practices for children's needs ($\bar{x}$=17.16) are high. When the relationships between the variables are examined, it is seen that there is a moderate (r=.27) significant relationship between preschool teachers' engagement in collaborative professional practices and their pedagogical practices for the needs. Thus, it can be said that as teachers' engagement in collaborative professional practices increases, the frequency of making pedagogical adaptations for the needs increases.

SEM analysis was carried out in order to determine the effect of preschool teachers' engagement in collaborative professional practices on their inclusion of appropriate pedagogical practices. The path coefficient and path diagram obtained as a result of the analysis are presented in Figure 2.



ECPP: Engagement in collaborative professional practices; PDGP: Pedagogical practices (match to the needs)

Figure 2. Model of the relationship between engagement in collaborative professional practice and pedagogical practice

In order to evaluate the model fit as a result of the SEM analysis, the goodness of fit values were examined. The goodness of fit values of the model were found as CFI=.97, AGFI=95, TLI=.96, RMSA=056. Considering the reference value ranges specified in the literature (Byrne, 2010; Karagöz, 2016), it can be said that the model has a perfect fit. The estimation results of the model are presented in Table 2.

Table 2. The estimation results of the model

Relationships between variables	B	β	S.E.	C.R.(t)	p
ECPP---->PDGP	.102	.262	.011	8.901	.00

Considering the results of the path analysis, it is seen that the engagement of preschool teachers in collaborative professional practices positively and significantly predicts their pedagogical adaptation practices, and the path is significant (β=.262, t=8.901, p<.001). This result can also be interpreted as the change in preschool teachers' adaptive pedagogical practices is related to the frequency of their engagement in collaborative professional practices. Thus, in order to determine how much of the change in pedagogical practices can be explained by engagement in collaborative professional practices, the coefficient of determination (R2) was calculated and found .07. As a result, this situation can be interpreted as the frequency of engagement of preschool teachers in collaborative professional practices can explain 7% of the variance in their pedagogical practices for children's needs.

CONCLUSION, RECOMMENDATIONS and SUGGESTIONS

Recent studies have focused on the quality of preschool education and its impact on children's learning and development (Sheridan, 2017). This interest in the quality of preschool education is one of the positive effects of preschool education on children's creativity (Can Yaşar & Aral, 2010), academic success (OECD, 2010), and social and emotional development (Aslanargun & Tapan, 2011). Therefore, it is important to determine the factors affecting the quality of the educational process in order to obtain the desired outcomes from preschool education. There is a consensus that teachers' pedagogical knowledge, skills, and practices are critical to children's learning and development in preschool education as in other school levels. Thus, it was aimed to determine to what extent preschool teachers' engagement in collaborative professional practices predicts their pedagogical practices for the needs of children.

As a result of the analysis, it was determined that the engagement of preschool teachers in collaborative professional practices positively and significantly predicted their pedagogical practices for the needs of children. This result is consistent with studies on the effect of teachers' engagement in professional development activities on their in-class practices and student outcomes (Buczynski & Hansen,2010; Chung et al., 2005; Kohler et al., 1997). In addition, teachers' engagement in collaborative learning activities can prevent their work stress and isolation in the classroom behind closed doors. Correspondingly, in the study conducted by Sandilos et al. (2018), it was determined that the engagement of preschool teachers in professional development activities is a buffer for the negative effect of teacher stress on the teacher-child relationship.

In addition to following a specific curriculum, preschool teachers make a difference in the learning and development of children by arranging the learning environment and organizing activities according to their interests and needs. Besides, teachers influence children's development more than the curriculum or pedagogy (Wiseman & Kumar, 2021). Teachers' inclusion of practices that will support children's learning and development largely depends on their pedagogical knowledge, skills, and competencies. Although teacher preparation programs are a source of knowledge and skills for teacher candidates, today's rapid changes require professional development and learning. Moreover, theoretical knowledge is not always successful in practice. This situation makes professional development a necessity for preschool teachers.

Various alternative ways for professional development have been suggested in the literature. In-service training, workshops, conferences, coaching, mentoring, and professional learning communities are some of them. However, high-quality professional development activities should be embedded in context and provide opportunities for teachers to collaborate and share ideas (Darling-Hammond et al., 2017). It can be said that collaborative professional practices such as coaching, mentoring, pedagogical discussions and classroom observations offer the opportunity for teachers to learn more and reflect them to the class. Lovett and Gilmore (2003) stated that each teacher is a learning resource for others, and not giving teachers opportunities for collaboration would mean denying a valuable learning resource.

Classroom quality in early childhood settings is a multidimensional construct that includes promoting child development (socially, physically, and cognitively) that results in positive child outcomes and providing nurturing teacher-child interaction (Connelly, 2018). Classroom quality is affected by teachers' pedagogical practices. However, rapid changes and different needs necessitate the development of pedagogical practices. Today, due to globalization, multicultural society structure makes new pedagogical practices compulsory. Giving all children equal opportunities at school and richer educational experiences for children, including the vulnerable and disadvantaged (Brodin et al., 2015; Sheridan et al., 2009), requires adapting pedagogical practices to meet children's needs. The results of this research show that collaborative professional practices of preschool teachers can predict teachers' learning activities in the classroom. As a result, it can be said that collaborative professional development practices in which teachers are active in the process positively affect the process quality in preschool education.

The professional development of teachers in early childhood serves two main purposes. The first is to support teachers' knowledge, skills, and practices through professional development practices. The second is that teachers become professionals who constantly renew themselves and ensure professional development (Sheridan et al., 2009). The result of this research provides support for the first purpose of professional development stated above.

Considering the impact of teacher-child relationships on child outcomes and school success, it is crucial to identify and regulate every possible variable that may affect the quality of teacher-child relationships in the context of pedagogical practices (Chung et al., 2005). As a result, this research shows that collaborative professional practices are a variable that will affect pedagogical practices and, indirectly, child outcomes. Thus, creating structures that will increase teacher collaboration in the context of school, identifying obstacles to collaboration, and taking precautions will contribute to the process quality. Therefore, school administrators and policy makers should allocate more resources to teachers' professional development and collaborative practices. School-based collaborative practices can also be supported. In this context, teachers' access to continuous professional development and collaborative learning opportunities can be organized through activities such as in-school mentoring, workshops, and professional meetings. Finally, research should be conducted to examine the effects of current educational policies and practices and school and environmental variables on teachers' professional development and classroom practices.

LIMITATION

Inevitably, our study has some limitations. Firstly, since TALIS data have limitations regarding the cross-country comparability and common use of data, only teacher data from the Turkish sample were used in the study. This limits the generalizability of our

findings. Secondly, since our study is cross-sectional and correlational, although it gives a clue about the cause-and-effect relationship, it does not give a definite result in terms of the cause-and-effect relationship. Finally, since the research scales are based on self-reporting, teacher reports may create a bias**.**

Declaration of Conflicting Interests

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

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

Statements of publication ethics

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

Researchers' contribution rate

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

Ethics Committee Approval Information

Ethics committee decision was taken by the Iğdır University Scientific Research and Publication Ethics Committee with the letter dated 06.04.2023 and numbered 2023/7.

REFERENCES

Aslanargun, E., & Tapan, F. (2011). Okul öncesi eğitim ve çocuklar üzerindeki etkileri. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi*, *11*(2), 219-238.

Bakken, L., Brown, N., & Downing, B. (2017). Early childhood education: The long-term benefits. *Journal of research in Childhood Education*, *31*(2), 255-269.

Barros, S., Cadima, J., Bryant, D. M., Coelho, V., Pinto, A. I., Pessanha, M., & Peixoto, C. (2016). Infant child care quality in Portugal: Associations with structural characteristics. *Early Childhood Research Quarterly*, *37*, 118-130.

Bayram, N. (2016). *Yapısal eşitlik modellemesine giriş: Amos uygulamaları.* Ezgi Kitabevi.

Brodin, J., Hollerer, L., Renblad, K., & Stancheva-Popkostadinova, V. (2015). Preschool teachers' understanding of quality in preschool: a comparative study in three European countries. *Early Child Development and Care*, *185*(6), 968-981.

Byrne, B. M. (2010). *Structural equation modeling with AMOS: Basic concepts, applications, and programming* (2nd ed.). Taylor and Francis Group.

Buczynski, S. & Hansen, C. B. (2010). Impact of professional development on teacher practice: Uncovering connections. *Teaching and Teacher Education, 26*(3), 599-607.

Colmer, K. (2017). Collaborative professional learning: Contributing to the growth of leadership, professional identity and professionalism. *European Early Childhood Education Research Journal*, *25*(3), 436-449.

Camburn, E. M., & Han, S. W. (2017). Teachers' professional learning experiences and their engagement in reflective practice: A replication study. *School Effectiveness and School Improvement, 28*(4), 527-554.

Connelly J. (2018). *Pre-school teacher characteristics: Professional development and classroom quality.* (Unpublished master's thesis]. University of Rhode, Island.

Çelik, K., Çelik, O.T., &Kahraman, Ü. (2021). Teachers' Informal Learning in the Context of Professional Development: Resources, Barriers and Motivation. *Psycho-Educational Research Reviews 10*(2):77-91.

Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). *Effective teacher professional development*. Learning Policy Institute.

Durksen, T. L., Klassen, R. M., & Daniels, L. M. (2017). Motivation and collaboration: The keys to a developmental framework for teachers' professional learning. *Teaching and teacher education*, *67*, 53-66.

Egert, F., Fukkink, R. G., & Eckhardt, A. G. (2018). Impact of in-service professional development programs for early childhood teachers on quality ratings and child outcomes: A meta-analysis. *Review of educational research*, *88*(3), 401-433.

Frank W. Kohler , Kerry McCullough Crilley , Denise D. Shearer & Gloria Good (1997) Effects of Peer Coaching on Teacher and Student Outcomes, *The Journal of Educational Research, 90*(4), 240-250, DOI: 10.1080/00220671.1997.10544578

Garner, R., Nicholas, M., & Rouse, E. (2021). Cross-sector early years teacher collaboration: using professional learning workshops as boundary objects for professional boundary crossing. *European Early Childhood Education Research Journal*, *29*(5), 764-779.

Işıkoglu Erdoğan, N., & Canbeldek, M. (2015). Okul öncesi eğitim kurumlarının yapısal ve işlevsel kalitelerinin incelenmesi. *Journal of Research in Education and Teaching, 4*(1), 186-196.

Karlıdağ, İ, & Gönen, M. (2018). Okul öncesi eğitim ortamının kalitesinin çocukların yaratıcılığına etkisi. *Cumhuriyet International Journal of Education, 8*(4), 928-960.

Karagöz, Y. (2016). *SPSS ve AMOS 23 uygulamalı istatistiksel analizler.* Nobel Akademi Yayınları.

Lefstein, A., Vedder-Weiss, D., & Segal, A. (2020). Relocating research on teacher learning: Toward pedagogically productive talk. *Educational researcher*, *49*(5), 360-368.

Markussen-Brown, J., Juhl, C. B., Piasta, S. B., Bleses, D., Højen, A., & Justice, L. M. (2017). The effects of language- and literacy-focused professional development on early educators and children: A best-evidence meta-analysis. *Early Childhood Research Quarterly, 38*, 97–115.

Mavidou, A., & Kakana, D. (2019). Differentiated instruction in practice: Curriculum adjustments in kindergarten. *Creative Education*, *10*(3), 535-554.

Melhuish, E. et al. (2015), "A review of research on the effects of Early Childhood Education and Care (ECEC) upon child development", CARE project. Curriculum Quality Analysis and Impact Review of European Early Childhood Education and Care (ECEC).

Nilsen, T., Slot, P., Cigler, H., & Chen, M. (2020). Measuring process quality in early childhood education and care through Situational Judgement Questions: Findings from TALIS Starting Strong 2018 Field Trial. *OECD Education Working Paper No. 217,* 1-58. DOI: 10.1787/19939019

Nolan, A. & Molla, T. (2018). Teacher professional learning in Early childhood education: Insights from a mentoring program. *Early Years*, *38*(3), 258-270. DOI: 10.1080/09575146.2016.1259212

OECD (2010). PISA 2009 Results: What Students Knowand Can Do-Studen tPerformance in Reading, Mathematics and Science. OECD Publishing

OECD (2018). "Preliminary analysis of the structure of process quality in the TALIS Starting Strong Survey (meeting document)", Meeting Document EDU/EDPC/ECEC/RD(2018)3, OECD, Paris.

OECD (2019). *TALIS Starting Strong 2018 Technical Report*, OECD, Paris, http://www.oecd.org/education/talis/TALIS-Starting-Strong-2018-Technical-Report.pdf.

OECD (2020) . *Building a High-quality Early Childhood Education and Care Workforce: Further Results from the Starting Strong Survey 2018*. Paris: OECD Publishing.

Pianta, R. C., Nimetz, S. L., & Bennett, E. (1997). Mother-child relationships, teacher-child relationships, and school outcomes in preschool and kindergarten. *Early childhood research quarterly*, *12*(3), 263-280.

Irvine, S., & Price, J. (2014). Professional conversations: A collaborative approach to support policy implementation, professional learning and practice change in ECEC. *Australasian Journal of Early Childhood*, *39*(3), 85-93.

Sandall, S., Schwartz, I., & Gauvreau, A. (2016). Using Modifications and Accommodations to Enhance Learning of Young Children with Disabilities: Little Changes That Yield Big Impacts. Reichow, B., Boyd, B.A., Barton, E.A., & Odom, S.L. Editor (Eds) içinde. *The Handbook of Early Childhood Education.* Springer.

Sandilos, L. E., Goble, P., Rimm-Kaufman, S. E., & Pianta, R. C. (2018). Does professional development reduce the influence of teacher stress on teacher–child interactions in pre-kindergarten classrooms?. *Early Childhood Research Quarterly*, *42*, 280-290.

Sheridan, S. (2007). Dimensions of pedagogical quality in preschool. *International Journal of Early Years Education*, *15*(2), 197-217.

Sheridan, S. M., Edwards, C. P., Marvin, C. A., & Knoche, L. L. (2009). Professional development in early childhood programs: Process issues and research needs. *Early Education and Development, 20*(3), 377-401.

Sim, M. P., Bélanger, J., Stancel-Piatak, A., & Karoly, L. (2019). *Starting strong teaching and learning international survey 2018. Conceptual framework*. OECD Education Working Papers, No. 197. OECD Publishing.

Stephen, C. (2010). Pedagogy: The silent partner in early years learning. *Early Years*, *30*(1), 15-28.

Sönmez, N., Alptekin, S. & Bıçak, B. (2019). The effect of in-service education program developing for improving competences of preschool teachers in the inclusive education, *Inonu University Journal of the Faculty of Education, 20*(2), 439-456. DOI: 10.17679/inuefd.455288

Uştu, H., Taş, A. M. & Sever, B. (2016). Öğretmenlerin mesleki gelişime yönelik algılarına ilişkin nitel bir araştırma. *Elektronik Mesleki Gelişim ve Araştırma Dergisi*, *2016*(1), 15-23.

Vaughn, M., & A. Parsons, S. (2013). Adaptive teachers as ınnovators: Instructional adaptations opening spaces for enhanced literacy learning. *Language Arts 91*(2), 81–93.

Vermeer, H. J., van IJzendoorn, M., Cárcamo, R. A., & Harrison, L. (2016). Quality of child care using the Environmental Rating Scales: A meta-analysis of international studies. *International Journal of Early Childhood, 48*, 33–60.

Wiseman, A. W., & Kumar, P. (2021). *Building Teacher Quality in India: Examining Policy Frameworks and Implementation Outcomes*. Emerald Group Publishing.

Wullschleger, A., Lindmeier, A., Heinze, A., Meier-Wyder, A., Leuchter, M., Vogt, F., & Moser Opitz, E. (2023). Improving the quality of adaptive learning support provided by kindergarten teachers in play-based mathematical learning situations. *European Early Childhood Education Research Journal*, *31*(2), 225-242.

Yuan, K. H., Bentler, P. M., & Zhang, W. (2005). The effect of skewness and kurtosis on mean and covariance structure analysis: The univariate case and its multivariate implication. *Sociological Methods & Research, 34*(2), 240-258.