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Nesibe Aydın Okulları tarafından hazırlanan *Eğitim ve Gelecek Dergisi*'nin yirmi yedinci sayısı yayımlandı. Bu sayıda yer alan çalışmalarını siz değerli okurlarımıza sunuyoruz.

H. Gözde Ertürk Kara, Tülin Güler Yıldız ve Burcu Atar tarafından hazırlanan *“Okul Öncesi Dönemdeki Çocukların Öz Düzenleme Becerilerini Değerlendirme Ölçeği - Öğretmen Formu Geliştirme Çalışması”* başlıklı çalışmada geliştirilen ölçek, okul öncesi dönemdeki çocukların öz düzenleme becerilerinin öğretmen gözlemlerine dayanarak değerlendirilmesini sağlamaktadır. Bulgular, OÇÖBD-Ö'nün uygun psikometrik özelliklere sahip olduğunu ve Türkiye'deki okul öncesi çocukların öz düzenleme becerilerinin değerlendirilmesinde kullanılabileceğini göstermiştir.

Aylin Sop ve Buse Hançer tarafından hazırlanan *“Oyun Oynamaktan Odaklanmaya: Dijital Eğitsel Oyunların Okul Öncesi Çocukların Dikkat Becerilerine Etkisi”* başlıklı, yarı deneysel desende ve ön test-son test kontrol gruplu olarak planlanan çalışmada, çocukların dikkat becerileri “Beş Yaş Çocukların Dikkat Toplama Testi” ile ölçülmüştür. Bu çalışmada dijital eğitim oyunu olan MentalUp uygulaması ile 13 farklı dikkat becerisini destekleyen 16 farklı türde mini oyun kullanılmıştır. Sonuçlar, dijital eğitsel oyun uygulamasının çocukların dikkat becerilerini önemli ölçüde geliştirdiğini göstermiştir.

Mehlika Köyceğiz Gözeler ve Saide Özbey tarafından hazırlanan *“Okul Öncesi Çocuklarda Motivasyon: Kaygı Düzeyinin Yordayıcı Etkisi”* başlıklı çalışmada, okul öncesi dönem çocuklarının motivasyon düzeyleri ile kaygı (anksiyete) düzeyleri arasındaki ilişkiyi incelemek amacıyla ilişkisel tarama modeli kullanılmıştır. Araştırmanın sonucunda; çocukların motivasyon düzeylerinin cinsiyet ve okul türü değişkenlerine göre; çocukların kaygı düzeylerinin ise cinsiyet değişkenine göre farklılık göstermediği saptanırken çocukların kaygı düzeylerinin okul türü değişkenlerine göre anlamlı farklılık gösterdiği saptanmıştır.

Binnur Genç İlter, Fatma Özlem Saka ve Burak Asma tarafından hazırlanan *“Okul Öncesi Eğitiminde Yabancı Dil Öğretimi: Öğretmen Adaylarının Tutumları ve İnançları”* başlıklı çalışmada yabancı dil becerilerini geliştirmeyi amaçlayan bir eğitim programı araştırma ortamı olarak kullanılmıştır. Araştırma karma araştırma yöntemlerinden dönüşümsel araştırma tasarımına uygun olarak yürütülmüştür. Bulgular, anaokullarındaki yabancı dil öğretimine yönelik tutumların değişimini, üniversitelerdeki yabancı dil eğitiminin yeterliliğini, anaokullarındaki yabancı dil öğretim sorumluluklarını, anaokulu döneminde yabancı dil öğretiminin gerekliliğini göstermiştir.

Sultan Selen Kula tarafından hazırlanan *“Öğretmen Adaylarının Hayat Boyu Öğrenme Eğilimleri ile Öğretme Motivasyonlarının İlişkisel Analizi”* başlıklı çalışmada ilişkisel tarama modeli kullanılmıştır. Araştırmadan elde edilen sonuçlar, öğretmen adaylarının gelecekte başarılı öğretmen olacaklarını düşüncelerinin yaşam boyu öğrenme eğilimlerini ve öğretme motivasyonlarını olumlu yönde etkilediğini göstermiştir. Öğretmen adaylarının mezuniyet sonrası öğretmenlik yapma istekleri arttıkça öğretme motivasyonları da artmıştır.

Hüseyin Bayram tarafından hazırlanan *“Ortaokul Öğrencilerinin Sosyal Bilgiler Derslerinde Etkili Öğrenme Yaşantıları: Bir Anlatı Araştırması”* başlıklı çalışmada, sosyal bilgiler dersinin bilgi, beceri ve değer kazandırma amacının gerçekleşip gerçekleşmediği ortaokul öğrencilerinin yaşantıları kapsamında irdelenmiştir. Nitel araştırma yöntemlerinden anlatı araştırması deseninin kullanıldığı araştırma sonunda etkili sosyal bilgiler öğretiminin, öğretmenin kişilik yapısına ve farklı araç-gereç kullanımına bağlı olduğu tespit edilmiştir.

Sevda Tamer, Ümit İzgi Onbaşılı ve Burcu Sezginsoy Şeker tarafından hazırlanan *“eTwinning Faaliyetlerine Katılan Sınıf Öğretmenlerinin Dijital Okuryazarlık Düzeylerinin ve Görüşlerinin Belirlenmesi”* başlıklı çalışmada karma yöntem kullanılmıştır. Araştırma kapsamında eTwinning faaliyetine katılan sınıf öğretmenlerinin dijital okuryazarlık düzeyleri yüksek bulunmuştur. Yapılan görüşmelerde öğretmenler eTwinning faaliyetinin dijital okuryazarlık becerilerini geliştirdiğini belirtmiştir.

Rabia İrem Durmuş ve Nalan Kızıltan tarafından hazırlanan *“Birinci Sınıf Öğrencilerinin Yabancı Dilde Kaygı Duyma ve Keyif Almalarının Çevrimiçi Konuşma Becerileri Dersi Üzerinden İncelenmesi”* başlıklı çalışmanın örneklemini, 33 üniversitenin İngilizce Öğretmen Eğitimi Programları'ndaki 722 katılımcı oluşturmuştur. Yapılan analizler sonucunda YDKA ve YDKK arasında önemli bir negatif korelasyon bulunduğu tespit edilmiştir.

Sevgi Ernas ve Hasan Hüseyin Aksoy tarafından hazırlanan *“Giriş Düzeyi İşlerdeki Aşırı Eğitim Olgusunun Eğitim İstihdam İlişkisi Bağlamında Çözümlemesi”* başlıklı çalışmanın amacı, giriş düzeyi işlerde çalışan önlisans, lisans ve lisansüstü eğitimden mezun olup aynı statüde çalıştıkları iş arkadaşlarına göre eğitim düzeyi daha yüksek olan aşırı eğitilmiş bireylerin görüşlerinden hareketle eğitim ekonomisi kuramları bağlamında eğitim-istihdam ilişkisini çözümlemektir. Araştırmada elde edilen verilere göre, giriş düzeyi işlerdeki aşırı eğitilmişlere göre aşırı eğitimin nedenleri; ekonomik yoksunluk ve işsizlik, eğitim alanı, eğitim genişlemesi ve firma yapısı olduğu belirlenmiştir.

Duygu Şallı tarafından hazırlanan *“Dijital Çağda Eğitimi Yeniden Düşünmek: Geleceğin Mesleklerine Hazır Oluş”* başlıklı çalışmanın amacı, dijital çağın eğitime yansımaları ve geleceğin mesleklerine uyum için yapılması gerekenler konusunda öğretim üyelerinin görüşlerini belirlemektir. Nitel araştırma yöntemlerinden fenomenoloji deseninin kullanıldığı bu çalışmada öğrencilerin ve öğretmenlerin geleceğin mesleklerine uyum sağlamak için edinmeleri gereken ortak beceriler; dijital okuryazarlık, dijital vatandaşlık ve takım çalışması olarak belirlenmiştir.

Kübra Babacan ve Hayati Akyol tarafından hazırlanan *“Metinlerarası Okuma Araştırmalarında Yöntemsel Çeşitlilik ve Eğilimler”* başlıklı çalışmada nitel betimsel tarama kullanılmış ve 2014-2024 yılları arasında yayımlanan 23 araştırma makalesi analiz edilmiştir. Araştırmada, bu makalelerin metodolojileri, örneklem türleri, veri toplama araçları, öne çıkan bulguları ve önerileri üzerine odaklanılmıştır. Araştırma sonucunda; metinlerarası okumanın kültürel ve disiplinlerarası sınırları aşarak evrensel bir akademik ilgi alanı haline geldiği, özellikle eğitim, edebiyat, psikoloji ve dilbilim gibi alanlarda yoğunlaştığı tespit edilmiştir.

Mehmet Emin Usta, Ümit Doğan ve Seyfettin Abdurrezzak tarafından hazırlanan *“Eğitimde Sürdürülebilirlik Üzerine Yapılan Çalışmaların Bibliyometrik Analizi”* başlıklı çalışma betimsel tarama modeline göre gerçekleştirilmiş ve Web of Science (WoS) veri tabanında 1587 çalışma analiz edilmiştir. Araştırma sonucunda; 1995-2023 yılları arasında “eğitimde sürdürülebilirlik” çalışmalarının 4169 yazar tarafından 1587 makalede ve 492 farklı kaynaktan yayımlandığı görülmüştür. Bu konuda Amerika Birleşik Devletleri'nin en çok yayın yapan ülke olduğu sonucuna ulaşılmıştır.

Eğitim ve Gelecek Dergisi olarak gösterdiğiniz ilgi ve değerli katkılarınız için teşekkür ediyoruz.

Bir sonraki sayıda buluşmak üzere...

Prof. Dr. Erten GÖKÇE ve Doç. Dr. Aliye ERDEM

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Editorial

The twenty seventh issue of *Journal of Education and Future* prepared by Nesibe Aydın Schools is published. We present the studies in this issue of JEF to our valuable readers.

In the article titled **“Development of Teacher-Reported Preschool Children's Self-Regulation Skills Assessment Scale”**, which is prepared by **H. Gözde Ertürk Kara, Tülin Güler Yıldız and Burcu Atar**, the scale enables the assessment of preschool children’s self-regulation (SR) skills based on their teachers’ observations. Findings demonstrate that the scale has appropriate psychometric characteristics and can be used for assessing the SR skills of preschool children in Türkiye.

The article titled **“From Play to Concentration: The Effect of Digital Educational Games on Preschool Children’s Attention Skills”**, which is prepared by **Aylin Sop and Buse Hançer**, planned with a quasi-experimental design and pretest posttest control groups, measured children's attention skills using the ‘Concentration Test for Five-Year-Old Children’. The MentalUp application and sixteen different types of mini-games supporting 13 different attention skills were included in the study. The results indicated that the digital educational game application significantly improved the children's attention skills.

In the article titled **“Motivation in Preschool Children: The Predictive Effect of Anxiety Level”**, which is prepared by **Mehlika Köyceğiz Gözeler and Saide Özbey**, relational screening model was used to examine the relationship between motivation levels and anxiety levels of preschool children. As a result of the study, it was determined that the motivation levels of the children did not differ according to the variables of gender and school type, and the anxiety levels of the children did not differ according to the gender variable, while the anxiety levels of the children differed significantly according to the variables of school type.

In the article titled **“Foreign Language Teaching in Early Childhood Education: Attitudes and Beliefs of Pre-service Teachers”**, which is prepared by **Binnur Genç İltter, Fatma Özlem Saka and Burak Asma**, a mixed-method approach was employed, incorporating both qualitative and quantitative data sources. The research was conducted within the framework of a training program. The findings reveal shifts in attitudes towards foreign language teaching in preschool education, along with insights into the adequacy of foreign language training at universities, the teaching responsibilities associated with foreign language instruction in preschools, and the necessity of introducing foreign languages at the preschool level.

In the article titled **“A Correlational Analysis of Pre-service Teachers’ Lifelong Learning Tendency and Teaching Motivation”**, which is prepared by **Sultan Selen Kula**, a correlational survey model was used. The results obtained from the research showed that pre-service teachers' thinking that they will be successful teachers in the future affects their lifelong learning tendencies and teaching motivations positively. As pre-service teachers' desire to teach after graduation increased, their motivation to teach increased.

In the article titled **“Effective Learning Experiences of Middle School Students in Social Studies Lesson: A Narrative Inquiry”**, which is prepared by **Hüseyin Bayram**, narrative inquiry design from qualitative research methodology was used. At the end of the research, it was determined that effective social studies teaching depends on the teaching style used in the classroom, the personality of the teachers and the use of various equipments in the lessons.

In the article titled *“Determining the Digital Literacy Levels and Opinions of Classroom Teachers attending eTwinning Activities”*, which is prepared by **Sevda Tamer, Ümit İzgi Onbaşılı and Burcu Sezginsoy Şeker**, a mixed method was used. Within the scope of the research, the digital literacy levels of classroom teachers who participated in eTwinning activities were found to be high. In the interviews, the teachers stated that the eTwinning activity improved their digital literacy skills.

In the article titled *“Investigating the Freshmen's Anxiety and Enjoyment through Online Speaking Skills Courses”*, which is prepared by **Rabia İrem Durmuş and Nalan Kızıltan**, sample consists of 722 participants from 33 universities' English Language Teacher Education Programs. It was reached that a significant negative correlation was found between FLE and FLSA. In terms of gender, no significant correlation was found between participants' gender and their FLE and FLSA.

The article titled *“Analysis of Overeducation in Entry-Level Jobs in the Context of the Education-Employment Relationship”*, which is prepared by **Sevgi Ernas and Hasan Hüseyin Aksoy**, aims to analyze the education-employment relationship in the context of education economics theories, based on the views of overeducated individuals who work in entry-level jobs and have graduated from associate, undergraduate and graduate degrees and have a higher level of education than their colleagues with the same status. Findings show that the causes of overeducation are economic deprivation, unemployment, field of education, educational expansion, firm structure, and labor market conditions.

The article titled *“Rethinking Education in the Digital Age: Readiness for the Professions of the Future”*, which is prepared by **Duygu Şallı**, aims to reveal the views of faculty members on the reflections of the digital age on education and what needs to be done to adapt to the professions of the future. According to the findings of the research, in which phenomenology method was used, the common skills that students and teachers need to acquire in order to adapt to the professions of the future are determined as digital literacy, digital citizenship and teamwork.

The article titled *“Methodological Diversity and Trends in Intertextual Reading Research”*, which is prepared by **Kübra Babacan and Hayati Akyol**, using a qualitative descriptive survey, 23 research articles published between 2014 and 2024 were analysed. The research focuses on the methodologies, sample types, data collection tools, prominent findings and recommendations of these articles. The results show that intertextual reading has become a universal area of academic interest by crossing cultural and interdisciplinary boundaries, especially in fields such as education, literature, psychology and linguistics.

In the article titled *“Bibliometric Analysis of Studies on Sustainability in Education”*, which is prepared by **Mehmet Emin Usta, Ümit Doğan and Seyfettin Abdurrezzak**, a descriptive survey approach was used. Data sourced from the Web of Science (WoS) database facilitated the examination of 1,587 articles on sustainability in education. The research unveiled that the studies on sustainability in education between 1995-2023 encompass 1,587 articles authored by 4,169 contributors across 492 distinct outlets. The United States emerged as the foremost contributor to this body of research.

Thanks for your interest and valuable contributions for *Journal of Education and Future*.

Look forward to meeting in the next issue...

Prof. Dr. Erten GÖKÇE and Assoc. Prof. Dr. Aliye ERDEM
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Development of Teacher-Reported Preschool Children's Self-Regulation Skills Assessment Scale

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Abstract

The aim of this study was to develop a scale to assess the self-regulation (SR) skills of preschool children. The developed scale enables the assessment of preschool children's self-regulation (SR) skills based on their teachers' observations. Exploratory and confirmatory factor analyses were conducted on Turkish preschool children with two samples (n=300 and n=289, respectively). The TR-PCSAS, with 42 items in total, has its three-factor structure supported by the factor analysis results. In addition to good reliability and construct validity results, the measure also had a strong positive correlation with a similar scale. A multiple regression analysis was conducted to predict children's SR skills based on gender, duration of attended early childhood education, and the teachers' professional experience. These variables significantly predicted children's SR skills. Findings demonstrate that the TR-PCSAS has appropriate psychometric characteristics and can be used for assessing the SR skills of preschool children in Turkiye.

Keywords: Preschool, self-regulation, scale development, teacher-reported preschool children's self-regulation skills assessment scale, TR-PCSAS.

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Okul Öncesi Dönemdeki Çocukların Öz Düzenleme Becerilerini Değerlendirme Ölçeği- Öğretmen Formu Geliştirme Çalışması

Makale Türü	Başvuru Tarihi	Kabul Tarihi
Araştırma	6.03.2024	4.02.2025

H. Gözde Ertürk Kara* Tülin Güler Yıldız** Burcu Atar***

Öz

Bu çalışmanın amacı, okul öncesi dönemdeki çocukların öz düzenleme becerilerini değerlendirmek üzere bir ölçme aracı geliştirmektir. Geliştirilen ölçek, okul öncesi dönemdeki çocukların öz düzenleme becerilerinin öğretmen gözlemlerine dayanarak değerlendirilmesini sağlamaktadır. Açımlayıcı ve doğrulayıcı faktör analizleri okul öncesi dönemdeki çocuklardan oluşan iki farklı örneklem (sırasıyla n=300 ve n=289) üzerinde gerçekleştirilmiştir. Faktör analizi sonuçları, toplam 42 maddeden oluşan OÇÖBD-Ö'nün üç faktörlü yapısının yapı geçerliğini desteklemektedir. İyi güvenirlik ve faktör geçerliği sonuçlarına ek olarak, benzer bir ölçekle de pozitif ve yüksek korelasyona sahiptir. Çocukların öz düzenleme becerilerini cinsiyet, devam ettiği okul öncesi eğitimi süresi ve öğretmenlerin mesleki deneyimlerine göre yordamak için çoklu regresyon yapılmıştır. Bu değişkenler çocukların öz düzenleme becerilerini anlamlı şekilde yordamıştır. Bulgular, OÇÖBD-Ö'nün uygun psikometrik özelliklere sahip olduğunu ve Türkiye'deki okul öncesi çocukların öz düzenleme becerilerinin değerlendirilmesinde kullanılabileceğini göstermiştir.

Anahtar Sözcükler: Okul öncesi, öz düzenleme becerileri, ölçek geliştirme, Okul Öncesi Dönemdeki Çocukların Öz Düzenleme Becerilerini Değerlendirme Ölçeği- Öğretmen Formu, OÇÖBD-Ö.

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Introduction

From a theoretical perspective, self-regulation is a proactive process whereby individuals consistently organize and manage their thoughts, emotions, and behaviors (Zimmerman, 2000). Self-regulation skills develop through certain stages from the beginning of life. In the first years of life, the development of self-regulation takes place in a stage defined by external regulation. At this stage, infants trust the people who take care of them, and adults support their self-regulation by using various methods to calm them down when they cry and feel restless. In the co-regulation stage, as the child grows and develops, they participate in the self-regulation process with the person who cares for them. The child starts to internalise calmness through reading books together, deep breathing, hugging, and other calming activities. Through meaningful experiences in these two stages, the child's secure attachment to the adult is strengthened. In the self-regulation stage, adults act as guides for children and encourage them to use various strategies for self-regulation. Self-regulation skills develop dramatically, especially in the early childhood years. Around the age of six, children can realize what calms them down and try methods (e.g., deep breathing) that help them cope with negative emotions (Bronson, 2000).

Self-regulation (SR) skills in the preschool period are very formative, enhancing preschoolers' ability to develop early academic skills, which lead to later success. An achievement gap may be observed between children who struggle with SR in the preschool period and their peers. Closing this gap is difficult or impossible (Garner & Waajid, 2012; Blair & Razza, 2007; Blair, 2003; Izard et al., 2001). In this regard, Robson et al. (2020) investigated the formative role of SR skills for later periods of life in their meta-analysis. They found that SR development in the preschool period (~4 years of age) is positively associated with children's social competence, attitude towards school, and academic achievement at the beginning of the primary school years (~8 years of age). It is negatively associated with internalization problems, peer victimization, and externalization problems. In addition, it was found that, at the beginning of primary school years, SR positively correlates with academic achievement (math and early literacy) in later school years (~13 years of age), whereas that it negatively correlates with externalization problems (aggressive and criminal behavior), depressive symptoms, obesity, smoking, and substance use. Children's self-regulation (SR) skills in early school years are negatively related to aggressive and criminal behavior, depressive symptoms, anxiety, obesity, smoking, alcohol and substance use, and physical illness symptoms in adulthood (~38 years of age).

SR skills can be taught and reinforced. The child's environment should offer various supportive experiences to improve their SR. The facilitating process starts in infancy, characterized by warmth, responsiveness, sensitivity, and secure attachment relationships with the adults around the child, and continues with sensitive guidance that respects the child's increasing need for autonomy and independence. When children start preschool, teachers are expected to establish a trusting relationship, to be a model for them in SR skills, and to incorporate self-regulatory activities in the content of the program (routines, activities, peer relations, etc.) (McClelland & Tominey, 2016). Therefore, one must evaluate children's SR skills through valid and reliable measurement tools to provide effective guidance and support in the early childhood years.

A variety of methods are used for the evaluation of children's SR skills. In addition to the assessments based on adult observation or report (Rimm-Kaufmann et al., 2005; Achenbach & Rescorla, 2000), direct assessment tools can be implemented via different tasks that are performed by the child individually (Ponitz et al., 2009; Smith-Donald et al., 2007). Although direct assessment tools form an important part of assessment and evaluation, they can still be time-consuming and expensive. These tools are generally used by researchers and clinical psychologists who have attended practical training. In the national literature, scales originally developed in Western culture and adapted to Turkish culture have been widely used in the assessment and evaluation of SR skills (Ertürk Kara et al., 2017; Sezgin & Demiriz, 2015; Fındık Tanrıbuyurdu & Güler Yıldız, 2014). For instance, Ertürk Kara et al. (2017) and Fındık Tanrıbuyurdu & Güler Yıldız (2014) have used the Preschool Self-Regulation Assessment (PSRA) to assess children's SR skills within the Turkish context. They have reported that culture-specific behaviors are observed in children's task performances, particularly in the tasks Toy Wait and Snack Delay, which are related to the positive emotion subscale of PSRA. According to these results, Turkish children tend to be dependent on practitioners' directions during these tasks, compared to their

Western counterparts. For this reason, children's behaviors within these tasks do not show variance, all children wait for practitioners' directions patiently. Researchers have argued that children's behavior is due to culture rather than the high level of perseverance. Also, researchers have stated that the children do not go beyond the directions given by the adult they see as authoritative in the teacher-centered, traditional education approach. This interpretation of the researchers has been supported by their findings regarding the quality of teacher-child interactions. To this end, Merenda (2006) has underlined the importance of ensuring that the culture in which the scales are originally developed and the culture in which they are adapted be similar. Considering that the scales on SR skills are generally developed by researchers from the Western culture, and it is known that Turkish and Western cultures are quite different, there is a need for new assessment tools to more effectively assess children's SR in Turkish culture.

The current study aims to develop an easily implementable, valid, and reliable measurement tool to assess the SR skills of preschool children for reasons such as cultural specificity, time-saving for researchers and educators, and cost efficiency. The implementation process of the scale does not require any equipment or materials. Since the assessment process is based on observation, the scale is filled out by the child's teacher rather than by an outside researcher. The scale serves to assess preschool children's self-regulation skills by considering the process, rather than implementing a one-shot assessment, which is based on the principle that data about the child should be collected over time. The scale is also appropriate for evaluation in terms of temporal and spatial aspects.

Method

During the scale development process, the processing steps suggested by DeVellis & Thorpe (2021) were followed. In the first stage of the study, the item pool was formed to assess children's SR skills. In the next stage, Exploratory Factor Analysis (EFA) was performed to examine the structure of the scale items. Since the Tau-equivalent model provides acceptable goodness of fit, Cronbach's alpha values were calculated to analyze the scale's internal consistency. The factor structure identified by EFA was investigated on a different sample and then a confirmatory factor analysis (CFA) was performed. Finally, analyses were performed to assess the criterion validity of the scale and its relationship with various variables through correlational assessments.

Scale Development

The research team, consisting of an early childhood education specialist, two colleagues who had experience researching SR, and a specialist in the field of measurement and evaluation, carried out the item generation process of the scale. Items were written by two early childhood education specialists in the research team. Previous research on the assessment of SR skills was reviewed (MacKenzie, 2015; Cameron Ponitz et al., 2008; Smith-Donald et al., 2007; Bronson et al., 1990).

SR is described as an umbrella term in the literature. It involves the development of children's ability to regulate their emotions, thoughts, and behaviors, enabling them to act in a positive, goal-directed, and purposeful manner. In the early years of life, the foundations of emotional and cognitive SR are integrally linked, and both are necessary for behavioral SR (Posner & Rothbart, 2000). Considering this information, the first item pool, including 71 items, was formed, and the researchers approached self-regulation skills under three dimensions: cognitive, behavioral, and emotional regulation. Researchers focused on executive functions and attention components of cognitive regulation; naming, recognizing, understanding, expressing, and controlling emotions as processes of emotional regulation; and the components of impulse control and delaying gratification of behavior regulation.

A focus group interview was conducted to evaluate whether the scale items were accurate, whether they included the skills to be measured, and whether there were similar or inappropriate items. The focus group interview was conducted with two teachers who have more than ten years of professional experience and a master's degree in the field of early childhood education. The revisions were made according to the focus group discussion. For instance, to make the two items clearer, explanatory examples were written in parentheses after the items. One item in the item pool was divided into two items: "He/She works/plays independently without adult support." Lastly, the opinions of three

specialists in the field of early childhood education and one specialist in the field of measurement and evaluation were sought, and these four specialists reached a high level (.92) consensus on the items (Miles & Huberman, 1994).

Participants

The research was carried out in two phases, and different participant groups were studied for each phase. EFA and reliability analyses were performed in the first phase. The demographic characteristics of the participants in the first phase are given in Table 1.

Table 1. Demographic characteristics of the participants who participated in the first phase

		f	%
Gender	Girl	173	57,1
	Boy	127	42,3
Number of Siblings	Only child	81	27,0
	One sibling	124	41,3
	Two siblings	57	19,0
	Three or more siblings	38	12,7
Order of Birth	Youngest child	106	35,3
	Middle child	36	12,0
	Eldest child	77	25,7
Duration of Preschool Education	Less than one year	120	40,0
	One to two years	135	45,0
	Two to three years	37	12,3
	Three years	6	2,0
Mother's Education Level	Illiterate	21	7,0
	Primary	38	12,7
	High school	63	21,0
	Undergraduate	93	31,0
Father's Education Level	Illiterate	8	2,7
	Primary	34	11,3
	High school	70	23,3
	Undergraduate	93	31,0
Mother's Working Status	Working	114	38,0
	Not working	186	62,0
Types of ECE Institutions	Kindergarten in primary school	121	40,3
	Independent preschool	92	30,7
	Private school	35	11,7
	Kindergarten in secondary school	32	10,7
	Kindergarten within vocational and technical high schools	14	4,7
	Institutional kindergarten	6	2,0

A total of 300 children, 173 girls and 127 boys participated in this phase. The ages of the participant children ranged from 34 months to 79 months ($M = 63.37$, $SD = 8.39$). 27% of child participants were only children, 41.3% of them had one sibling, 19% had two siblings, and 12.7% had three or more siblings. 35.3% of the participating children were the youngest children in their families; 25.7% of them were the eldest children; and 12% were the middle children. Forty percent of the child participants attended formal early childhood education for less than one year, 45% for one to two years, 12.3% for two to three years, and 2.3% for three years. Seven percent of the mothers and 2.7% of the fathers were illiterate. 31% of the children's mothers and fathers had an undergraduate degree, 21% of the children's mothers and 23.3% of fathers were high school graduates, and 12.7% of the children's mothers and 11.3% of fathers were primary school graduates. Sixty-two percent of the children's mothers did not work. 40.3% of the children attended kindergarten in primary schools; 30.7% attended independent preschools; 11.7% attended private schools; 10.7% attended kindergarten in secondary schools; 4.7%

attended kindergarten within vocational and technical high schools; and 2% attended institutional kindergarten. During the second stage of the study, CFA and criterion validity analyses were carried out, along with the examination of correlations between children's SR skills, their gender, and the professional experiences of their teachers.

The demographic characteristics of the participants in the second phase are given in Table 2.

Table 2. *Demographic characteristics of the participants who participated in the second phase*

		f	%
Gender	Girl	154	53,3
	Boy	135	46,7
Number of Siblings	Only child	124	42,9
	One sibling	122	42,2
	Two siblings	35	12,1
	Three or more siblings	8	2,8
Order of Birth	Youngest child	106	44,6
	Middle child	36	36,7
	Eldest child	77	4,5
Duration of Preschool Education	Less than one year	129	44,6
	One to two years	106	36,7
	Two to three years	41	14,2
	Three years	13	4,5
Mother's Education Level	Illiterate	1	0,3
	Primary	19	6,6
	High school	45	15,6
	Undergraduate	161	55,7
Father's Education Level	Illiterate	1	0,3
	Primary	12	4,2
	High school	55	19,0
	Undergraduate	168	58,1
Mother's Working Status	Working	181	62,6
	Not working	108	37,4
Types of ECE Institutions	Kindergarten in primary school	77	26,6
	Independent preschool	25	8,7
	Private school	174	60,2
	Kindergarten in secondary school	20	7,0
	Kindergarten within vocational and technical high schools	6	2,1
	Institutional kindergarten	5	1,7

A total of 289 children, 154 girls (53.3%) and 135 boys (46.7%), participated in this phase. The ages of the children ranged from 36 months to 84 months ($M = 59.31$, $SD = 10.38$). 42.9% of participant children were only children, 42.2% of them had one sibling, 12.1% had two siblings, and 2.8% had three or more siblings. 44.6% of the children attended formal early childhood education for less than 1 year, 36.7% of them for 1–2 years, 14.2% for 2–3 years, and 4.5% for more than 3 years. Only one of the children's parents was illiterate. 55.7% of the mothers and 58.1% of the fathers had an undergraduate degree, 15.6% of the mothers and 19% of the fathers were high school graduates, and 6.6% of the mothers and 4.2% of the fathers were primary school graduates. Thirty-seven-point four percent of the mothers did not work. 26.6% of the children attended kindergarten classrooms in primary schools, 8.7% of them attended independent preschool, 60.2% attended kindergarten in private schools, 7% attended kindergarten in secondary school, 2.1% attended kindergarten in vocational and technical high schools, and 1.7% attended institutional kindergarten.

Research Instruments and Procedures

Demographic Information Form

This form includes the participant children's age, gender, number of siblings, duration of formal early childhood education experience, educational background of their parents, employment status of the mothers, type of school children attends.

The Preliminary Teacher Reported – Preschool Children's Self-Regulation Skills Assessment scale (TR-PCSAS)

Considering the focus group interviews, related literature, and professional opinions, the scale was structured in three subscales: behavior regulation, emotion regulation, and cognitive regulation. The cognitive regulation subscale consists of 35 items (for example, Item 2: He/She has difficulty making decisions when there are many options). Item 3: He/She needs a reminder to start an activity). The behavior regulation subscale consists of 18 items, for instance, Item 19: He/She uses materials without harm, Item 28: He/She does not want to get in line, for example, for riding a swing or washing hands. Lastly, the emotion regulation subscale consists of 18 items (for example Item 58: He/she uses the names of emotions correctly (for instance, happy, sad, confused, etc.), Item 56: He/she talks about the causes and consequences of his/her feelings). There were 71 items in the first item pool. The items in the scale were designed on a five-point Likert scale with options 1, never, 2, rarely, 3, sometimes, 4, often, and 5, always.

Self-Regulation Skills Teacher Form (SRSTF) for 4-6 Years-Old Children

This form was used for criterion validity, as it showed comparable scale characteristics. It was developed by Ivrendi & Erol (2018). The items in the scale were arranged in a five-point Likert scale with options (1-never, 2-rarely, 3-sometimes, 4-usually, and 5-always). It consists of three subscales: inhibitory control, working memory, and attention. The scale can be evaluated based on the total score and subscales. After the validity and reliability analyses of the assessment tool were conducted, 22 items remained. The maximum score that can be obtained from the scale is 110, and the minimum score is 22. The 11th item in the scale (He/She harms the environment when he/she gets angry.) is reverse scored. Cronbach's alpha coefficient is calculated to be 0.94.

Ethics committee approval was obtained to carry out the study. In the first phase of the study, the Preliminary Teacher Reported – Preschool Children's Self-Regulation Skills Assessment Scale (TR-PCSAS), in its initial version with 71 items, and the Demographic Information Form were combined in Google Forms. Within the second phase, TR-PCSAS (42 items after EFA), the Self-Regulation Skills Scale (SRSTF) for 4–6-year-old children's Teacher Form, and the Demographic Information Form were sequentially combined in a single Google Form. Within the two phases of the study, the early childhood education teachers were easily accessible, willing to participate in the research, and contribute to the research process through the forms. The teachers filled out the forms provided in the link for each child in their classrooms one by one, based on observations specific to each child.

Data Analysis

The data obtained from the TR-PCSAS, the SRSTF for 4- to 6-year-old children, and the demographic information form were analyzed with the SPSS program. Exploratory and confirmatory factor analyses, which assessed the construct validity of TR-PCSAS, were carried out as part of the related studies. The MPlus 8 software was used for confirmatory factor analysis. As part of the criterion validity analysis of TR-PCSAS, the relationship between TR-PCSAS scores and the SRSTF for 4-6-year-old children was analyzed by calculating the Pearson correlation coefficient. As part of the reliability analysis of TR-PCSAS, Cronbach's alpha was examined. Finally, the predictive power of children's gender, the duration of formal early childhood education experience, and their teachers' professional experience with SR skills were analyzed by multiple linear regression.

Ethical Procedures

The Human Sciences Ethics Committee of the corresponding author's university approved the research protocol on March 24, 2023. The data were obtained from teachers' observations of children.

For this reason, the participating teachers and the families of the children were informed about the content of the study. The research was based on voluntary participation.

Results

Results for Exploratory Factor Analysis (EFA)

EFA was performed on 71 items included in the analysis. It was decided to apply the principal axis factoring method. One of the types of vertical rotation was performed using the Promax method. The Kaiser-Meyer-Olkin (KMO) value was calculated as .950, which indicates that the data are factorable. According to the results of the Bartlett test, which tests whether the correlation matrix is a unit matrix (null hypothesis), the p-value was calculated to be greater than .001. Consequently, the null hypothesis was rejected at the alpha level of .05. Therefore, the correlation matrix differed significantly from the unit matrix. According to the parallel analysis, three factors have been extracted. Hence, EFA was performed following the three-factor structure. Three factors explained 57.63% of the total variance. The items were removed in the final analysis, taking into consideration factor loadings and common variance values, as follows: 4, 8, 9, 10, 13, 17, 18, 21, 22, 24, 27, 29, 37, 40, 41, 42, 43, 45, 47, 49, 50, 54, 59, 60, 61, 62, 63, 66. The high percentage of the total variance was considered valid because it showed that this scale could measure its intended construct. It is also seen in the scree plot given in Figure I that the final scale is three-dimensional.

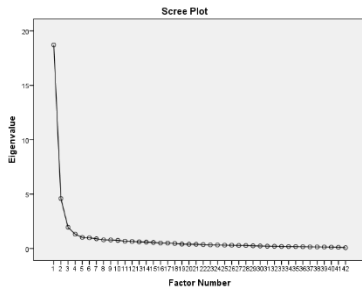


Figure 1. Scree Pilot

Table 3 demonstrates the factor rotation results and provides

Table 3. EFA Results for the TR-PCSAS: Three-Factor Solution with Varimax Rotation for The EFA Sample ($N = 300$).

ID	F1:CR P	F2:BR P	F3:ER P	h2
7	.882			.682
53	.833			.649
35	.830			.545
33	.814			.746
34	.797			.586
39	.791			.715
5	.788			.583
2	.779			.576
3	.778			.697
52	.755			.772
11	.721			.573
32	.720			.576
1	.694			.49
48	.686			.628
51	.678			.623
38	.673			.604
12	.654			.644
6	.626			.336
36	.579			.282
44	.552			.294
65	.525			.351

70	.911		.665
69	.906		.694
23	.850		.739
67	.821		.479
64	.818		.594
15	.775		.653
26	.746		.687
20	.643		.62
16	.636		.624
30	.623		.469
14	.617		.504
28	.614		.639
31	.608		.572
46	.606		.427
19	.601		.563
71	.566		.28
68	.502		.209
25	.911		.438
56		.905	.868
55		.810	.817
57		.733	.713

The final version of the scale consists of three dimensions: cognitive regulation (21 items), behavior regulation (18 items), and emotion regulation (3 items).

Results for Confirmatory Factor Analysis (CFA)

CFA was performed using the weighted least squares mean and variance adjusted (WLSMV) method, with data collected from a different sample (n=289) to test the fit of the three-factor model established by EFA. Indices related to model-data fit are shown in Table 4 following the criteria determined by Kline (2016).

Table 4. Global Fit Statistics for the TR-PCSAS for the CFA Sample (N = 289).

Fit indices	Acceptable value range	Estimated value indexes
χ^2/df	$0 \leq \chi^2/df \leq 3$	1.93
RMSEA	$00 \leq RMSEA \leq .08$	0.057
CFI	$.90 < CFI \leq 1.00$.968
SRMR	$.00 \leq SRMR \leq .08$.066

Note. CFA = Confirmatory factor analysis, TR-PCSAS = Teacher-reported preschool children's self-regulation skills assessment scale; χ^2/df = chi-square test; RMSEA = root mean square error of approximation; CFI = comparative fit index; SRMR= standardized root mean square residual.

The fit indices estimated on CFA are generally within acceptable limits. In this context, the three-factor model fits the data. Estimated standardized factor loadings for the model are shown in the path diagram below.

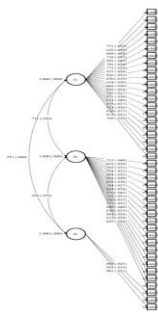


Figure 2. Path Diagram for the TR-PCSAS

Standardized factor loadings of items associated with the first, second, and third factors ranged from .552 to .875, .570 to .902, and .869 to .991, respectively.

Results for Criterion Validity

The SRSTF for 4–6-year-old children was used as a comparable scale in the current study. The Cronbach's alpha reliability of the scale's sub-dimensions was estimated to be .90 for the inhibitory control sub-dimension, .92 for the attention sub-dimension, and .91 for the working memory sub-dimension. The reliability of the total scores for the entire scale was calculated as .94. In this case, reliability is high for both the scores obtained from the sub-dimensions of the scale and those obtained from the complete scale.

Table 5. *Correlation Coefficient Values between SRSTF for 4-6 Years-Old Children and TR-PCSAS scores (N=289).*

	CR	BR	ER	TR-PCSAS total	IC	A	WM	SRSTF for 4-6 Years-Old Children total
Cognitive Regulation (CR)	1,000							
Behavior Regulation (BR)	,648	1,000						
Emotion Regulation (ER)	,479	,253	1,000					
TR-PCSAS Total	,923	,880	,506	1,000				
Inhibitory Control (IC)	,667	,360	,789	,636	1,000			
Attention (A)	,794	,721	,348	,832	,553	1,000		
Working Memory (WM)	,784	,496	,419	,724	,567	,723	1,000	
SRSTF for 4-6 Years-Old Children Total	,863	,626	,610	,854	,836	,899	,838	1,000

The correlation coefficients between SRSTF for the 4- to 6-year-old children subscales ranged from 0.348 to 0.794. The strongest relationship was found between the cognitive regulation subscale and the attention subscale ($r = .794$). The weakest correlation was found between the emotion regulation subscale and the attention subscale ($r = .348$). The TR-PCSAS provides evidence that it is valid and measures a trait similar to the SRSTF, for 4- to 6-year-old children.

Results for Predictive Validity

Multiple regression analysis was conducted to predict children's self-regulation (SR) skills based on their gender, duration of formal early childhood education experience, and professional experience of their teachers. These variables predicted the children's SR skills significantly ($F[3, 285]=8.365, p < .001, R^2=.081$).

The sex of children was a significant predictor of SR skills when other variables were controlled ($t = -3.837; p = 0.001$). The SR skills of boys (coded as 1) were on average 12.096 units higher than the SR skills of girls (coded as 0). When other variables were controlled, the duration of formal early childhood education experience was not a significant predictor of self-regulation (SR) skills ($t = .0747; p = .941$). The professional experience of teachers was a significant predictor of children's SR skills levels when other variables were controlled ($t = 3.124; p = .002$). As the professional experience of the teacher increases by one unit, it is expected that the SR skills of the children will increase by approximately 4.810 units.

Results for the Reliability of TR-PCSAS

The internal consistency reliability of the scale was analyzed by estimating Cronbach's alpha coefficient. Therefore, Cronbach's alpha reliability coefficient values were calculated for the different sub-dimensions of the scale, with values of 0.96 for cognitive regulation, 0.95 for behavior regulation, and 0.93 for emotion regulation. These high Cronbach's alpha values indicate that the scores obtained from these dimensions are highly reliable.

Discussion, Conclusion and Recommendations

The aim was to contribute to the relevant literature by developing a valid, reliable measurement tool to assess the SR skills of preschool children. Based on a comprehensive literature review on SR skills, the opinions of preschool teachers, and the evaluations of field experts, a measurement tool consisting of three dimensions— cognitive regulation, behavior regulation, and emotion regulation— with a total of 42 items, was developed. The results of the two-phased study showed that the TR-PCSAS provided valid and reliable scores for children's SR skills. The positive correlations between TR-PCSAS scores and the SRSTF for 4-6-year-old children, which have similar scale characteristics, provided evidence for criterion validity. Internal consistency of the scale was ensured by high Cronbach's alpha coefficients. Like the scales developed for the assessment of SR skills in the relevant literature, the TR-PCSAS has been shown to reflect the multidimensional structure of SR skills (Korucu et al., 2022; Asiye & Erol, 2018; Morrison & Grammer, 2016; Zhou et al., 2012; Smith-Donald et al., 2007). TR-PCSAS is different from the scales in the national literature: the Self-Regulation Skills Teacher Form for 4–6-Year-Old Children (Asiye & Erol, 2018), the Child Behavior Rating Scale (Ertürk Kara, 2017; Bronson et al., 1990), and the Children's Independent Learning Development Checklist 3–5 Years (Saraç et al., 2019). It focuses on SR as an umbrella term encompassing emotional, cognitive, and behavioral self-regulatory skills, and evaluates how these SR skills are structured around the relationship between these three dimensions.

The national literature also shows that Turkish versions of Head-Toe-Knees-Shoulders (Ponitz et al., 2008) and Preschool Self-Regulation Assessment (Sezgin & Demiriz, 2015; Fındık & Güler Yıldız, 2014) have been frequently used in the assessment of children's SR-skills. These measurement tools share common features: a practitioner needs training to implement the tools, they are adapted from Western culture, and are implemented individually for each child. Hence, TR-PCSAS is timely, economical, culturally appropriate, and convenient. It can be used to support the measurement process and will allow a comprehensive and multifaceted evaluation of SR.

According to the results of the current study, TR-PCSAS significantly predicted the SR skills of the children, considering variables such as gender, the duration children spent in formal early childhood education, and their teachers' professional experience. It is known that SR skills develop dramatically in the early childhood years, in parallel with the development of the frontal lobe of the brain (Fjell et al., 2012). During these years, the duration of children's attendance in a well-planned and systematic formal early childhood education, and their teachers' professional experience in the field have a direct effect on their self-regulation (SR) skills. When the children's gender and the duration of formal early childhood education experience were controlled, the significant relationship between children's SR skills and teachers' professional experience may stem from teachers improving their knowledge of SR skills over the years (Iriogbe-Efionayi, 2020; Webster, 2015; Rice, 2013). It has been observed that longer attendance in early childhood education did not have a significant effect on children's SR skills when the professional experience of the teachers was controlled. This finding suggests that the duration of formal early childhood education experience, when combined with the professional experience of the teachers, has a significant effect on the children's self-regulation (SR) skills. When the variables of the duration of children's formal early childhood education and the presence of professional teachers were controlled, boys were observed to have higher SR skills than girls. Although it has been revealed in the international literature that girls are better than boys in academic skills, including SR skills (Magat, 2013), the gap between boys and girls has been closing in recent years according to the National Assessment of Educational Progress (Perie et al., 2005). When the national literature was reviewed, it was evident that there were various findings on the differences in SR skills based on children's gender. While some studies have not found a difference in children's SR skills based on their gender (Eren, 2022; Yılmaz, 2020; Ural et al., 2020; Ertürk Kara & Gönen, 2015; Fındık Tanrıbuyurdu & Güler

Yıldız, 2014), the results of several studies have indicated that girls are better than boys (Öztabak & Özyürek, 2018; Aksoy & Tozduman Yaralı, 2017; Dağgöl, 2016). This variation among the findings may be due to various factors, such as the uncontrolled socio-economic backgrounds of children and the educational status of their parents. However, the finding that boys are better than girls in SR skills in the current study may stem from assessing children's SR skills not only in the cognitive dimension involving attention/impulse control but also in emotional and behavioral regulation.

In the current study, the examination of children's SR skills only in terms of gender, teacher's professional experience, and children's experience in formal early childhood education, limits the study. Further research can be carried out to investigate other factors and mediating variables associated with the SR skills of children. To strengthen the predictive power of TR-PCSAS, further studies can be conducted to examine the relationship between TR-PCSAS and the related variables, such as SR skills, quality of the teacher-child relationship, and the quality of the classroom environment. Since TR-PCSAS is a teacher-reported scale, the collected data were based on the personal statements and observations of participant teachers. Therefore, it would be better to incorporate alternative approaches in the measurement and evaluation processes of children's SR skills. In addition to TR-PCSAS, it is advisable to use multiple data sources to obtain information on self-regulation skills directly from children or indirectly from families. Another limitation of the study was that it was not possible to explore the social or cultural differences among the children because all participants were Turkish. In recent years, children from different cultures have begun to attend early childhood education institutions in Turkey. In this regard, the current findings are limited in generalizability to these groups. Therefore, replicating the research in other samples (e.g., Afghan, Syrian children) may promote better evaluation of the factor structure and psychometric quality of the scale. These studies will provide further evidence for the validity and reliability of TR-PCSAS.

Educational specialists place importance on supporting self-regulation (SR) skills in the early childhood years. Efforts to evaluate children's SR skills and design practices within the scope of these evaluations have begun recently. At this point, it is suggested that developing a valid and reliable measurement tool, such as TR-PCSAS, would be beneficial for educators and researchers. Also, developing such an assessment tool will both contribute to early childhood education literature and lead to further research in this field. The measurement tool consists of concrete behaviors that teachers can easily observe in the classroom environment. Moreover, because the items of TR-PCSAS focus on emotion, behavior, and cognition, it offers an important perspective on SR skills as a set of prerequisite abilities that should be supported by educators and researchers to achieve learning outcomes such as school readiness, academic success, and social competence. It is believed that the data collected by researchers and educators using TR-PCSAS will allow for the design and implementation of early intervention programs, supporting the development of children's SR skills during the early childhood years.

References

- Achenbach, T. M., and Rescorla, L. A. (2000). *Manual for the ASEBA preschool forms & profiles*. Burlington, VT: University of Vermont.
- Aksoy, A. B., and Tozduman Yaralı, K. (2017). *Çocukların öz düzenleme becerileri ile oyun becerilerinin cinsiyete göre incelenmesi. [An analysis of children's self-regulation and play skills according to gender]. Trakya Üniversitesi Eğitim Fakültesi Dergisi, 7(2): 442-455. https://doi.org/10.24315/trkefd.304124*
- Blair, C. (2003). Behavioral inhibition and behavioral activation in young children: Relations with self-regulation and adaptation to preschool in children attending Head Start. *Developmental Psychobiology 42(3): 301-311. https://doi.org/10.1002/dev.10103*
- Blair, C., and Razza, R. (2007). Relating effortful control, executive function, and false belief understanding to emerging math and literacy ability in kindergarten. *Child Development 78(2): 647-663. https://doi.org/10.1111/j.1467-8624.2007.01019.x*
- Bronson, M. B., Goodson, B. D., Layzer, J. I., and Love, J. M. (1990). *Child Behaviour Rating Scale*. Cambridge MA: Abt Associates.

- Bronson, M. B. (2000). *Self-regulation in early childhood: nature and nurture*. 1 st. edition. New York, NY: The Guilford Press
- Cadima, J., Enrico, M., Ferreira, T., Verschuere, K., Leal, T., and Mena Matos, P. (2016). Self-regulation in early childhood: the interplay between family risk, temperament, and teacher-child interactions. *European Journal of Developmental Psychology* 13(3), 341-360. <https://doi.org/10.1080/17405629.2016.1161506>
- Cameron Ponitz, C., McClelland, M. M., Connor, C. M., Jewkes, A., M., Farris, C. L., and Morrison, F. J. (2008). Touch your toes! developing a direct measure of behavioural regulation in early childhood. *Early Childhood Research Quarterly* 23 (2): 141–158. <https://doi.org/10.1016/j.ecresq.2007.01.004>
- Dağgöl, H. C. (2016). *Okul öncesi dönem çocuklarının öz düzenleme becerileri ile ebeveynlerin çocuk yetiştirme stilleri arasındaki ilişkinin incelenmesi*. [Investigation of the relationship between preschool children's self-regulation skills and parents' child-raising styles]. (Unpublished master's Thesis). Eastern Mediterranean University, North Cyprus.
- DeVellis, R. F., and Thorpe, C. T. (2021). *Scale development: theory and applications*. Fifth edition, Newbury Park, CA: Sage.
- Duval, S., Bouchard, C., Pagé, P., and Hamel, C. (2016). Quality of classroom interactions in kindergarten and executive functions among five-year-old children. *Cogent Education* 3(1): 1207909. <https://doi.org/10.1080/2331186X.2016.1207909>
- Eren, S. (2022). *The effect on parents interested in their preschool children's self-regulation skills*. Unpublished Doctoral Dissertation. Bursa Uludag University, Bursa, Turkey.
- Ertürk Kara, H. G., and Gönen, M. (2015). Examination of children's self-regulation skills in terms of different variables. *Journal of Theory and Practice in Education* 11(4): 1224–1239. Retrieved from <https://dergipark.org.tr/tr/pub/eku/issue/5467/74230>
- Ertürk Kara, H. G. (2017). The role of children's behavioural skills in predicting early academic skills. *The Journal of International Social Research*, 10(49): 432-441. Retrieved from <https://www.sosyalarastirmalar.com/articles/the-role-of-childrens-behavioral-skills-in-predicting-early-academic-skills.pdf>
- Fjell, A. M., Walhovd, K. B., Brown, T. T., Kuperman, J. M., Chung, Y., Hagler, D. J. Jr., Venkatraman V., Roddey, J. C., Erhart, M., McCabe, C., Akshoomoff, N., Amaral, D. G., Bloss, C. S., Libiger, O., Darst, B. F., Schork, N. J., Casey, B. J., Chang, L., Ernst, T. M., Gruen, J. R., Kaufmann, W.E., Kenet, T., Frazier, J., Murray, S. S., Sowell, E. R., van Zijl, P., Mostofsky, S., Jernigan, T. L., and Dale A. M. (2012). Pediatric imaging, neurocognition, and genetics study. multimodal imaging of the self-regulating developing brain. *Proceedings of the National Academy of Sciences*, 109(48):19620-19625. <https://doi.org/10.1073/pnas.1208243109>
- Fındık Tanrıbuyurdu, E., and Güler Yıldız, T. (2014). Preschool Self-Regulation Assessment (PSRA): adaptation study for Turkey. *Education and Science* 39 (176): 317-328. <https://doi.org/10.15390/EB.2014.3647>
- Garner, P. W., and Waajid, B. (2012). Emotion knowledge and self-regulation as predictors of preschoolers' cognitive ability, classroom behaviour, and social competence. *Journal of Psychoeducational Assessment* 30(4): 330–343. <https://doi.org/10.1177/0734282912449441>
- Iriogbe-Efionayi, S. (2020). Promoting self-regulation in early childhood education: teachers' knowledge of self-regulation. *Urban Education Research and Policy Annuals- Tennessee State University Special Edition*, 7(1): 5-21. Retrieved from <https://journals.charlotte.edu/urbaned/article/view/900>
- Izard, C., Fine, S., Schultz, D., Mostow, A., Ackerman B., and Youngstrom, E. (2001). Emotion knowledge as a predictor of social behaviour and academic competence in children at risk. *Psychological Science* 12(1): 18-23. <https://doi.org/10.1111/1467-9280.00304>
- Kline, R. B. (2016). *Principles and practice of structural equation modelling* (4th ed.). New York, NY: Guilford Press.
- Korucu, I., Ayturk, E., Finders, J. K., Schnur, G., Bailey, C. S., Tominey, S. L., and Schmitt, S. A. (2022). Self-regulation in preschool: examining its factor structure and associations with pre-academic skills and social-emotional competence. *Frontiers in Psychology* 12: 1-14. <https://doi.org/10.3389/fpsyg.2021.717317>

- MacKenzie, H. (2015). *Self-regulation in everyday life: A how-to guide for parents*. Wired Fox Publications.
- Magat, J. (2013). Looking at gender differences in preschoolers' self-regulation through multiple lenses. Degree of Bachelor of Arts, USA: University of Michigan
- McClelland, M., and Tominey, S. (2016). *Stop, think, and act. integrating self-regulation in the early childhood classroom*, 1 st edition, New York: Routledge.
- Merenda, P. (2006). An overview of adapting educational and psychological assessment installments: past and present. *Psychological Reports*, 99 (2): 307-314. <https://doi.org/10.2466/pr0.99.2.307-314>
- Miles, M. B., and Huberman, A.M. (1994). *Qualitative data analysis: An expanded sourcebook*. (2nd ed.). California: SAGE Publications.
- Morrison, F. J., and Grammer, J. K. (2016). Conceptual clutter and measurement mayhem: proposals for cross-disciplinary integration in conceptualizing and measuring executive function. In *Executive function in preschool-age children: Integrating measurement, neurodevelopment, and translational research* edits by J. A. Griffin, P. McCardle, and L. S. Freund, 327-348, Washington, DC: American Psychological Association.
- Öztabak, M., and Özyürek, A. (2018). An investigation on the relation between self-regulation skills of preschool students and parental attitudes. [Okul öncesi öğrencilerinin öz-düzenleme becerileri ile ebeveyn tutumları arasındaki ilişkinin incelenmesi]. *Journal of History Culture and Art Research* 7(5): 385-395. <http://doi.org/10.7596/taksad.v7i5.1544>
- Perie, M., Moran, R., and Lutkus, A.D. (2005). Trends in math achievement of boys and girls source: NAEP 2004 Trends in Academic Progress: Three Decades of Student Achievement in Reading and Mathematics. Washington, D.C., Institute of Education Sciences, National Center for Education Statistics. Retrieved from <https://files.eric.ed.gov/fulltext/ED485627.pdf>
- Posner, M., and Rothbart, M.K. (2000). Developing mechanisms of self-regulation. *Development & Psychopathology* 12 (3): 427- 441. <http://doi.org/10.1017/s0954579400003096>
- Rice, J. K. (2013). Learning from experience? Evidence on the impact and distribution of teacher experience and the implications for teacher policy. *Education Finance and Policy*, 8 (3): 332-348. http://doi.org/10.1162/EDFP_a_00099
- Rimm-Kaufman, S. E., Romberg, M. E., and Klein, S. E. (2005). Classroom observation protocol for the early learning study, Unpublished protocol, University of Virginia.
- Robson, D. A., Allen, M. S., & Howard, S. J. (2020). Self-regulation in childhood as a predictor of future outcomes: A meta-analytic review. *Psychological bulletin*, 146(4), 324–354. <https://doi.org/10.1037/bul0000227>
- Salminen, J., Guedes, C., Lerkkanen, M. K., Pakarinen, E., and Cadima, J. (2021). Teacher–child interaction quality and children's self-regulation in toddler classrooms in Finland and Portugal. *Infant and Child Development*, 30 (3): 1-23. <https://doi.org/10.1002/icd.2222>
- Saraç, S., Karakelle, S. and Whitebread, D. (2019). Okul Öncesi Çocuklar için Bağımsız Öğrenme Davranışları Ölçeği 3-5 (BÖD 3-5): Türkçe formu için geçerlik ve güvenirlik çalışması. *Elementary Education Online*, 18 (3): 1093-1106. <https://doi.org/10.17051/ilkonline.2019.610148>
- Sezgin, E., and Demiriz, S. (2015). The validity and reliability of behaviour regulation measure head-toes-knees-shoulders (htks) tasks. *International Journal of Family, Child, and Education* 7: 52-71. <https://doi.org/10.17359/ACED.201571407>
- Smith-Donald, R., Raver, C., Hayes, T., and Richardson, B. (2007). Preliminary construct and concurrent validity of The Preschool Self-Regulation Assessment (PSRA) For Field-Based Research. *Early Childhood Research Quarterly* 22 (2): 173–187. <https://doi.org/10.1016/j.ecresq.2007.01.002>
- Ural, G., Gültekin Akduman, G., and Şepitci Saribaş, M. (2020). Investigation of preschooler's self-regulatory skills according to some variables [Okul öncesi dönem çocuklarının öz düzenleme becerilerinin bazı değişkenlere göre incelenmesi.]. *Ekev Akademi Dergisi*, 24 (83): 323-342.
- Webster, M. A. (2015). *Teachers' beliefs and practices related to student self-regulation in the classroom*. Unpublished Doctoral Dissertation, USA: James Madison University.

- Yılmaz, Y. (2020). *5-6 yaş grubu çocuklarının sahip oldukları öz düzenleme becerileri ile anne baba tutumları arasındaki ilişkinin incelenmesi*. [Investigating the relationship between 5–6-year-old children's self-regulation skills with parenting attitudes]. (Unpublished master's thesis). Bursa Uludag University, Bursa, Turkey.
- Zhou, Q., Chen, S. H., and Main, A. (2012). Commonalities and differences in the research on children's effortful control and executive function: A call for an integrated model of self-regulation. *Child Development Perspectives*, 6 (2): 112–121. <https://doi.org/10.1111/j.1750-8606.2011.00176.x>
- Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 1–9). San Diego, CA: Academic Press

From Play to Concentration: The Effect of Digital Educational Games on Preschool Children's Attention Skills

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Research	28.03.2024	28.07.2024

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Abstract

The purpose of this study is to determine the effect of a digital educational game application on the attention skills of 5-6-year-old children. The research, planned with a quasi-experimental design and pretest posttest control groups, measured children's attention skills using the 'Concentration Test for Five-Year-Old Children' (Frankfurter Test Für Funjährlige Konzentration-FTF-K). The study used the MentalUp application, a digital educational game designed to improve the attention skills of preschool children. Sixteen different types of mini-games supporting 13 different attention skills were included in the study. A total of 40 children aged 5-6 years were divided into two groups based on gender. The preschool children were instructed to complete the application in a quiet classroom environment following a pre-posttest design. The results indicated that the digital educational game application significantly improved the children's attention skills. While there was no significant change from pre to posttest scores for the control group, the attention skills of the children in the experimental group were positively affected. The findings extend the current knowledge on attention skills in preschool children, highlighting the necessity of incorporating digital educational games into classroom practices to support attention skills at an early age. This study also provides valid evidence for the dissemination of digital educational games among preschool children.

Keywords: Preschool education, digital educational game, attention skills, concentration.

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Oyun Oynamaktan Odaklanmaya: Dijital Eğitsel Oyunların Okul Öncesi Çocukların Dikkat Becerilerine Etkisi

Makale Türü	Başvuru Tarihi	Kabul Tarihi
Araştırma	28.03.2024	28.07.2024

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Öz

Bu çalışmanın amacı dijital eğitsel oyun uygulamasının 5-6 yaş çocukların dikkat becerileri üzerine etkisini belirlemektir. Yarı deneysel desende ve ön test-son test kontrol gruplu olarak planlanan araştırmada çocukların dikkat becerileri "Beş Yaş Çocukların Dikkat Toplama Testi" (Frankfurter Test Für Funjahrige Konzentration-FTF-K) ile ölçülmüştür. Bu çalışmada okul öncesi çocukların dikkat becerilerini destekleyecek dijital eğitim oyunu olan MentalUp uygulaması kullanılmıştır. Okul öncesi çağındaki çocukların dikkat becerilerini geliştirmek için 13 farklı dikkat becerisini destekleyen 16 farklı türde mini oyun çalışmaya dahil edilmiştir. 5-6 yaş arası 40 çocuk cinsiyetlerine göre iki gruba ayrılmıştır. Okul öncesi çocukların önson test tasarımı doğrultusunda uygulamayı sınıfta sessiz bir ortamda tamamlamaları istenmiştir. Sonuçlar, dijital eğitsel oyun uygulamasının çocukların dikkat becerilerini önemli ölçüde geliştirdiğini göstermektedir. Kontrol grubunda yer alan çocukların öntest-sontest puanları arasında anlamlı bir değişiklik görülmezken, deney grubunda yer alan çocukların dikkat toplama becerileri olumlu etkilenmiştir. Elde edilen sonuçlar, okul öncesi çocuklarda dikkat becerileri ile ilgili mevcut bilgileri genişleterek, erken dönemde dikkat becerilerinin desteklenmesinde dijital eğitsel oyunları sınıf uygulamaları içerisine dahil etmenin gerekliliğini vurgulamaktadır. Bu çalışma aynı zamanda okul öncesi çocuklarda dijital eğitsel oyunların yaygınlaştırılması konusunda da geçerli kanıtlar sağlamaktadır.

Anahtar Sözcükler: Okul öncesi eğitim, dijital eğitici oyun, dikkat becerileri, dikkati toplama.

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Introduction

The rapid growth in information and communication technologies in the 21st century, along with digital transformation, has provided today's children with unprecedented access to information, individuals, and ideas (Arnott & Yelland, 2020; Marshall, 2016; Verenika et al., 2016). This swift development and changes in technology have significantly altered children's perceptions of play. Digital games have become among the most preferred types of games among children (Palfrey & Gasser, 2008). With the widespread adoption of touchscreen technology, children are now being introduced to screen-based media devices such as tablets, phones, and computers from a very young age. Many games, available under the name of "apps" on these technological devices, have become accessible to children of all age groups, starting from infancy (Hirsh-Pasek et al., 2015). Research indicating an increasing interest in digital games, with children spending more time in front of screens playing these games (Arnott, 2013; Kabali et al., 2015; Mustafaoğlu et al., 2018) documents the consequences of this trend.

During the preschool period, children show great interest in digital educational games. However, research findings reveal that non-educational digital games, when engaged with for prolonged periods, negatively affect children's developmental areas (Bluemke et al., 2010; Gentile et al., 2012; Lillard & Peterson, 2011), while educational digital games encourage children to learn and create, thereby enhancing their motivation (Behnamnia et al., 2020; Castellar et al., 2015; Connolly et al., 2012; Flear, 2014), improve cognitive thinking (Fitriyadi & Wuryandani, 2021; Johnson et al., 2011; Xiong et al., 2022), language development (Amorim, 2022; Blanchard & Moore, 2010; Neumann, 2018), fine motor skills development (Lee et al., 2013), concept acquisition (Scaife & Rogers, 2005; Zaranis & Alexandraki, 2019), and enhance academic and mathematical skills (Griffith et al., 2020). In this context, it is crucial to offer digital games to children that are age-appropriate and match their developmental needs (Bers, 2010; Bozkurt, 2014; Hamilton et al., 2020; Johnson & Dinger, 2012). It is also possible to talk about the effects of digital games that affect children's development areas positively or negatively on children's attention development.

Attention is a multifaceted feature that significantly influences all cognitive areas such as perception, memory, and learning (Posner & Patoiné, 2009). Although basic attention skills start to develop during the first year of infancy, skills like directing attention and using strategies reach their peak at age six (Mulder et al., 2009). Experimental studies demonstrate how attention develops with age (Ruff et al., 1998; Steele et al., 2012). When children's achievements are below expectations, it is believed that they may have attentional difficulties (Wagner, 1991). Therefore, the observability of attentional problems during the school period highlights the importance of interventions aimed at developing attention from early stages (Rothbart & Posner, 2015). Research on attention training programs shows that they include a wide range of activities and practices such as focusing, perceptual constancy, figure-ground perception, visual scanning, alertness, selective attention, divided attention, and inhibitory control (Bıyıklı et al., 2020; Yavuz, 2014). Results indicate that attention training programs, supported by these activities and practices, improve children's attention skills (Bıyıklı et al., 2020; Etrich, 1998; Lauster, 1999; Seçer & Özmen, 2015; Yavuz, 2014). Etrich (1998) and Lauster (1999) mentioned that activities such as directing attention towards a target object or situation and answering questions related to the object or situation, as well as identifying similarities and differences between objects or situations, are also effective in enhancing attention.

The development of attention and overall cognitive capacity is possible through the training of neural networks, and the brain uses optimized pathways of neural networks for different functions while performing complex tasks (Rueda et al., 2005). These functions can be developed using activities such as computer-based interventions (Hitchcock & Noonan, 2000; Rueda et al., 2012) and digital educational games focusing on cognitive development (Connolly et al., 2012; Eichenbaum et al., 2014; Palaus et al., 2017; Ramos & Melo, 2018). Studies have indicated that computer-based tasks and digital educational game applications have the potential to support children's cognitive development (Boot et al., 2008; Diamond & Lee, 2011; Eichenbaum et al., 2014; Feng et al., 2007; Lieberman et al., 2009; Neumann & Neumann, 2013; Xiong et al., 2022).

The literature highlights a lack of research focusing on the role of digital games in supporting children's learning processes (Papadakis & Kalogiannakis, 2020). Current literature shows that studies

evaluating the impact of digital educational games on the development of children and adolescents are generally focused on elementary, middle, and high school levels (Ağırçöl et al., 2022; Bilgin, 2021; Chen & Wu, 2023; Efendi, 2022; Homer et al., 2018; Hussein et al., 2019). Contrary to previous academic studies, research on the effects of digital educational games on the attention skills of preschool children is quite limited (Gözüm & Kandır, 2020; Liu et al., 2021). Considering the importance of attention skills at early ages, understanding the potential contributions of digital educational game applications to children's development during this period is critical. Therefore, this study aims to examine the impact of digital educational game applications on the attention skills of children in the preschool period. In line with this objective, the following questions have been addressed:

1. Do digital educational games have a positive effect on the attention skills of preschool children?
2. Is there a change in the attention skills of children in the control group, who do not play digital educational games, during the educational program?

Method

Research Design

This study utilized a quasi-experimental design with pretest-posttest control groups to investigate the influence of digital educational game applications on the attention development of children. This design involves dividing the groups to be included in the study into two, experiment and control groups, through an unbiased assignment (Büyüköztürk et al., 2017). Before the application, the data collection tool for the dependent variable was applied to both groups. Then, while the experimental procedure was applied to the experiment group, no intervention was made to the control group. Finally, measurements related to the dependent variable were obtained again from both groups, using the same data collection tool (Büyüköztürk et al., 2017; Creswell, 2003).

The research design is visualized in Table 1.

Table 1. Pretest-posttest control group quasi-experimental design

	Group	Pretest	Intervention	Posttest
40 randomly selected children	Experimental	O₁	X	O₃
	20 children	(FTF-T)		(FTF-K)
	Control	O₂		O₄
	20 children	(FTF-K)		(FTF-K)

In evaluating the attention skills of children in both the experimental and control groups, the FTF-K was used as a pretest, followed by playing attention games through the digital educational game application with the children in the experimental group. After the application, the data collection tool used in the pretest was reapplied as a posttest, and test scores were evaluated to determine the effect of the training.

Research Sample

The study included two classes of children aged 5-6, who were attending an independent kindergarten in the Konyaaltı district of Antalya during the 2023-2024 academic year. As the research was designed with a quasi-experimental design, the classes were determined and the equivalence of the groups was controlled. The results of the Mann-Whitney U test analysis, conducted to evaluate the equivalence between the groups, are presented in Table 2.

Table 2. Results of the Mann-Whitney U test for the pretest scores of the FTF-K

Groups	n	Mean rank	Sum of ranks	u	Z	p
A	20	17.00	340.00	130.00	-1.904	.057
B	20	24.00	480.00			

Table 2 shows that the difference in average scores obtained from the pretest by the classes included in the study group ($Z = -1.904$, $p > .05$) is not significant, indicating that the groups are homogeneous, meaning they can be considered equivalent. Group A was randomly designated as the experimental group and Group B as the control group. The gender distribution in the experimental and control groups was equalized to 10 girls and 10 boys in both groups and the experimental group, 40.9% of the children were 5 years old ($M_{\text{age}}=5.55$, $SD=0.51$); 27.3% of the children in the control group ($M_{\text{age}}=5.7$, $SD=0.47$). were 5 years old.

Research Instruments

Demographic Information Form

This form, prepared by researchers, contains identifying questions regarding the children's names, gender, and chronological ages.

Concentration Test for Five-Year-Old Children' (Frankfurter Test Für Funjahrige Konzentration–FTF-K)

The test was developed by Raatz & Möhling (1971) and is designed to measure the attention skills of children aged 5-6 years. In this individually administered test, children are presented with a mix of apples and pears, and the total number of pears drawn within 90 seconds determines the raw score of the test. The test includes a 'corrected score' table based on the child's chronological age and gender, from which the test score is derived.

A reliability study of the test was conducted in 1969 with 100 children from 20 nurseries, and the reliability coefficient was determined as .79 using the test-retest method. In 1971, to determine the reliability of the test, a study was conducted over a three-week period with 29 children in two nurseries, resulting in a reliability coefficient of .85 using the 'test-retest' method (Raatz & Möhling, 1971). Between 1970-1971, a standardization study of the test was conducted with 1170 children in various provinces of West Germany. In 2018, a study conducted on Turkish children confirmed the test's reliability and validity (Gözüm & Kandır, 2018).

Research Process and Implementation

Pretest Application

FTF-K for five-year-old children was administered as a preliminary test to the children in the study group. Before proceeding with the test application, an introduction was made with the children to ensure they felt comfortable, engaging in conversation for this purpose. The test was conducted individually with the children, seated side by side, in a quiet environment that would not distract their attention.

Digital Educational Game Application

Following the preliminary test application, children in the experimental group were engaged with attention games available in the 5-6 age category on the MentalUp application. Supported by the Scientific and Technological Research Council of Turkey (TUBITAK) and Yıldız Technical University, the MentalUp application is a gamified educational program and includes intelligence games for early childhood. The app includes hundreds of games that improve children's skills such as attention, visual attention, focused attention, concentration, reaction control, problem solving, visual perception, mathematics, planning and organization. All games in the category of "attention games" in the app were selected. The game applications were scheduled twice a week, with two games played in each session. A total of 16 different game applications were carried out over four weeks. In order not to exceed the screen exposure time of children and to prevent possible negativities such as digital addiction, the application period was planned to be twice a week for 4 weeks. In addition, it was limited to 4 weeks in order to observe the short-term effect of the application. Sample screenshots from the game application are indicated in Figure 1.

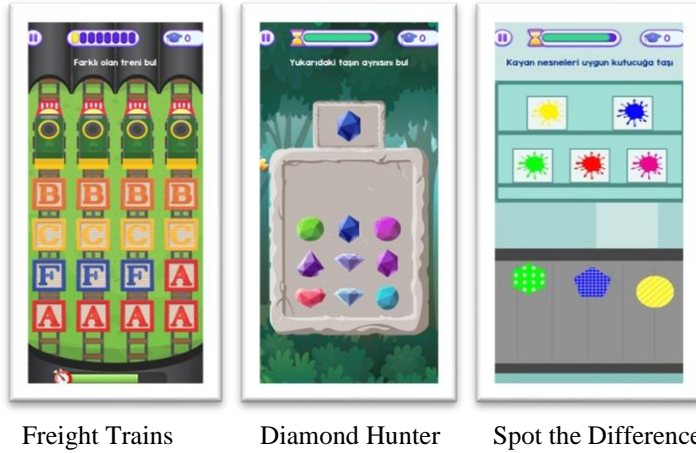


Figure 1. Sample screenshots from the games

Figure 2 shows the implementation process of the attention games selected through the application according to the weeks and the skills that the games are based on.

Week	Application	Game	Skills											
			Visual Attention	Sustained Attention	Short-Term Memory	Visual Memory	Visual Scanning	Speed	Spatial Perception	Visual Tracking	Planning	Comparison	Focusing	Conceptualization
1. Week	1. Application	Chain Shot	✓				✓		✓					
		Flying Balloon	✓					✓			✓			
	2. Application	Freight Trains	✓				✓					✓		
		Catch Before Falling	✓									✓	✓	
2. Week	3. Application	Messy Room	✓			✓	✓				✓			
		Hopping Frog		✓		✓								
	4. Application	Spot the Difference	✓				✓					✓		
		Diamond Hunter	✓				✓					✓		
3. Week	5. Application	End of the Rope	✓							✓		✓		
		Lost Objects	✓			✓	✓							
	6. Application	Missed Balls	✓	✓									✓	
		Moving Conveyor Belt	✓	✓										✓
4. Week	7. Application	Space Warden	✓				✓					✓		
		Fire the Rocket	✓				✓					✓		
	8. Application	Find the Suspect	✓		✓		✓							
		Cat Family	✓	✓									✓	

Figure 2. Implementation process of the games in practice and the skills based on the games

The game interventions were carried out individually with the children and the children played games for 20-25 minutes in each application, 40-50 minutes per week. Visuals of the implementation process are given in Figure 3.

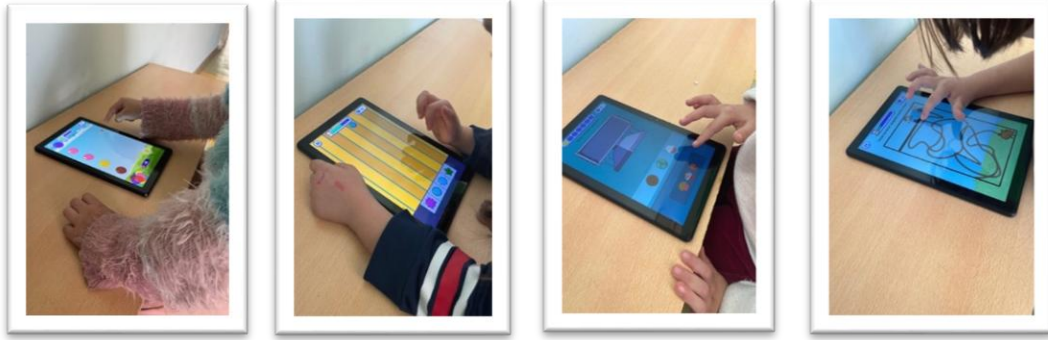


Figure 3. Visuals on the implementation process

Posttest Application

After the completion of the game application, the FTF-K was administered to the children in the study group as a posttest in the same environment and conditions as during the pretest application. The permanence of the training was evaluated by comparing the pretest scores of the children with the posttest scores.

Data Analysis

The data were analyzed using the SPSS 21 package program. In the comparisons of children's pretest and posttest scores, normality assumptions were first checked. Due to the sample size ($n < 30$), the distribution of the data was tested with the Shapiro-Wilk normality test (Büyüköztürk et al., 2011). Table 3 shows the normality assumptions for the FTF-K pretest-posttest results.

Table 3. Normality assumptions of data

Scale	Measurement	Group	n	\bar{X}	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Shapiro Wilks
FTF-K	Pretest	Experiment	20	26.95	-1.073	.512	.124	.992	.004
		Control	20	29.65	-1.682	.512	4.323	.992	.013
	Posttest	Experiment	20	31.9	-.363	.512	.029	.992	.664
		Control	20	28.7	-1.425	.512	3.292	.992	.029

Table 4 shows that the skewness and kurtosis values of the pretest and posttest scores for the control group did not remain within the normal distribution limits (+1.5, -1.5) and that the Shapiro-Wilks values for the experiment-control groups indicate the scores were not normally distributed ($p > .05$). Since the data did not exhibit a normal distribution, non-parametric tests were employed in the analysis of the tests. The Wilcoxon Signed-Rank Test was used to investigate the relationship between the pretest and posttest scores of the experiment and control groups, and the Mann-Whitney U Test was utilized to examine the relationship between the posttest scores of the experiment and control groups.

Ethical Procedures

The ethical committee report of the study was approved by Burdur Mehmet Akif Ersoy University board on November 1, 2023, with decision number GO 2023/522.

Results

The results of the Wilcoxon signed-rank test conducted to determine whether there was a significant difference between the pretest and posttest scores of the children in the experimental group are presented in Table 4.

Table 4. Wilcoxon signed-ranks test results for the pretest-posttest scores of the children in the experimental group

Posttest-Pretest	n	Mean Rank	Sum of Ranks	Z	p
Negative Rank	0	0	0	-3.728	.000
Positive Rank	18	9.50	171.00		
Ties	2	-	-		

Table 4 shows that there was a significant difference between the pre and posttest scores of the children in the experimental group ($Z=-3.728$, $p < .001$). The rank means and sums of the difference scores show that this difference was significant in favor of the post-test (posttest). This finding suggests that the digital educational game application may be effective in increasing children's attention skills.

The results of the Wilcoxon signed-rank test on whether there was a significant difference between the pretest and posttest scores of the children in the control group are presented in Table 5.

Table 5. Wilcoxon signed-ranks test results for the pretest-posttest scores of the children in the control group

Posttest-Pretest	n	Mean Rank	Sum of Ranks	Z	p
Negative Rank	11	10.68	117.50	-1.959	.051
Positive Rank	6	5.92	35.50		
Ties	3	-	-		

The analysis results in Table 5 show that there is no significant difference between the pretest and posttest scores of the children in the control group ($Z=-1.959$, $p > .05$).

The results of the Mann Whitney U test on whether there is a significant difference between the pretest and posttest scores of the children in the experimental and control groups are presented in Table 6.

Table 6. Mann-Whitney U test results for the pretest and posttest scores of children in the experimental and control groups

Groups	n	Pretest Mean Rank	Mean Rank	Sum of Ranks	u	Z	p
Experiment	20	17.00	23.43	468.50	141.500	-1.590	.057
Control	20	24.00	17.58	351.50			

Table 6 shows that the difference between the mean pretest scores of the children in the experimental and control groups was not significant ($Z= -1.590$ $p > .05$). When the rank averages of the children in the experimental group were analysed, it was observed that the posttest scores of the children in the experimental group were higher than those of the children in the control group, but when the rank averages of the children in the control group were taken into consideration, it was seen that there was a slight decrease in the posttest scores of some children in the control group compared to their pretest scores.

Discussion, Conclusion and Recommendations

This study examined the usability of digital educational games as an effective educational tool for developing preschool children's attention skills. The experiments and findings showed that digital educational game applications positively affected children's attention skills. These results addressed the shortcomings of previous studies and demonstrated that even short-term training can have significant effects on attention. A similar study by Liu et al. (2021) found that tablet applications with educational content improved children's creative thinking skills. Ramos and Melo's (2019) study also supported these findings by showing that digital game apps improved attention performance in Brazilian elementary school children. Another study conducted in different age groups found that 82 high school students' selective attention improved after 20 minutes of digital game practice per week for 6 weeks (Homer et al., 2018). Related studies and research findings emphasize that digital educational games can be used as an effective tool in attention development in preschool period. Digital educational games can be considered an effective and important tool in developing children's attention skills. The diversity of such educational methods and their availability from an early age can make a positive contribution to children's cognitive development.

Many studies examining the effects of digital games on cognitive performance generally present findings that these games increase children's cognitive performance (Boot et al., 2008; Eichenbaum et al., 2014; Feng et al., 2007; Homer et al., 2018; Lieberman et al., 2009; Miller & Robertson, 2010; Palaus et al., 2017). This study, which was based on the idea that digital educational games would support children's attentional skills, draws attention by limiting the duration of digital gaming and screen exposure. Previous research shows that increased digital game playing time can have a negative effect on children's attention test scores (Gözüm & Kandır, 2020; Lillard & Peterson, 2011). Mentalup application is an application that supports cognitive development areas with games for different age groups. The games in the category of "attention games" created for children aged 5-6 years were selected from the application. The applications were limited to 20-25 minutes with each child, taking care not to exceed the daily screen exposure time. In these aspects, it is thought that the digital game application has positive effects on children's attention development. Therefore, it is important to plan and limit digital games appropriately for children (Bers, 2010; Bozkurt, 2014; Hamilton et al., 2020, Johnson & Dinger, 2012). In addition, whether digital games are appropriate for children's developmental levels is also a topic of debate in the literature (Karaaslan, 2015; Kankaanranta et al., 2017; Monu & Ralph, 2016). The content in the MentalUp application selected for this study was determined to improve the attention skills of preschool children. Before being included in the education process, it should be ensured that digital applications are suitable for children's development and that the content supports learning and sustaining attention. Our research findings suggest that preschool children's attention skills can be improved and digital educational games can be integrated into education with appropriate durations and purposeful content.

No significant difference was found between the FTF-K prepost test scores of the children who were not included in the educational intervention but who continued the same curriculum and educational processes as the experimental group children. However, there are studies in the literature that show a significant difference between the pretest and posttest scores of children in the control group (Liu et al., 2021; Ramos & Melo, 2019). The researchers stated that this may be related to the test-retest factor. The fact that there was no significant difference between the pretest and posttest scores of the children in the control group in our study emphasizes once again that cognitive processes such as attention should be supported with effective practices, especially within the scope of the purposeful curriculum. Posner and Rothbart (2007) and Tang et al. (2010) stated that training programs for attention development can increase cognitive performance through the effectiveness of neural networks. The results of studies in which training programs for the development of attention, working memory, visual and verbal memory skills were implemented also advocate improvements in cognitive skills after intervention (Diamond & Lee, 2011; Jaeggi et al., 2008; Rueda et al., 2005; Thorell et al., 2009). These results indicate that curriculum interventions with rich stimuli offered to children in the early years make significant contributions to children's cognitive development.

As a result, it was determined that the children in the experimental group had higher posttest scores than the children in the control group. Both groups continued the preschool education curriculum during the training program. Differently, children in the experimental group participated in digital educational game training. It is thought that this result was realized due to the effect of the digital educational game application and based on this, the application had a positive effect on children's attention skills. Similarly, there are research results in the literature showing that children in the experimental group who received digital educational game intervention had longer fixation duration and higher posttest scores compared to children in the control group (Liu et al., 2021; Ramos & Melo, 2019; Xiong et al., 2022). These studies, whose results overlap with the results of our current study, show that producing special content and tools by utilizing children's brain network plasticity positively supports children's attention development.

The findings confirm the positive impact of digital educational games on children's attention skills. The benefits of these contents, which are purposefully integrated into the school curriculum in a fun and user-friendly way, have been proven with empirically validated results. However, it is important to underline that digital game applications should be presented to children in a qualified manner with behavior-targeted education.

Limitations and Recommendations

This study shows that digital educational game application supports preschool children's attention skills. It is worth noting that the results related to attention skills may be different depending on the test method used. For this reason, different results can be obtained by using other test methods in future studies. In addition, the study group of the research consisted of two classes of 5-6-year-old children who were studying in a kindergarten in a central city in Turkey. The study, which was conducted on 40 children selected from these classes, was limited to 16 applications in 4 weeks. Therefore, designing future studies with larger sample groups and different age groups may yield more generalizable results regarding the effects of digital educational applications.

Another limitation of the study is that the long-term effects of the intervention could not be analyzed since follow-up measurements were not made for the experimental and control groups. In future studies, long-term training and follow-up studies can be planned to determine the long-term effects of the interventions. In the study, the attention games in MentalUp, a digital educational game application, were applied; examining the effects of different digital educational game applications on children's attention development in different studies may be useful to see the potential of digital educational games. This study was designed and conducted in a quantitative design and only children were studied. Future studies may apply mixed design studies by adding data evaluating the observations of teachers and parents to test the effectiveness of digital educational game applications. In the study, the effect of digital game application on children's attention skills was examined. In future studies, the effects of digital game applications on children's cognitive skills such as executive functions, working memory, visual perception, and different developmental areas can be examined. The results of the research show that qualified and child-friendly digital game applications have a positive effect on children's attention development in the short term. By conducting educational studies to support children's developmental areas, digital game activities whose content and application features are suitable for children's age and developmental levels can be integrated into the curriculum by considering the application time.

References

- Ağırçöl, M., Kara, E., & Akgül, G. D. (2022). The effect of science course with educational digital games on students' knowledge retention, academic achievement and attitude. *International Journal of Science and Education*, 5(3), 157-176. <https://doi.org/10.47477/ubed.1063920>
- Amorim, A. N., Jeon, L., Abel, Y., Albuquerque, E. X., Soares, M., Silva, V. C., & Neto, J. R. O. (2022). Escribo play learning games can foster early reading and writing for low-income kindergarten children. *Computers & Education*, 177, 104364. <http://doi.org/10.1016/j.compedu.2021.104364>
- Arnott, L. (2013). Are we allowed to blink? Young children's leadership and ownership while mediating interactions around technologies. *International Journal of Early Years Education*, 21(1), 97-115. <https://doi.org/10.1080/09669760.2013.772049>
- Arnott, L., & Yelland, N. (2020). Multimodal lifeworlds: Pedagogies for play inquiries and explorations. *Journal of Early Childhood Education Research*, 9(1), 124-146.
- Behnamnia, N., Kamsin, A., & Ismail, M. A. B. (2020). The landscape of research on the use of digital game-based learning apps to nurture creativity among young children: A review. *Thinking Skills and Creativity*, 37, 100666. <https://doi.org/10.1016/j.tsc.2020.100666>
- Bers, M. U. (2010). Beyond computer literacy: Supporting youth's positive development through technology. *New Directions for Youth Development*, 2010(128), 13-23. <https://doi.org/10.1002/yd.371>
- Bilgin, E. A. (2021). A mobile educational game design for eliminating math anxiety of middle school students. *Education Quarterly Reviews*, 4(1), 354-361. <https://doi.org/10.31014/aior.1993.04.02.251>
- Bıyıklı, C., Işık, P. R., & Doğan, D. (2020). The effects of mindfulness and attention education on attention development of students. *Journal of Uludağ University Faculty of Education*, 33(1), 1-36. <https://doi.org/10.19171/uefad.458450>
- Blanchard, J., & Moore, T. (2010). *The digital world of young children: Impact on emergent literacy*. Pearson Foundation.

- Bluemke, M., Friedrich, M., & Zumbach, J. (2010). The influence of violent and nonviolent computer games on implicit measures of aggressiveness. *Aggressive Behavior: Official Journal of the International Society for Research on Aggression*, 36(1), 1-13. <https://doi.org/10.1002/ab.20329>
- Boot, W. R., Kramer, A. F., Simons, D. J., Fabiani, M., & Gratton, G. (2008). The effects of video game playing on attention, memory, and executive control. *Acta Psychologica*, 129(3), 387–398. <https://doi.org/10.1016/j.actpsy.2008.09.005>.
- Bozkurt, A. (2014). Homo ludens: Digital games and education. *Journal of Educational Technology Research*, 5(1), 1-21.
- Büyüköztürk, Ş., Kılıç-Çakmak, E., Akgül, Ö. E., Kardeniz, Ş., & Demirel, F. (2017). *Scientific research methods*. Pegem Academy.
- Castellar, E. N., All, A., De Marez, L., & Van Looy, J. (2015). Cognitive abilities, digital games and arithmetic performance enhancement: A study comparing the effects of a math game and paper exercises. *Computers & Education*, 85, 123-133. <https://doi.org/10.1016/j.compedu.2014.12.021>
- Chen, H. L., & Wu, C. T. (2023). A digital role-playing game for learning: Effects on critical thinking and motivation. *Interactive Learning Environments*, 31(5), 3018-3030. <http://dx.doi.org/10.1080/10494820.2021.1916765>
- Connolly, T. M., Boyle, E. A., MacArthur, E., Hainey, T., & Boyle, J. M. (2012). A systematic literature review of empirical evidence on computer games and serious games. *Computers & Education*, 59(2), 661-686. <https://doi.org/10.1016/j.compedu.2012.03.004>
- Creswell, J. W. (2003). *Research design: Qualitative, quantitative and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage.
- Diamond, A., & Lee, K. (2011). Interventions shown to aid executive function development in children 4 to 12 years old. *Science* 959, 333(4), 959–964. <https://doi.org/10.1126/science.1204529>.
- Efendi, A. (2022). Improve critical thinking skills with informatics educational games. *Journal of Education Technology*, 6(3). 521-530. <https://doi.org/10.23887/jet.v6i3.48637>
- Eichenbaum, A., Bavelier, D., & Green, C. S. (2014). Video games play that can do serious good. *American Journal of Play*, 7(1), 50–73.
- Feng, J., Spence, I., & Pratt, J. (2007). Playing an action video game reduces gender differences in spatial cognition. *Psychological Science*, 18(10), 850–855. <https://doi.org/10.1111/j.1467-9280.2007.01990.x>.
- Fitriyadi, N., & Wuryandani, W. (2021). Is educational game effective in improving critical thinking skills. *Jurnal Prmia Edukasia*, 9(1), 107-117. <http://dx.doi.org/10.21831/jpe.v9i1.35475>
- Fleer, M. (2014). The demands and motives afforded through digital play in early childhood activity settings. *Learning, Culture and Social Interaction*, 3(3), 202-209. <https://doi.org/10.1016/j.lcsi.2014.02.012>
- Gentile, D. A., Swing, E. L., Lim, C. G., & Khoo, A. (2012). Video game playing, attention problems, and impulsiveness: Evidence of bidirectional causality. *Psychol Pop Media Cult*, 1(1), 62-70. <https://psycnet.apa.org/doi/10.1037/a0026969>
- Gözalın-Alkan, E., & Koçak, N. (2018). Investigation of the effect of play-based attention training programme on the attention gathering skill levels of 5-6-year-old children. *International Journal of Educational Sciences and Learning Technologies*, 1(1), 9-15. <https://doi.org/10.18493/kmusekad.12328>
- Gözüm, A. İ. C., & Kandır, A. (2018). Frankfurter for Children Aged Five Years Concentration Test (Frankfurter Test Für Funjährlige Konzentrationstf-K) reliability study. *Education in a Changing World*, 57-66. <http://dx.doi.org/10.14527/9786052412480.04>
- Gözüm, A. İ. C., & Kandır, A. (2020). Examination of the playfulness tendency and concentration levels of preschool children according to the time spent playing dijital games. *Journal of Kazım Karabekir Education Faculty*, 41, 82-100. <https://doi.org/10.33418/ataunikkefd.777424>
- Griffith, S. F., Hagan, M. B., Heymann, P., Heflin, B. H., & Bagner, D. M. (2020). Apps as learning tools: A systematic review. *Pediatrics*, 145(1), e20191579.
- Hamilton, M., Clarke-Midura, J., Shumway, J. F., & Lee, V. (2020) An emerging technology report on computational toys in early childhood. *Tech Know Learn*, 25(1), 213–224. <https://doi.org/10.1007/s10758-019-09423-8>

- Hitchcock, C. H., & Noonan, M. J. (2000). Computer-assisted instruction of early academic skills. *Topics in Early Childhood Special Education, 20*(3), 145-158. <https://doi.org/10.1177/027112140002000303>
- Homer, B. D., Plass, J. L., Raffaele, C., Ober, T. M., & Ali, A. (2018). Improving high school students' executive functions through digital game play. *Computers and Education, 117*, 50-58. <https://doi.org/10.1016/j.compedu.2017.09.011>.
- Hussein, M. H., Ow, S. H., Cheong, L. S., & Thong, M. K. (2019). A digital game-based learning method to improve students' critical thinking skills in elementary science. *Ieee Access, 7*, 96309-96318. <http://dx.doi.org/10.1109/ACCESS.2019.2929089>
- Jaeggi, S. M., Buschkuhl, M., Jonides, J., & Perrig, W. J. (2008). Improving fluid intelligence with training on working memory. *Proceedings of the National Academy of Sciences, 105*(19), 6829-6833. <https://doi.org/10.1073/pnas.0801268105>
- Johnson, J. A., & Dinger, D. (2012). *Let them play: An early learning (un)curriculum*. Redleaf Press.
- Johnson, L., Adams, S., & Haywood, K. (2011). *NMC Horizon Report: 2011 K-12 edition*. Austin, Texas: The New Media Consortium. <https://www.learntechlib.org/p/182017/>
- Kabali, H. K., Irigoyen, M. M., Nunez-Davis, R., Budacki, J. G., Mohanty, S. H., Leister, K. P., & Bonner, R. L. (2015). Exposure and use of mobile media devices by young children. *Pediatrics, 136*(6), 1044- 1050. <https://doi.org/10.1542/peds.2015-2151>
- Kankaanranta, M., Koivula, M., Laakso, M. L., & Mustola, M. (2017). Digital games in early childhood: Broadening definitions of learning, literacy, and play. *Serious Games and Edutainment Applications, 2*, 349-367. http://dx.doi.org/10.1007/978-3-319-51645-5_16
- Karaaslan, İ. A. (2015). Digital games and digital violence awareness: A comparative analysis made on parents and children. *The Journal of International Social Research, 8*(36), 806-818. <http://dx.doi.org/10.17719/jisr.2015369545>
- Lee, K. T., Sullivan, A., & Bers, M. U. (2013). Collaboration by design: Using robotics to foster social interaction in kindergarten. *Computers in the Schools, 30*(3), 271-281. <https://doi.org/10.1080/07380569.2013.805676>
- Lieberman, D. A., Fisk, M. C., & Biely, E. (2009). Digital games for young children ages three to six: From research to design. *Computers in the Schools, 26*(4), 299-313. <http://dx.doi.org/10.1080/07380560903360178>
- Lillard, A. S., & Peterson, J. (2011). The immediate impact of different types of television on young children's executive function. *Pediatrics, 128*(4), 644-649. <https://psycnet.apa.org/doi/10.1542/peds.2010-1919>
- Liu, W., Tan, L., Huang, D., Chen, N., & Liu, F. (2021). When preschoolers use tablets: The effect of educational serious games on children's attention development. *International Journal of Human-Computer Interaction, 37*(3), 234-248. <http://dx.doi.org/10.1080/10447318.2020.1818999>
- Marshall, S. (2016). Technological innovation of higher education in New Zealand: A wicked problem? *Studies in Higher Education, 41*(2), 288-301. <http://dx.doi.org/10.1080/03075079.2014.927849>
- Miller, D. J., & Robertson, D. P. (2010). Using a games console in the primary classroom: Effects of 'Brain Training' programme on computation and self-esteem. *British Journal of Educational Technology, 41*(2), 242-255. <https://psycnet.apa.org/doi/10.1111/j.1467-8535.2008.00918.x>
- Monu, K., & Ralph, P. (2016). *Designing the Appeal of Educational Games*. AMCIS 2016 Proceedings. <https://aisel.aisnet.org/amcis2016/ISEdu/Presentations/7>
- Mulder, H., Pitchford, N. J., Hagger, M. S., & Marlow, N. (2009). Development of executive function and attention in preterm children: A systematic review. *Developmental Neuropsychology, 34*(4), 393-421. [doi:10.1080/87565640902964524](https://doi.org/10.1080/87565640902964524)
- Mustafaoğlu, R., Zirek, E., Yasacı, Z., & Özdiñçler, A. R. (2018). The negative effects of digital technology usage on children's development and health. *Addicta: The Turkish Journal on Addictions, 5*(2), 1-21. <http://dx.doi.org/10.15805/addicta.2018.5.2.0051>
- Neumann, M. M. (2018) Using tablets and apps to enhance emergent literacy skills in young children. *Early Childhood Research Quarterly, 42*, 239-246. <https://doi.org/10.1016/j.ecresq.2017.10.006>
- Neumann, M. M., & Neumann, D. L. (2013). Touch Screen Tablets and Emergent Literacy. *Early Childhood Education Journal, 42*(4), 231-239. <https://doi.org/10.1007/s10643-013-0608-3>

- Palau, M., Marron, E. M., Viejo-Sobera, R., & Redolar-Ripoll, D. (2017). Neural basis of video gaming: A systematic review. *Frontiers in human neuroscience*, *11*, 248. <https://doi.org/10.3389/fnhum.2017.00248>
- Palfrey, J. G., & Gasser, U. (2008). *Born Digital: Understanding The First Generation of Digital Natives*. Basic Books.
- Papadakis, S., & Kalogiannakis, M. (2020). *Mobile learning applications in early childhood education*. Information Science Reference/IGI Global. <https://doi.org/10.4018/978-1-7998-1486-3>
- Posner, M. I., & Patoine, B. (2009). How arts training improves attention and cognition. *Cerebrum*, *2009*, 2-4.
- Posner, M. I., & Rothbart, M. K. (2007). Research on attention networks as a model for the integration of psychological science. *Annu. Rev. Psychol.*, *58*(1), 1-23. <http://dx.doi.org/10.1146/annurev.psych.58.110405.085516>
- Raatz, U., & Möhling, R. (1971). *Frankfurter Tests für Fünfjährige-Konzentration: FTF-K*. Beltz.
- Ramos, D. K., & Melo, H. M. (2018). Can digital games in school improve attention? A study of Brazilian elementary school students. *Journal of Computers in Education*, *6*(1), 5–19. <https://doi.org/10.1007/s40692-018-0111-3>
- Rothbart, M. K., & Posner, M. I. (2015). The developing brain in a multitasking world. *Developmental Review*, *35*(3), 42–63. <https://doi.org/10.1016/j.dr.2014.12.006>
- Rueda, M. R., Checa, P., & Combata, L. M. (2012). Enhanced efficiency of the executive attention network after training in preschool children: Immediate changes and effects after two months. *Developmental Cognitive Neuroscience*, *2*(1), 192–204. <https://doi.org/10.1016/j.dcn.2011.09.004>
- Rueda, M. R., Rothbart, M. K., McCandliss, B. D., Saccomanno, L., & Posner, M. I. (2005). Training, maturation, and genetic influences on the development of executive attention. *Proceedings of the National Academy of Sciences*, *102*(41), 14931-14936. <https://doi.org/10.1073/pnas.0506897102>
- Ruff, H. A., Capozzoli, M., & Weissberg, R. (1998). Age, individuality and context as factors in sustained attention during the preschool years. *Developmental Psychology*, *34*(3), 1-17. <https://doi.org/10.1037//0012-1649.34.3.454>
- Scaife, M., & Rogers, Y. (2005). External cognition, innovative technologies, and effective learning. *Cognition, Education and Communication Technology*, 181-202.
- Steele, A., Karmiloff-Smith, A., Cornish, K., & Scerif, G. (2012). The multiple subfunctions of attention: differential developmental gateways to literacy and numeracy. *Child Development*, *83*(6), 2028-2041. <https://doi.org/10.1111/j.1467-8624.2012.01809.x>
- Tang, Y. Y., Lu, Q., Geng, X., Stein, E. A., Yang, Y., & Posner, M. I. (2010). Short-term meditation induces white matter changes in the anterior cingulate. *Proceedings of the National Academy of Sciences*, *107*(35), 15649-15652. <https://doi.org/10.1073/pnas.1011043107>
- Thorell, L. B., Lindqvist, S., Bergman Nutley, S., Bohlin, G., & Klingberg, T. (2009). Training and transfer effects of executive functions in preschool children. *Developmental Science*, *12*(1), 106-113. <https://doi.org/10.1111/j.1467-7687.2008.00745.x>
- Verenika, I. Kervin, L. Rivera, C. M., & Lidbetter, A. (2016). Digital Play: Exploring young children's perspectives on applications designed for preschoolers. *Global Studies of Childhood*, *6*(4), 1-12. <http://dx.doi.org/10.1177/2043610616676036>
- Wagner, I. (1991). Entwicklungspsychologische Grundlagen. *Aufmerksamkeit und Konzentration im Kindesalter*. Berlin: Verlag Gesundheit, 72-80.
- Xiong, Z., Liu, Q., & Huang, X. (2022). The influence of digital educational games on preschool children's creative thinking. *Computers & Education*, *189*, 104578. <https://doi.org/10.1016/j.compedu.2022.104578>
- Zaranis, N., & Alexandraki, F. (2019). Comparing the effectiveness of using tablet computers for teaching division to kindergarten students. In *Technology and Innovation in Learning, Teaching and Education: First International Conference, TECH-EDU 2018, Thessaloniki, Greece, June 20–22, 2018, Revised Selected Papers I* (pp. 280-295). Springer International Publishing. http://dx.doi.org/10.1007/978-3-030-20954-4_21

Motivation in Preschool Children: The Predictive Effect of Anxiety Level

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Abstract

This study aimed to examine the relationship between motivation levels and anxiety levels of preschool children. Relational Screening Model was used in the research. The sample of the study consists of 48-72 months old children attending kindergartens and nursery classes of official primary schools affiliated with the Ministry of National Education in the central districts of Palandöken and Yakutiye in Erzurum province in the fall semester of the 2023-2024 academic year. The study data were collected using the "Personal Information Form", the "Motivation Scale for Preschool Children" and the "Anxiety in Preschool Children Scale (Teacher Form)". As a result of the study, it was determined that the motivation levels of the children did not differ according to the variables of gender and school type, and the anxiety levels of the children did not differ according to the gender variable ($p>0.05$), while the anxiety levels of the children differed significantly according to the variables of school type ($p<0.05$). It was determined that there was a negative and low-level significant relationship between the total score of the "Anxiety in Preschool Children Scale (Teacher Form)" and the sub-dimensions of the "Motivation Scale for Preschool Children" except for Social Persistence with Adults sub-dimension, and children's anxiety levels predicted their motivation levels.

Keywords: Anxiety, motivation, preschool, children.

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Okul Öncesi Çocuklarda Motivasyon: Kaygı Düzeyinin Yordayıcı Etkisi

Makale Türü	Başvuru Tarihi	Kabul Tarihi
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Öz

Araştırmanın amacı okul öncesi dönem çocuklarının motivasyon düzeyleri ile kaygı (anksiyete) düzeyleri arasındaki ilişkiyi incelemektir. Araştırmada İlişkisel Tarama Modeli kullanılmıştır. Araştırmanın örneklemini 2023-2024 eğitim öğretim yılının güz döneminde Erzurum ili Palandöken ve Yakutiye merkez ilçelerinde bulunan Milli Eğitim Bakanlığına bağlı resmi ilkokulların anasınıfları ve anaokullarına devam eden 48-72 aylık çocuklar oluşturmaktadır. Araştırmada veri toplama aracı olarak çocukların motivasyon düzeylerini ölçmek için “Okul Öncesi Çocuklar İçin Motivasyon Ölçeği (DMQ18)”, kaygı düzeylerini ölçmek için “Okul Öncesi Çocuklarda Anksiyete (Kaygı) Ölçeği (Öğretmen Formu)” ve araştırmacılar tarafından hazırlanan “Kişisel Bilgi Formu” kullanılmıştır. Araştırmanın sonucunda; çocukların motivasyon düzeylerinin cinsiyet ve okul türü değişkenlerine göre; çocukların kaygı düzeylerinin ise cinsiyet değişkenine göre farklılık göstermediği saptanırken ($p>0.05$); çocukların kaygı düzeylerinin okul türü değişkenlerine göre anlamlı farklılık gösterdiği saptanmıştır ($p<0.05$). “Çocuklarda Anksiyete (Kaygı) Ölçeği (Öğretmen Formu)”nin toplam puanı ile “Okul Öncesi Çocuklar İçin Motivasyon Ölçeği (DMQ18)”nin Yetişkinlerle Sosyal Sebat dışındaki alt boyutlarında negatif yönde ve düşük düzeyde anlamlı bir ilişki olduğu; çocukların kaygı düzeylerinin motivasyon düzeylerini yordadığı saptanmıştır.

Anahtar Sözcükler: Kaygı (Anksiyete), motivasyon, okul öncesi, çocuklar.

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Introduction

Children constantly make efforts to meet their needs, get to know the people around them, and adapt to their environment from the moment they come into the world. During this process, the child not only continues their development but also learns many positive and negative emotions and behaviors (Yılmaz Ünal & Çevik, 2023). If the wishes and desires of children are not immediately satisfied, a feeling of aggression arises in children. The suppression of this emotion, which is not socially accepted, leads to the unconscious formation of anxiety in the child (Gülay Ogelman & Çiftçi Topaloğlu, 2014). Anxiety is an emotional state that is innate in every person and can be seen in all age groups, the cause of which is not known exactly, and should exist as long as it is normal (Cüceloğlu, 2016; Le Gall, 2016; Mckenzie, 2006; Öztürk & Uluşahin, 2018).

Anxiety is crucial in terms of the child regulating their emotions resulting from interactions with their environment. The academic success of the child and the process of adapting to a new environment, along with factors such as age, gender, number of siblings, whether parents live together, parents' education level/profession/socio-economic status (Bora & Ünüvar, 2020; Uzun, 2013), the negative attitudes and behaviors displayed by the child's mother, father, other family members, and school teachers and friends (Ogelman & Çiftçi Topaloğlu, 2014; Layne et al., 2006), parental and teacher attitudes (Akgün et al., 2007), parent-child relationship (Yeşildaş, 2018), levels of mother-child attachment (Dönmez, 2019), and maternal anxiety status (Aydın, 2022; Dönmez, 2019; Hudson et al., 2011; Peleg et al., 2006; Shamir Essakow et al., 2005; Stone, et al., 2015; Yeşildaş, 2018; Wichstrøm et al., 2013) are observed to be effective on the anxiety levels of preschool children.

Children frequently displaying anxious behaviors during social interactions not only lead to their exclusion from the social environment (Gülay, 2009) but also have a negative impact on their learning motivation. Motivation is the internal desire and energy with which a child to perform an activity that they want to do without being externally dependent (Morey, 2017). Children with low levels of motivation tend to exhibit unwanted behaviors, have difficulty focusing on tasks, experience academic difficulties, lack patience and perseverance, show reluctance or disinterest in participating in activities and events, and feel inadequate in social relationships (Karaca, 2019; Lee, 2014; Özbey, 2018). On the other hand, children with high levels of motivation tend to exhibit less problematic behavior, have high reasoning skills, can control their behavior, make independent choices, express their emotions and thoughts positively, work independently, focus their attention on problem-solving (Köyceğiz Gözeler & Özbey, 2021) and demonstrate positive attitudes toward learning and learning environments, resulting in lower levels of anxiety (Ratelle et al., 2007).

The level of anxiety in the child affects the child's performance in different ways. While the state of anxiety that is not at the normal level negatively affects the child's life, the anxiety experienced at the normal level contributes to the success of the child, positively affects the decision-making ability, and increases the child's motivation for learning (Akgün et al., 2007; Cüceloğlu, 2016; Seven, 2011). When the relevant literature is examined, studies that examine the relationship between individuals' motivation and anxiety levels and obtain different results draw attention. Zakaria & Nordin (2008) found that there was a strong and significant negative relationship between mathematics anxiety and motivation. Ali & Iqbal (2014), Khodadady & Khajavy (2013) and Liu & Huang (2011) found that there was an inverse relationship between foreign language anxiety and motivation to learn. Müezzın & Özata (2019) determined that as children's anxiety levels increased, their motivation to learn decreased. Camacho et al., (2021) found that anxiety had a negative effect on children's academic motivation. Jain & Sidhu (2013) and Işık & Küğcümen (2021) concluded that as students' motivation levels increased, their anxiety levels decreased. Akpur (2017) examined the predictive and explanatory relationships of procrastination, motivation, anxiety, and academic success in a study and found that anxiety did not have a significant relationship with academic success. Yalçınsoy (2017), on the other hand, found that young people's future concerns had a positive and high-level effect on their motivation.

When the relevant literature is examined, it is seen that the studies are mostly concentrated in middle childhood and adolescence and there are very few studies on anxiety disorders in early childhood. The starting point of the study is the idea that children can be supported both academically and socially by bringing motivational behaviors such as establishing appropriate social relations with their peers, initiating, maintaining, and ending an activity, taking responsibility for their behaviors, participating in learning activities independently, solving problems, and expressing their feelings and thoughts appropriately. Therefore, this study is significant in drawing attention to the relationship

between motivation and anxiety, providing researchers with different perspectives for future studies, and being the first of its kind in the existing literature.

Method

Research Design

This study is a quantitative study. Since the study aimed to examine the relationship between children's anxiety and motivation levels, the "Relational Screening Model", which assists in determining the degree and/or presence of co-variation among two or more variables (Karasar, 2014) was employed.

Study Group

The study group comprised 386 children aged 48-72 months selected through a random cluster sampling method from a total of 3,211 children (N=3211) attending kindergarten and nursery classes of public preschools in the central districts of Palandöken and Yakutiye in the province of Erzurum during the 2023-2024 academic year. In this selection, firstly, the kindergartens and nursery classes of the official primary schools in the central districts of Palandöken and Yakutiye were listed, the easily accessible schools were selected according to the rule of impartiality, and the schools that were willing to participate in the study among these schools were included in the sample. In terms of gender distribution, 54.1% (n=209) of the children in the study group were female and 45.9 (n=177) were male. According to the school types, 53.1% (n=205) of the children attend kindergarten and 46.9% (n=181) attend nursery class.

Data Collection Tools

In the study, the data collection tools included the "Personal Information Form" prepared by the researchers, the "Motivation Scale for Preschool Children (DMQ18)" with the necessary permissions obtained to measure children's motivation levels, and the "Anxiety in Preschool Children Scale (Teacher Form)" used to measure anxiety levels.

Personal Information Form

The "Personal Information Form" prepared by the researchers enables the determination of information about children's gender and school type.

Motivation Scale for Preschool Children (DMQ18)

The "Motivation Scale for Preschool Children (DMQ18)" was developed by Morgan, Maslin-Cole, Harmon, Busch-Rossnagel, Jennings, Hauser Cram and Brockman in 1993. The scale, which has been developed for nearly 30 years, has been revised and arranged for school-age, infant, and preschool children. The DMQ18 was adapted into Turkish by Özbey & Dağlıoğlu (2017). In the reliability analysis of the scale, Spearman Brown two-halves test reliability and Cronbach Alpha reliability coefficients were calculated. (DMQ18) consists of 7 sub-dimensions and 39 items: Mastery Pleasure, Cognitive Persistence, Gross Motor Persistence, Negative Reactions, Social Persistence with Adults, Social Persistence with Peers, and General Competence. A decrease in the scores obtained from the scale indicates a decrease in motivation, and an increase indicates an increase in motivation. The item factor loading values of the scale vary between .51 and .94. The total variance explained by the factors is .71.

Anxiety in Preschool Children Scale (Teacher Form)

The Turkish adaptation, validity, and reliability study of the scale developed by Spence et al. (2001) was conducted by Şahin (2021). The scale is filled in by the teacher, one for each child. It was determined that the items in the scale explained 45% of the total variance. As a result of the conducted analyses, the scale was finalized with 21 items and a single dimension. The Cronbach Alpha coefficient of the scale was determined as 0.939. The correlation coefficients of the scale items ranged between 0.484 and 0.744, and the factor load values of the items ranged from 0.38 to 0.41. The results obtained prove that the scale is valid and reliable.

Data Analysis

The data obtained from the scales were computerized and analyzed using the SPSS 22 software. In the process of analyzing the data, firstly, the skewness and kurtosis values were examined to determine whether the data showed a normal distribution, and it was determined that the values showed

a normal distribution since the values obtained were between -2 and +2. Therefore, parametric tests were used in the analysis of the data. Independent Groups t-Test was used to determine whether the scores obtained from the scales differed according to gender and school attendance variables. Pearson Correlation Test was used to determine the relationship between the scores of the children from the Anxiety in Preschool Children Scale (Teacher Form) and the DMQ18. Simple Linear Regression analysis was conducted to determine the predictive level of anxiety on motivation.

Ethical Procedures

Ethics committee permission numbered E-77082166-604.01.02-387556 and Ministry of National Education (MoNE) permission numbered E-49614598-605.01-87690847 were obtained for the scales to be used in the study. In the determined schools, the purpose of the study was explained to the teachers, they were asked to fill in one of the scales for each child, and the filled scales were received from the teachers.

Results

This section of the study presents the findings of the sampling, the findings on whether the DMQ18 and the Anxiety in Preschool Children Scale (Teacher Form) scores differ according to gender and school type variables, the findings on the correlation between anxiety and motivation levels, and the findings on the predictive level of anxiety on motivation.

Motivation / Gender

Table 1. Independent Sample T-Test results for the Motivation Scale for Preschool Children (DMQ18) and sub-dimensions according to the gender variable

Motivation Scale for Preschool Children (DMQ18)	Dimensions	Gender	N	X	SD	sd	t	p
	Cognitive Persistence		Female	209	17.4498	4.24022	384	1.302
		Male	177	16.8927	4.12377			
Gross Motor Persistence		Female	209	18.9282	4.23693	384	.945	.109
		Male	177	18.5367	3.83318			
Social Persistence with Adults		Female	209	17.4737	4.81290	384	.950	.641
		Male	177	17.0113	4.70733			
Social Persistence with Peers		Female	209	21.7703	4.51545	384	.965	.458
		Male	177	21.3333	4.33494			
Mastery Pleasure		Female	209	19.5120	4.26537	384	.366	.513
		Male	177	19.3559	4.07081			
Negative Reactions		Female	209	27.1292	6.38038	384	-.164	.412
		Male	177	27.2316	5.82681			
General Competence		Female	209	18.2823	4.02656	384	.853	.951
		Male	177	17.9322	4.00510			

As can be seen in Table 1, the scores of the females on DMQ18 sub-dimensions were generally higher than those of males, but no significant difference was found ($p>0.05$).

Motivation / School Type

Table 2. Independent Sample T-Test results for the Motivation Scale for Preschool Children (DMQ18) and sub-dimensions according to the school type variable

	<i>Dimensions</i>	<i>School Type</i>	N	X	SD	sd	t	p
Motivation Scale for Preschool Children (DMQ18)	Cognitive Persistence	Kindergarten	205	17.2098	3.99017	384	.077	.092
		Nursery Class	181	17.1768	4.41861			
	Gross Motor Persistence	Kindergarten	205	18.6293	3.98270	384	-.615	.589
		Nursery Class	181	18.8840	4.14499			
	Social Persistence with Adults	Kindergarten	205	17.7366	4.35089	384	2.093	.073
		Nursery Class	181	16.7238	5.15223			
	Social Persistence with Peers	Kindergarten	205	21.5854	4.24481	384	.073	.443
		Nursery Class	181	21.5525	4.64922			
	Mastery Pleasure	Kindergarten	205	19.3561	4.08068	384	-.422	.482
		Nursery Class	181	19.5359	4.28370			
	Negative Reactions	Kindergarten	205	27.7756	6.18017	384	2.055	.387
		Nursery Class	181	26.4972	6.00706			
	General Competence	Kindergarten	205	18.1561	3.87488	384	.179	.282
		Nursery Class	181	18.0829	4.17915			

As can be seen in Table 2, it was determined that there was no significant difference in DMQ18 sub-dimension scores based on the types of schools the children attend ($p>0.05$).

Anxiety / Gender

Table 3. Independent Sample t-Test results for the Anxiety in Preschool Children Scale (Teacher Form) and sub-dimensions according to the gender variable

	Gender	N	X	SD	sd	t	p
Anxiety in Preschool Children Scale (Teacher Form)	Female	209	14.3349	18.82875	384	.501	.606
	Male	177	13.3729	18.79092			

As can be seen in Table 3, the Anxiety in Preschool Children Scale (Teacher Form) sub-dimension scores did not differ significantly according to the gender variable ($p>0.05$).

Anxiety / School Type

Table 4. Independent Sample t-Test Results for the Anxiety in Preschool Children Scale (Teacher Form) and Sub-Dimensions According to the School Type Variable

	School Type	N	X	SD	sd	t	p
Anxiety in Preschool Children Scale (Teacher Form)	Kindergarten	205	16.0927	20.45455	384	2.462	.001
	Nursery Class	181	11.4033	16.41638			

As can be seen in Table 4, when the scores of the Anxiety in Preschool Children Scale (Teacher Form) were examined based on the types of schools the children attend, a significant difference was determined in favor of the children attending kindergarten ($p<0.05$). It is seen that the mean score of the children attending kindergarten ($X=16.09$) is higher than the mean score of the children attending nursery class ($X=11.40$). In other words, it can be stated that children attending kindergarten are more anxious than children attending nursery classes.

The Relationship Between Anxiety and Motivation Levels in Children

Table 5. Results of Pearson Correlation Analysis of Anxiety in Preschool Children Scale (Teacher Form) and DMQ18

Variables	Anxiety		Cognitive Persistence	Gross Motor Persistence	Social Persistence with Adults	Social Persistence with Peers	Mastery Pleasure	Negative Reaction	General Competence
	r	1							
Anxiety in Preschool Children Scale (Teacher Form)			-.108*	-.123*	.067	-.061	-.153**	.020	-.136**
	p		.033	.015	.186	.228	.003	.689	.007
	N	386	386	386	386	386	386	386	386

As can be seen in Table 5, a low, negative, and significant relationship was found between the Anxiety in Preschool Children Scale (Teacher Form) and the Cognitive Persistence ($r=-.108$), Gross Motor Persistence ($r=-.123$), Mastery Pleasure ($r=-.153$), and General Competence sub-dimensions of the DMQ18. In other words, as the motivation levels of preschool children increase, their anxiety levels decrease.

Table 6. Simple Linear Regression Analysis on the Prediction of Children's Anxiety Levels on Motivation Levels

Dependent variable	Independent Variable	B	Std. Error	β	t	p	R	R ²
Cognitive Persistence	Constant	17.53	.264		66.353	.000	.108	.012
	Anxiety	-0.24	.011	-.108	-2.134	.033		
Gross Motor Persistence	Constant	19.119	.255		74.903	.000	.123	.015
	Anxiety	-0.27	.011	-.123	-2.436	.015		
Social Persistence with Adults	Constant	17.024	.301		56.482	.000	.067	.005
	Anxiety	.017	.013	.067	1.325	.186		
Social Persistence with Peers	Constant	21.772	.281		77.595	.000	.061	.004
	Anxiety	-.015	.012	-.061	-1.207	.228		
Mastery Pleasure	Constant	19.913	.261		76.161	.000	.153	.023
	Anxiety	-.034	.011	-.153	-3.038	.003		
Negative Reactions	Constant	27.084	.388		69.747	.000	.020	.000
	Anxiety	.007	.017	.020	.401	.689		
General Competence	Constant	18.526	.252		73.449	.000	.136	.019
	Anxiety	-.029	.011	-.136	-2.696	.007		

As can be seen in Table 6, children's scores on the Anxiety in Preschool Children Scale (Teacher Form) significantly predicted their scores on the Cognitive Persistence, Gross Motor Persistence, Mastery Pleasure, and General Competence sub-dimensions of the DMQ18.

Children's anxiety levels explained 1.2% of the total variance of the Cognitive Persistence sub-dimension ($R^2=0.12$; $p<0.05$), 1.5% of the total variance of the Gross Motor Persistence sub-dimension ($R^2=0.15$; $p<0.05$), 2.3% of the total variance of the Mastery Pleasure sub-dimension ($R^2=0.23$; $p<0.05$), and 1.9% of the total variance of the General Competence sub-dimension ($R^2=0.19$; $p<0.05$). In other words, it can be stated that children's anxiety levels significantly predicted their motivation levels in the sub-dimensions of Cognitive Persistence, Gross Motor Persistence, Mastery Pleasure, and General Competence.

Discussion, Conclusion and Recommendations

The present study concluded that the motivation levels of the children did not differ according to the variables of gender and school type (Table1, Table2). When the relevant literature is examined, there are studies in which gender does not affect the motivation levels of children, as well as studies showing that the motivation levels of females are higher than males. Although there was no significant difference found in terms of gender in this study, the motivation levels of females were found higher than males. Kara, (2021); Özbey, (2018) and Uluçay, (2017) concluded that children's motivation levels did not differ according to the gender variable. On the other hand, Britner & Pajares, (2001); Lightbody et al., (1996); Öner & Özbey, (2023) and Özbey & Dağlıoğlu, (2017) concluded that the motivation levels of females were higher than the motivation levels of males. Many factors such as girls' upbringing, their ability to produce more practical solutions to problems, the assignment of responsibilities to girls at an early age, and girls' ability to think more carefully and in detail in the face of events may have caused girls' scores to be higher in the study. Yerlikaya (2014) determined that children who received kindergarten or nursery class education had higher levels of motivation during primary and middle school education compared to those who did not receive such education. Özbey (2018) identified a significant difference in favor of children attending independent kindergartens in terms of motivation levels, based on the variable of the type of school the child attends. Öner and Özbey (2023) found that children attending nursery classes displayed higher motivation levels compared to those attending kindergartens. The involvement of teachers in nursery classes in planning educational activities more systematically, the limited nature of the educational environment compared to kindergartens, the arrangement of toys and materials in the classroom to allow for the child's independent choices, and the design of the classroom order to facilitate comfortable communication with peers may have contributed to higher motivation levels among children in nursery classes.

The learning environment to be offered to children in early childhood has a great impact on children's motivation to learn. The child feeling valued in the classroom, teachers arousing curiosity in children regarding learning, designing the classroom environment in a motivating way, and establishing positive relationships with children are factors that motivate children to actively participate in learning activities (Lumsden, 1994). Aktepe et al. (2014) argue that children's motivation for learning will be high as long as the teacher keeps children's curiosity alive during learning activities, includes interesting activities in their activity plans, ensures that the education process is effective and efficient, and behaves affectionately towards children. Therefore, the positive classroom climate created by the teacher, warm relationships established with the children, planning activities related to the common interests and needs of the children, providing equal opportunities to children, and teacher attitudes in this study may not have resulted in any differences in the motivation levels of children based on the type of school and gender variables.

As a result of the study, it was determined that the anxiety levels of the children did not change according to the gender variable (Table 3), and according to the school type variable, the children attending kindergarten were more anxious than the children attending nursery class (Table 4). In the relevant literature, some studies have found no effect of gender on children's anxieties, as well as studies that have concluded that anxiety levels vary according to gender. Bosquet & Egeland (2006); Dede & Dursun, (2008); Else-Quest et al., (2006); Gülay Ogelman & Çiftçi Topaloglu, (2014); Güngör, (2009); Kurbanoglu & Takunyacı, (2012); Kutluca et al., (2015); Tümkaya et al., (2007) and Yılmaz & Çokluk, (2016) concluded that children's anxiety levels did not differ according to their gender. Bora & Ünüvar, (2020); Bouldin & Pratt, (1998); Essau et al., (2002); Nauta et al., (2004); Pauluset al., (2015); Yeşildaş, (2018); Spence, (1998); Wichstrøm et al. (2012) concluded that the anxiety level of females is higher than that of males. Şentürk, (2010) and Şugüneş, (2022), on the other hand, found that males have higher anxiety levels than females.

Considering the lack of knowledge and experience of preschool children, it is understandable that they experience anxiety about many issues (Aydın, 2022). The fact that the teacher makes the children feel safe in the classroom environment, approaches the children warmly and affectionately, makes plans for the interests and needs of the children, and anticipates and adapts to all kinds of situations that may cause anxiety may have caused there to be no difference in the anxiety levels of females and males.

When the relevant literature is examined, it is seen that different results regarding the school-type variable are obtained in studies that deal with similar issues focused on children's social-emotional development. Güngör (2009) found that children attending nursery classes in primary school experienced higher anxiety compared to children attending independent kindergartens. Özbey et al. (2018) reported that the quality of life levels of children attending nursery classes affiliated with primary education and independent kindergartens were higher than those attending private preschool institutions. Erata & Özbey (2020) determined that children attending independent kindergartens had higher levels of psychological resilience. Bakan & Özbey (2022) found no variation in children's academic self-esteem based on the type of school. Şugüneş (2022) determined that children attending public schools had higher anxiety levels compared to children attending private schools.

In this study, children attending independent kindergarten had lower motivation levels and higher anxiety levels than children attending nursery classes. The result draws attention to the importance of arrangements that can be made in educational environments, such as allowing children to act independently and make choices without hindering them, preparing materials that will encourage children to cooperate by taking into account their interests and needs and providing children with the opportunity to use their creativity and imagination in the classroom and to use the natural materials they encounter in their daily lives. It can be stated that in an educational environment where rules and boundaries are clearly defined, children are likely to feel safe and comfortable, leading to increased motivation for activities and potentially reducing the level of anxious behaviors exhibited in classrooms. In addition, it is important to investigate the type of support needed in independent kindergarten educational environments to enhance children's motivation and reduce anxiety levels.

It was determined that there was a negative and low-level significant relationship between children's anxiety levels and motivation levels, except for the Social Persistence with Adults sub-dimension (Table 5). However, regression analysis revealed that children's anxiety levels negatively predicted the Cognitive Persistence sub-dimension of the motivation scale by 1.2%, the Gross Motor Persistence sub-dimension by 1.5%, the Mastery Pleasure sub-dimension by 2.3% and the General Competence sub-dimension by 1.9% (Table 6). When the literature is examined, it is seen that different results are obtained in studies conducted with different samples and age groups regarding the relationship between children's motivation levels and anxiety levels. Upon reviewing the conducted studies, Zakaria & Nordin (2008) and Külünk Akyurt (2019) found a significant negative relationship between mathematics anxiety and motivation, Müezzın & Özata (2019) found a significant negative relationship between anxiety related to science and motivation, and Ali & Iqbal (2014), Khodadady & Khajavy (2013), and Liu & Huang (2011) determined a significant negative relationship between foreign language anxiety and learning motivation. Jain & Sidhu (2013) and Işık & Küğcümén (2021) concluded that as students' motivation levels increased, their anxiety levels decreased.

In light of the study results, the following recommendations can be made.

- In the study, it was determined that children attending kindergarten were more anxious than children attending nursery classes. It is recommended to conduct case studies that address factors in the school, family, and child contexts that may reveal anxiety in kindergartens.
- It is recommended that preschool teachers develop alternative education programs that will reduce children's anxiety levels in cooperation with the MoNE and universities and guide the preparation of educational materials.

References

- Akgün, A., Gönen, S., & Aydın, M. (2007). The investigation of anxiety levels of primary school science and mathematics teacher students' according to some variables. *Electronic Journal of Social Sciences*, 6, 283-299.
- Akpur, U. (2017). Predictive and explanatory relationship model between procrastination, motivation, anxiety and academic achievement. *Eurasian Journal of Educational Research*, 69, 221-240.
- Aktepe, V., Tahiroğlu, M., & Sargın, S. (2014). İlkokul 4.sınıf öğrencilerinin sosyal bilgiler dersine yönelik tutumları [Attitudes of 4th grade primary school students towards social studies course]. *Türkiye Sosyal Araştırmalar Dergisi [The Journal of Turkish Social Research]*, 1,259-272.

- Ali, Q. M., & Iqbal, M. N. (2014). Relationship of anxiety and motivation in learning english of secondary school student in developing country. *Journal of Institute of Social Science*, 28- 35.
- Aydın, N. T. (2022). *4-6 yaş çocuklarının kaygıları ile annelerinin kaygı psikolojik dayanıklılık ve bilişsel esneklikleri arasındaki ilişkinin incelenmesi [Examining the relationship between the anxiety of 4-6 year old children and their mothers' anxiety, psychological resilience and cognitive flexibility]* (Unpublished Master Thesis), Gaziantep University. Gaziantep.
- Bakan, M., & Özbey, S. (2022). 60-72 aylık çocukların akademik benlik saygısı ile anksiyete düzeyleri arasındaki ilişkinin incelenmesi [Investigation of the relationship between academic self-esteem and anxiety levels of 60-72 months children]. *Pearson Journal of Social Sciences & Humanities*, 7(21), 224-235.
- Bora A., & Ünüvar P. (2020). Okul öncesi eğitime devam eden çocukların kaygıları ile ebeveynlerinin kaygıları arasındaki ilişkinin incelenmesi [Investigation of the relationship between the anxieties of children in preschool education and their parents' anxieties]. *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi [Mehmet Akif Ersoy University Journal of Education Faculty]*, 56, 345-361.
- Bosquet, M., & Egeland, B. (2006). The development and maintenance of anxiety symptoms from infancy through adolescence in a longitudinal sample. *Development and Psychopathology*, 18(2), 517-550.
- Bouldin, P., & Pratt, C. (1998). Utilizing parent report to investigate young children's fears: A modification of the fear survey schedule for children—II: A research note. *The Journal of Child Psychology and Psychiatry and Allied Disciplines*, 39(2), 271-277.
- Britner, S. L., & Pajares, F. (2001). Self-efficacy beliefs, motivation, race, and gender in middle school science. *Journal of women and Minorities in Science and Engineering*, 7(4), 271-285.
- Camacho, A., Correia, N., Zaccoletti, S., & Daniel, J. R. (2021). Anxiety and social support as predictors of student academic motivation during the COVID-19. *Front Psychol*, 12,
- Cüceloğlu, D. (2016). *İnsan ve davranış: Psikolojinin temel kavramları. [Person and his behavior: Basic concepts of psychology]*. Remzi Publishing.
- Dede, Y., & Dursun, Ş. (2008). İlköğretim II. kademe öğrencilerinin matematik kaygı düzeylerinin incelenmesi. [Primary Education II. Examining the mathematics anxiety levels of secondary school students]. *Uludağ Üniversitesi Eğitim Fakültesi Dergisi [Uludağ University Faculty of Education Journal]* 21(2), 295-312.
- Dönmez, S. (2019). *Anaokulu öğrencilerinde ayrılma kaygısının aile ortamı annenin sürekli kaygısı ve anne-çocuk bağlanma örüntüleri açısından incelenmesi [The study on separation anxiety among kindergarten students the family environment, the trait anxiety of mothers and attachment patterns between mother and child]*. (Unpublished Master Thesis), Acıbadem Mehmet Ali Aydınlar University, İstanbul.
- Else Quest, N., Hyde, J., Goldsmith, H., & Hulle, C. V. (2006). Gender differences in temperament: A Meta-analysis. *Psychol Bull*, 132, 33–72.
- Erata, F., & Özbey, S. (2020). Okul öncesi eğitim kurumuna devam eden çocukların psikolojik sağlık düzeylerinin bazı demografik değişkenlere göre incelenmesi [Examining the psychological resilience levels of children attending pre-school education institutions according to some demographic variables]. *Pearson Journal*, 5(9), 125–151.
- Essau, C. A., Muris, P., & Ederer, E. M. (2002). Reliability and validity of the spence children's anxiety scale and the screen for child anxiety related emotional disorders in German children. *Journal of Behavior Therapy and Experimental Psychiatry*, 33(1), 1-18.
- Gülay Ogelman, H., & Çiftçi Topaloğlu, Z. (2014). 4-5 yaş çocuklarının sosyal yetkinlik, saldırganlık, kaygı düzeyleri ile anne babalarının ebeveyn özyeterliliği algısı arasındaki ilişkilerin incelenmesi [Examining the relationships between 4-5 year old children's social competence, aggression, anxiety levels and their parents' perception of parental self-efficacy]. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi [Abant İzzet Baysal University Faculty of Education Journal]*, 14(1), 241-271.
- Gülay, H. (2009). 5-6 Yaş çocuklarının sosyal konumlarını etkileyen çeşitli değişkenler [Some variables which influencing 5-6 years old children's social status]. *Yüzüncü Yıl Üniversitesi Eğitim Fakültesi Dergisi [Yüzüncü Yıl University Faculty of Education Journal]*, 5(1), 104-121.
- Güngör, H. (2009). *Ebeveyn ve öğretmen mükemmeliyetçiliğinin 5-6 yaş okul öncesi dönem çocuklarının algılanan kaygı düzeyini öngörmedeki rolü. [The role of parent and teacher perfectionism in predicting the perceived anxiety level of 5-6 year old preschool children]*. (Unpublished Master Thesis), Pamukkale University, Denizli.
- Hudson, J. L., Dodd, H. F., & Bovopoulos, N. (2011). Temperament, family environment and anxiety in preschool children. *Journal of Abnormal Child Psychology*, 39(7), 939-951.

- Işık, C., & Küğcüm, G. (2021). Pandemi sürecinde klinik uygulamadaki ebelik öğrencilerinin kaygı düzeyleri ile akademik motivasyonları arasındaki ilişkinin incelenmesi [Investigation of the relationship between anxiety levels and academic motivations of midwifery students in clinical practice in the pandemia process]. *Medical Sciences*, 16(2), 132-140.
- Jain, Y., & Sidhu, G. K. (2013). Relationship between anxiety, attitude and motivation of tertiary students in learning English as a second language. *Procedia-Social and Behavioral Sciences*, 90, 114-123.
- Kara, Y. (2021). *Ortaokul öğrencilerinin matematik motivasyonları, tutumları ve başarıları arasındaki ilişkinin incelenmesi [Examining the relationship between secondary school students' mathematics motivation, attitudes and achievement]*. (Unpublished Master Thesis), Akdeniz University, Antalya.
- Karaca, B. (2019). *Fen bilimleri dersinde motivasyonsuz olan öğrencilerin motivasyonsuz olmalarına neden olan faktörlerin incelenmesi [Examining the factors that cause unmotivated students to be unmotivated in science classes]*. (Unpublished Master Thesis), Kafkas University, Kars.
- Karasar, N. (2014). *Bilimsel araştırma yöntemi: Kavramlar, ilkeler teknikler [Scientific research method: Concepts, principles, techniques]*. Nobel Publishing.
- Khodadady, E., & Khajavy, G. H. (2013). Exploring the role of anxiety and motivation in foreign language achievement: A structural equation modeling approach. *Porta Linguarum*, 20, 269-286.
- Köyceğiz Gözeler, M., & Özbey, S. (2021). Self-regulation skills in preschool children: impact of the inner motivation supporting education program. *Euroasia Journal of Social Sciences & Humanities*, 8(4), 68-87.
- Kurbanoğlu, N. İ., & Takunyacı, M. (2012). Lise öğrencilerinin matematik dersine yönelik kaygı, tutum ve öz-yeterlik inançlarının cinsiyet, okul türü ve sınıf düzeyi açısından incelenmesi [Examining high school students' anxiety, attitude and self-efficacy beliefs towards mathematics in terms of gender, school type and grade level]. *Uluslararası İnsan Bilimleri Dergisi*, 9(1), 110-130.
- Kutluca, T., Alpay, F. N., & Kutluca, S. (2015). 8. sınıf öğrencilerinin matematik kaygı düzeylerine etki eden faktörlerin incelenmesi [Examining the factors affecting the mathematics anxiety levels of 8th grade students]. *Dicle Üniversitesi Ziya Gökalp Eğitim Fakültesi Dergisi [Dicle University Ziya Gökalp Faculty of Education Journal]*, 25, 202-214.
- Külünk Akyurt, G. (2019). *İlkokul 4. sınıf öğrencilerinin matematik motivasyonu, kaygısı ve başarısı arasındaki ilişkinin incelenmesi [Examining the relationship between mathematics motivation, anxiety and success of 4th grade primary school students]*. (Unpublished Master Thesis), Ordu University, Ordu.
- Layne, A. E., Bernstein, G. A., & March, J. S. (2006). Teacher awareness of anxiety symptoms in children. *Child Psychiatry And Human Development*, 36(4), 383-392.
- Le Gall, A. (2016). *Anksiyete ve kaygı*. (İ., Yerguz, Çev.). Dost Publishing.
- Lee, J. A. (2014). *The development of mastery motivation in young children*. (Unpublished doctoral thesis). Michigan State University.
- Lightbody, P., Sienn, G., Stocks, R., & Walsh, D. (1996). Motivation and attribution at secondary school: the role of gender. *Educational Studies*, 22, 13-25.
- Liu, M., & Huang, W. (2011). An exploration of foreign language anxiety and English learning motivation. *Education Research International*, 1-8.
- Lumsden, L. S. (1994). *Student motivation to learn*. ERIC Digest, 92. [ED370200].
- Mckenzie, K. (2006). *Anksiyete ve panik atak [Anxiety and panic attacks]*. (Ü., Şensoy, Çev.). Morpa Kültür Publishing.
- Morey, R. (2017). *A path to motivation: A mediated moderation analysis of the relationships between task contingent rewards, psychological ownership, and intrinsic motivation using path analysis*. (Unpublished doctoral tesis), Long Island University.
- Müezzın, E., & Özata, B. (2019). Ortaöğretim öğrencilerinde fen öğrenmeye yönelik kaygı ve motivasyon ilişkisi [The relationship between anxiety and motivation for science learning in secondary school students]. *Kıbrıs Türk Psikiyatri ve Psikoloji Dergisi [Cyprus Turkish Journal of Psychiatry & Psychology]*, 1(1), 14-21.
- Nauta, M. H., Scholing, A., Rapee, R. M., Abbott, M., Spence, S. H., & Waters, A. (2004). A parent-report measure of children's anxiety: psychometric properties and comparison with child-report in a clinic and normal sample. *Behaviour Research and Therapy*, 42(7), 813-839.
- Öner, Ş., & Özbey, S. (2023). Investigation of the relationship between social information processing skills and motivation levels of preschool children. *Euroasia Journal of Social Sciences & Humanities*, 10(31), 109-128.

- Özbey, S., Mercan, M., & Alisinanoğlu, F. (2018). An investigation into the relationship between the life quality of pre-school children at the age of 48-72 months and their self-regulation skills. *JRES*, 5(2), 157-173.
- Özbey, S. (2018). A study on the motivation and self-regulation skills of the pre-school children. *Akademik Sosyal Araştırmalar Dergisi [The Journal of Academic Social Science]*, 6(65), 26-47.
- Özbey, S., & Dağlıoğlu, H. E. (2017). Adaptation study of the motivation scale for the preschool Children (DMQ18). *International Journal of Academic Research*. 4-2(1).1-14.
- Öztürk, M. O., & Uluşahin, N. A. (2018). *Ruh sağlığı ve bozuklukları [Mental health and disorders]*. Nobel Tıp Publishing.
- Peleg, O., Halaby, E., & Whaby, E. (2006). The relationship of maternal separation anxiety and differentiation of self to children's separation anxiety and adjustment to kindergarten: A study in Druze families. *Journal of Anxiety Disorders*, 20(8), 973-995.
- Ratelle, C. F., Guay, F., Vallerand, R. J., Larose, S., & Senécal, C. (2007). Autonomous, controlled, and amotivated types of academic motivation: A person-oriented analysis. *Journal of Educational Psychology*, 99(4), 734-746.
- Seven, S. (2011). *Çocuk ruh sağlığı [Child mental health]*. Ankara: Pegem Academy Publishing.
- Shamir Essakow, G., Ungerer, J. A., & Rapee, R. M. (2005). Attachment, behavioral inhibition, and anxiety in preschool children. *Journal of Abnormal Child Psychology*, 33(2), 131-143.
- Spence, S. H. (1998). A measure of anxiety symptoms among children. *Behaviour Research and Therapy*, 36(5), 545-566.
- Stone, L. L., Otten, R., Soenens, B., Engels, R. C. M. E., & Janssens, J. M. A. M. (2015). Relations between parental and child separation anxiety: The role of dependency-oriented psychological control. *Journal of Child and Family Studies*, 24(11), 3192-3199.
- Şahin, H. (2021). Development of the teacher report form of anxiety in pre-school children. *Educational Policy Analysis and Strategic Research*, 16(3), 336-349.
- Şentürk, B. (2010). *İlköğretim beşinci sınıf öğrencilerinin genel başarıları, matematik başarıları, matematik dersine yönelik tutumları ve matematik kaygıları arasındaki ilişki [The relationship between fifth grade primary school students' general achievement, mathematics achievement, attitudes towards mathematics course and mathematics anxiety]*. (Unpublished Master Thesis, Afyon Kocatepe University, Afyonkarahisar.
- Şugüneş, A. (2022). *Okul öncesi çağı çocukların kaygı durumlarına göre Covid-19 algısının incelenmesi [Examining the perception of Covid-19 according to the anxiety of pre-school children]*. (Unpublished Master Thesis), Fatih Sultan Mehmet Vakıf Üniversitesi [Fatih Sultan Mehmet Foundation University], İstanbul.
- Tümkaya S, Aybek, B., & Çelik, M. (2007). KPSS'ye girecek öğretmen adaylarındaki umutsuzluk ve durumluksüreklilik kaygı düzeylerini yordayıcı değişkenlerin incelenmesi [Examining the predictive variables of hopelessness and state-trait anxiety levels in teacher candidates who will take the KPSS]. *Kuram ve Uygulamada Eğitim Bilimleri [Educational Sciences in Theory and Practice]*, 7(2), 953- 974.
- Uluçay, B. (2017). *Ortaokul öğrencilerinin matematik dersi motivasyon düzeyleri ile algılanan öğretmen yakınlığı arasındaki ilişki [The relationship between secondary school students' mathematics motivation levels and perceived teacher closeness]*. (Unpublished Master Thesis), Gazi University, Ankara.
- Uzun, Ç. (2013). *Anne-babası boşanmış ve boşanmamış çocuklarda depresyon ve sosyal becerilerin değerlendirilmesi [Evaluation of depression and social skills in children with divorced and non-divorced parents]*. (Unpublished Master Thesis), İstanbul Arel University, İstanbul.
- Wichstrøm, L., Belsky, J., & Berg Nielsen, T. S. (2013). Preschool predictors of childhood anxiety disorders: A prospective community study. *Journal of Child Psychology and Psychiatry*, 54(12), 1327-1336.
- Wichstrøm, L., Berg Nielsen, T. S., Angold, A., Egger, H. L., Solheim, E., & Sveen, T. H. (2012). Prevalence of psychiatric disorders in preschoolers. *Journal of Child Psychology and Psychiatry*, 53(6), 695-705.
- Yalçınsoy, A. (2017). Yaşam doyumu, kaygı ve motivasyon ilişkisi ile ilgili üniversite gençliğine yönelik bir araştırma: Dicle Üniversitesi örneği [A research on university youth regarding the relationship between life satisfaction, anxiety and motivation: Dicle University example]. *Kesit Akademi Dergisi [The Journal of Kesit Academy]*, 3(10), 422-434.
- Yerlikaya, İ. (2014). İlkokul ve ortaokul öğrencilerinin eğitime ilişkin motivasyonlarının çeşitli değişkenler açısından incelenmesi [Examining the educational motivation of primary and secondary school students in terms of various variables]. *Tarih Okulu Dergisi [Journal of History School] (TOD)*, 7, 773-795.

- Yeşildaş, F. B. (2018). *Okul öncesi çocuklarda kaygının ebeveyn-çocuk ilişkisine yönelik değişkenler açısından değerlendirilmesi [Evaluation of anxiety in preschool children in terms of variables related to the parent-child relationship]*. (Unpublished Master Thesis), Ufuk University, Ankara.
- Yılmaz Ünal, S., & Çevik, E. E. (2023). Çocukluk döneminde kaygı ve korkular [Anxiety and fears in childhood]. S. Yüksek Usta (Ed.), *Öğretmenin çocuk psikolojisi el kitabı [Teacher's handbook of child psychology]*, (147-167). Nobel Publishing.
- Zakaria, E., & Nordin, N. M. (2008). The effects of mathematics anxiety on matriculation students as related to motivation and achievement. *Eurasia Journal of Mathematics, Science and Technology Education*, 4(1), 27-30.

Foreign Language Teaching in Early Childhood Education: Attitudes and Beliefs of Pre-service Teachers

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Abstract

This study examines changes in attitudes towards foreign language teaching and beliefs about foreign language education among pre-service preschool teachers from multiple perspectives. The research was conducted within the framework of a training program organized under the TÜBİTAK 2237-A Scientific Education Activities Support initiative, which aimed to enhance the foreign language skills of pre-service preschool teachers. The participants underwent a 40-hour training program comprising both theoretical and practical components. The research sample consisted of 18 pre-service preschool teachers enrolled in various universities across Turkey. A sequential transformational research design, a mixed-method approach, was employed, incorporating both qualitative and quantitative data sources. The collected data were analyzed using comparative tests and inductive thematic analysis. The findings reveal shifts in attitudes towards foreign language teaching in preschool education, along with insights into the adequacy of foreign language training at universities, the teaching responsibilities associated with foreign language instruction in preschools, the necessity of introducing foreign languages at the preschool level, concerns regarding potential negative effects of early foreign language learning, and the school preferences of pre-service preschool teachers. The study concludes with recommendations for policymakers, educators, and future research.

Keywords: Preschool, language education, pre-service preschool teachers, early childhood education.

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Okul Öncesi Eğitiminde Yabancı Dil Öğretimi: Öğretmen Adaylarının Tutumları ve İnançları

Makale Türü	Başvuru Tarihi	Kabul Tarihi
Araştırma	19.10.2023	4.02.2025

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Öz

Bu araştırma, okul öncesi öğretmeni adaylarının yabancı dil öğretimine yönelik tutumlarındaki ve yabancı dil eğitimi hakkındaki inançlarındaki değişiklikleri çeşitli açılardan incelemektedir. Araştırma kapsamında, yabancı dil becerilerini geliştirmeyi amaçlayan bir eğitim programı araştırma ortamı olarak kullanılmıştır. Katılımcılar, TÜBİTAK 2237-A Bilimsel Eğitim Etkinlikleri Desteği Programı kapsamında yürütülen, teorik ve uygulamalı derslerden oluşan 40 saatlik bir eğitim programına katılmıştır. Çalışma grubu, Türkiye'deki farklı üniversitelere kayıtlı 18 okul öncesi öğretmeni adayından oluşmuştur. Araştırma hem nitel hem de nicel veri kaynaklarını kullanan karma bir araştırma yöntemi olan sıralı dönüşümsel araştırma tasarımına uygun olarak yürütülmüştür. Toplanan veriler, karşılaştırma testleri ve içerik analizi tekniği kullanılarak analiz edilmiştir. Araştırmanın bulguları, anaokullarındaki yabancı dil öğretimine yönelik tutumların değişimini, üniversitelerdeki yabancı dil eğitiminin yeterliliğini, anaokullarındaki yabancı dil öğretim sorumluluklarını, anaokulu döneminde yabancı dil öğretiminin gerekliliğini, erken yaşta yabancı dil öğrenmenin olumsuz etkilerini ve anaokulu öğretmeni adaylarının okul türleri tercihlerini ortaya koymaktadır. Çalışma, politika yapıcılara, öğretmenlere ve gelecekteki çalışmalara önerilerle sona ermektedir.

Anahtar Sözcükler: Okul öncesi, dil eğitimi, okul öncesi öğretmeni adayları, erken çocukluk eğitimi.

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Introduction

The integration of foreign language education into early childhood settings has gained considerable attention in recent years, supported by extensive scholarly research and pedagogical advancements. Early childhood represents a critical period for language acquisition, as the heightened neural plasticity of the brain during this stage creates an unparalleled opportunity for linguistic development (VanPatten & Benati, 2015; Hartshorne, Tenenbaum, & Pinker, 2018; Long, 2017; Yule, 2022). Beyond the acquisition of vocabulary and grammar, early foreign language learning is deeply intertwined with cognitive growth and cultural literacy, emphasizing its multidimensional value in shaping young minds.

Foreign language education in early childhood goes far beyond the traditional aim of linguistic competence. It serves as a catalyst for significant cognitive and academic benefits, as evidenced by numerous studies (Kirsch, Aleksic, Mortini, & Andersen, 2020; Thoma & Platzgummer, 2023). Research indicates that children exposed to foreign languages from an early age develop enhanced problem-solving abilities, improved creativity, and superior memory retention. These cognitive advantages arise from the mental flexibility required to switch between languages, which strengthens executive function skills (Baqiyudin, Nurhasan, & Suroto, 2023). Furthermore, early exposure to foreign languages fosters cultural awareness and sensitivity. As children learn to communicate in another language, they gain an appreciation for the cultural contexts and perspectives it encompasses. This early engagement with diverse cultures nurtures empathy and open-mindedness—qualities essential for navigating an increasingly interconnected world (Soto-Boykin et al., 2021). By understanding cultural differences and commonalities, young learners build a foundation for global citizenship and social harmony.

The societal implications of early foreign language education are equally profound. In a globalized world, multilingual individuals are highly valued for their ability to bridge cultural and linguistic divides. Early foreign language learning, initiated in preschool settings, can pave the way for lifelong advantages, including broader career prospects and deeper cross-cultural connections (Gimatdinova Çağaç, 2018). Moreover, acquiring a foreign language at an early age has been shown to boost children's confidence and self-esteem, equipping them to navigate various social and cultural environments with ease.

However, the successful implementation of foreign language programs in early childhood largely depends on the preparedness and competence of educators. While preschool teachers are often well-versed in general early childhood education, their readiness to deliver effective English language teaching (ELT) specifically in preschool settings is often insufficient. This issue is not unique to Turkey but represents a widespread challenge faced by educators globally. Despite EU policy documents emphasizing foreign language competence as a key skill for modern EU citizens, teacher training programs often fail to align with these objectives, resulting in a critical gap in educator preparation.

Research highlights the multifaceted challenges associated with ELT in preschool education. Foremost among these challenges is the English language proficiency of preschool teachers, particularly in contexts where English is not their native language. Common issues include limited vocabulary (Ping et al., 2013; Pollard-Durodola et al., 2012), weak phonetic knowledge (Mahmoud Ghoneim & Abdelsalam Elghotmy, 2015), pronunciation difficulties (Fauzi et al., 2021; Jacoby & Lesaux, 2019), and concerns about teaching incorrect English (Chu, 2014; Huang et al., 2019). These limitations can negatively impact the language performance and development of young learners (Bernstein et al., 2021; Milton et al., 2020).

Beyond language proficiency, a lack of formal training in ELT methods tailored to preschool learners worsens the issue. Studies show that while most preschool teachers are proficient in general early childhood education, they often lack specialized ELT training (Huang et al., 2019; Milton et al., 2020). Even when training is provided, it often lacks depth and fails to address essential areas such as bilingual education (BE) and teaching strategies for culturally diverse children (Goh, 2019; Hegde et al., 2018). Furthermore, some teachers rely heavily on textbooks and translation-based methods, leading to rote learning and boredom among young learners (Auleear Owodally, 2015; Ng, 2015).

Pedagogical skills represent another critical area of concern. Many teachers lack proper guidance and rely on mechanical drilling or repetitive approaches to teach language skills (Pollard-Durodola et al., 2012). The absence of engaging, interactive, and learner-centered teaching practices undermines the effectiveness of ELT in preschool settings. As Khurramovna and Bakhtiyarovna (2021) note, successful ELT in preschool must resemble a game, incorporating fun and interactive methods that resonate with young learners' natural curiosity and developmental needs.

Globally, efforts to address these challenges remain fragmented. For instance, in countries like Slovenia, teachers express willingness to teach foreign languages but acknowledge that their training is inadequate (Fojkar & Skubic, 2017). Similar gaps exist across Europe, where short in-service programs in countries like France and Cyprus are insufficient to fully prepare educators (Ellis, 2016; Ioannou-Georgiou, 2015). In other regions, such as the Czech Republic and Slovakia, there are no formal qualifications for pre-primary English teachers, leaving a void often filled by freelancers (Černá, 2015; Portiková, 2015).

The disparity between policy goals and teacher preparation highlights an urgent need for systemic reform. Effective ELT in preschool requires targeted professional development that equips teachers with the necessary linguistic, pedagogical, and cultural competencies. Providing comprehensive training in methodologies such as BE and interactive teaching strategies can bridge the gap between policy aspirations and classroom realities. As Al-Darwish (2012) and Wang and Hou (2021) emphasize, continuous professional development and curricular interventions are critical to sustaining quality instruction in early childhood ELT.

In conclusion, while the demand for early foreign language instruction continues to grow, the ability of preschool teachers to meet this demand is hindered by gaps in proficiency, training, and pedagogical skills. Addressing these challenges requires a coordinated effort to align teacher training programs with the realities of FLT in preschool contexts, ensuring that educators are equipped to foster the linguistic and cultural competencies of future generations. Only through systemic reform and focused support can the goal of creating multilingual, culturally aware global citizens be achieved.

Significance of Study

This study addresses the gap in understanding pre-service preschool teachers' attitudes and beliefs regarding foreign language instruction, providing insights to enhance teacher preparation programs and inform effective policy development. By examining changes in attitudes and exploring opinions on responsibility, necessity, and potential challenges of early-age language instruction, the findings offer a foundation for refining educational practices and curricula.

Improving pre-service preschool teachers' foreign language teaching skills enables governments to utilize financial resources more efficiently, reducing dependence on external support while improving early language education within existing systems. By integrating quantitative and qualitative methods, this study contributes to the literature and offers practical strategies for bridging theory and practice in early childhood foreign language education.

Research Questions

Within the scope of this research, this study aimed to address the following research questions:

1. Is there a statistically significant difference in pre-service preschool teachers' attitudes towards foreign language instruction between the pre-test and post-test assessments?
2. What are pre-service preschool teachers' opinions on foreign language instruction in university programs?
3. What are pre-service preschool teachers' perspectives on the responsibility for foreign language instruction in preschool educational institutions?
4. What are pre-service preschool teachers' views on the necessity of foreign language instruction in preschool educational institutions?

5. What are pre-service preschool teachers' perceptions of the potential negative effects of early-age foreign language instruction?

6. What are pre-service preschool teachers' opinions on the type of preschool educational institution?

Method

Research Design

This study employed a sequential transformational research design, a type of mixed-methods approach. This design involves collecting and analyzing quantitative data before or after qualitative data, or vice versa, based on the researcher's objectives and requirements (Almeida, 2018). While one data type—either qualitative or quantitative—is typically prioritized, in some cases, both may be given equal importance. Data analysis is often combined in the interpretation and discussion sections. This design is valuable as it allows researchers to capture diverse perspectives, support research participants, and gain deeper understanding of the phenomenon under investigation (Baki & Gökçek, 2012).

Participants

The research participants were 18 pre-service preschool teachers enrolled in various universities in Turkey. The participants represented 13 different state universities and took part in a project entitled “Practices to support foreign language teaching in preschool education” supported by TÜBİTAK (Scientific and Technological Research Council of Turkey).

To select participants, the study employed criterion sampling, a type of purposeful sampling technique. The inclusion criteria were as follows:

- Being a fourth-grade student in the preschool teaching department at the time of the study
- Having a minimum university grade point average (GPA) of 3.00, indicating academic readiness and preparation for training
- Not having previously participated in a similar study
- Allowing a maximum of two participants from the same university to ensure institutional diversity

To maintain confidentiality, participants were assigned numerical codes instead of personal identifiers. The demographic characteristics of the participants are presented in Table 1.

Table 1. Demographic characteristics of the participants

Participant	Gender	Age	Participant	Gender	Age
P1	Female	31	P10	Male	21
P2	Male	24	P11	Male	21
P3	Female	23	P12	Male	21
P4	Male	23	P13	Female	21
P5	Female	22	P14	Female	21
P6	Female	22	P15	Male	21
P7	Female	22	P16	Female	21
P8	Female	21	P17	Female	21
P9	Female	21	P18	Female	20

As part of the project, the participants completed a 40-hour training program that incorporated both theoretical and practical components. The initial phase of the training focused on theoretical instruction, lasting four hours, to provide foundational knowledge on the subject matter. This was followed by four hours of applied activities designed to reinforce the concepts learned through hands-on practice.

To enhance the learning experience and minimize external influences, the training was conducted face-to-face. The specific content covered during the training is outlined in Table 2.

Table 2. *The content of training for the participants*

Duration	Training Content
8 hours	Orientation workshops
	Foreign language teaching methods for pre-school education (Total physical response theory-Communicative language teaching)
8 hours	Foreign language teaching methods for pre-school education (English for specific purposes-Task-based language teaching)
	Teaching listening in the preschool Teaching speaking in the preschool
8 hours	Material development techniques for teaching foreign language in the preschool
	Digital material development techniques for teaching foreign language in the preschool
8 hours	Teaching foreign language with games in the preschool
	Teaching foreign language with songs in the preschool
8 hours	Teaching foreign language with stories in the preschool
	Teaching foreign language with environment/nature in the preschool

The training program was developed in collaboration with six field experts specializing in foreign language education and early childhood education, along with an academic specializing in curriculum development. The design of the program was guided by the framework provided by the Tyler Model, formulated by Ralph W. Tyler, an American educator and psychologist, in the mid-20th century. This model, also known as the Tyler Rationale, has been widely acknowledged in curriculum design literature (Çelik, 2017; Posner, 1995). The model is structured around four fundamental questions (Tyler, 1993):

- What should be taught? (What educational objectives should the program aim to achieve?)
- How should it be taught? (What instructional experiences can be provided to facilitate the achievement of these objectives?)
- How should it be organized? (How can these instructional experiences be effectively structured?)
- How should it be evaluated? (How can we assess whether the objectives have been successfully achieved?)

Given the diversity of the participants' regional backgrounds and the limited duration of the training, careful attention was paid to avoid redundancy in the content. The program content was meticulously streamlined to present only the essential material, ensuring alignment with the research objectives while maintaining clarity and focus.

Data Collection Tools

Two data collection tools were used in the study: the Foreign Language Teaching Attitude Scale and a structured opinion form. The scale form, developed by Sevi (2010), consists of 30 items and includes four factors. The first factor is named the Priority of Foreign Language and consists of eight items. The second factor is named the Necessity of Foreign Language and consists of nine items. The third factor is named the Quality of Foreign Language and consists of seven items. Finally, the fourth factor is named the Sufficiency of Foreign Language and consists of six items. Using a 5-point Likert-type scale, participants can score between 8-40 in the first factor, 9-45 in the second factor, between 7-35 in the third factor, and between 6-30 in the fourth factor. An increase in scores leads to positivity in the related attitude. The reliability of the Foreign Language Teaching Attitude Scale was evaluated, and the Cronbach's alpha reliability coefficient was calculated as 0.80. According to the literature, measurement tools with a Cronbach's alpha value above 0.70 are considered reliable (Domino & Domino, 2006).

The second data collection tool, the structured opinion form, consisted of five structured questions designed to align with the study's research objectives. Initially, a seven-question form was developed and piloted with a similar participant group to evaluate clarity and question functionality. Following the pilot phase, the form was reviewed by two experts in measurement and evaluation, who identified two questions with overlapping functionality. These questions were removed, resulting in the final five-question form.

While the questionnaire was administered before and after the training, the opinion form was delivered merely after the training.

Data Analysis

Both quantitative and qualitative data analysis techniques were employed in this study. The data collected through the Foreign Language Teaching Attitude Scale were analyzed using a comparison test to examine participants' pre- and post-training status. The selection of the appropriate test was based on the normality findings of the data. Since the data followed a normal distribution, the related-samples t-test was applied. For the analysis of qualitative data, the researchers utilized the inductive thematic analysis technique, which involves identifying themes without relying on predetermined assumptions or coding schemes. The data were processed using natural language processing techniques, then categorized into themes, sub-themes, and codes, which were subsequently presented in figures.

To assess inter-rater reliability, Kappa analysis was conducted. In this analysis, which is applied in two ways, Cohen and Fleiss Kappa, Cohen analysis is applied if there are two evaluators, and Fleiss Kappa analysis is applied if there are three or more evaluators (Kılıç, 2015). Since two experts were involved in the data analysis process in the research, Cohen Kappa analysis was applied and the agreement between experts was calculated as 0.83 which falls within the range of "very good agreement" according to the intervals [(0.01—0.20 Insignificant agreement; 0.21—0.40 Weak agreement; 0.41—0.60 Moderate agreement; 0.61—.80 Good agreement; 0.81—1.00 Very good agreement] presented by Landis and Koch (1977). Accordingly, it was concluded that the agreement between the experts was at a very good level.

Ethical Procedures

This research was conducted as part of the project titled "Supporting Foreign Language Teaching in Preschool Education" (project number 1129B372200397), organized from September 5-10, 2022, under the TÜBİTAK 2237-A Scientific Education Activities Support Program. All participants involved in the study were part of the mentioned project and have filled out a commitment form to participate in the research.

Findings

In this part, the findings obtained from questionnaire data and qualitative data were presented in tables and figures.

Table 3. *Related samples t-test results for pretest and posttest*

Factor	Test	N	$\bar{X} \pm SD$	df	t	p
Priority	Pre-test	18	26,78±2,94	17	-2,229	0,040
	Post-test	18	29,06±4,19			
Necessity	Pre-test	18	36,89±4,11	17	-2,412	0,027
	Post-test	18	39,56±4,77			
Quality	Pre-test	18	27,72±3,49	17	-0,323	0,751
	Post-test	18	28,06±3,21			
Efficiency	Pre-test	18	15,17±2,77	17	-0,679	0,506
	Post-test	18	15,56±3,11			

Table 3 presents the results of related-samples t-tests conducted to compare pre-test and post-test scores. The table reveals that there were significant differences in the participants' scores in the first factor (priority) and the second factor (necessity) between the two tests [$t_{\text{priority}}(18) = -2,229$; $p = 0,040$], [$t_{\text{necessity}}(18) = -2,412$; $p = 0,027$]. Further examination of the mean scores showed a significant positive increase in the participants' attitudes towards the priority and necessity of foreign language education in the post-tests. This finding suggests that the participants' attitudes towards the priority and necessity of foreign language education improved after the intervention. However, when the results of the third and fourth factors were analysed, it was evident that there was no significant change in the participants' scores between the two tests [$t_{\text{quality}}(18) = -0,323$; $p = 0,751$], [$t_{\text{efficiency}}(18) = -0,679$; $p = 0,506$]. Although there was a slight increase in the average scores, it did not lead to a meaningful change, as indicated in Table 3.

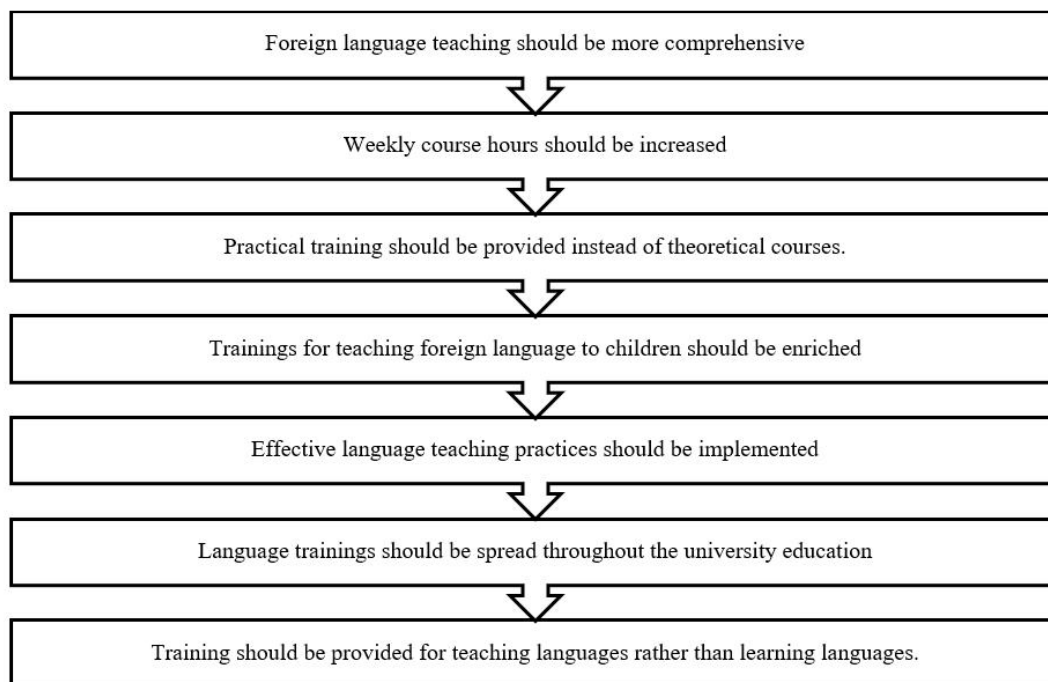


Figure 1. *The sufficiency of foreign language training at universities*

Figure 1 depicts participant perspectives on the adequacy of foreign language training in universities. They unanimously found the current training insufficient. To enhance teaching, they proposed seven solutions. Firstly, they suggested making Foreign Language Education (FLE) more comprehensive, focusing on all language skills, not just basics. Secondly, they recommended increasing weekly course hours for practicality. Thirdly, they emphasized the shift from theory-based to practice-based teaching. Moreover, they advocated enriching training for teaching foreign languages to children, aligning with their future roles as preschool teachers. They urged lecturers to employ effective teaching methods for a more enjoyable learning experience. The participants also emphasized the importance of extending language training throughout the entire university education. Lastly, they noted a disconnect between course content and its purpose, suggesting a shift towards teaching how to instruct a foreign language rather than just learning it.

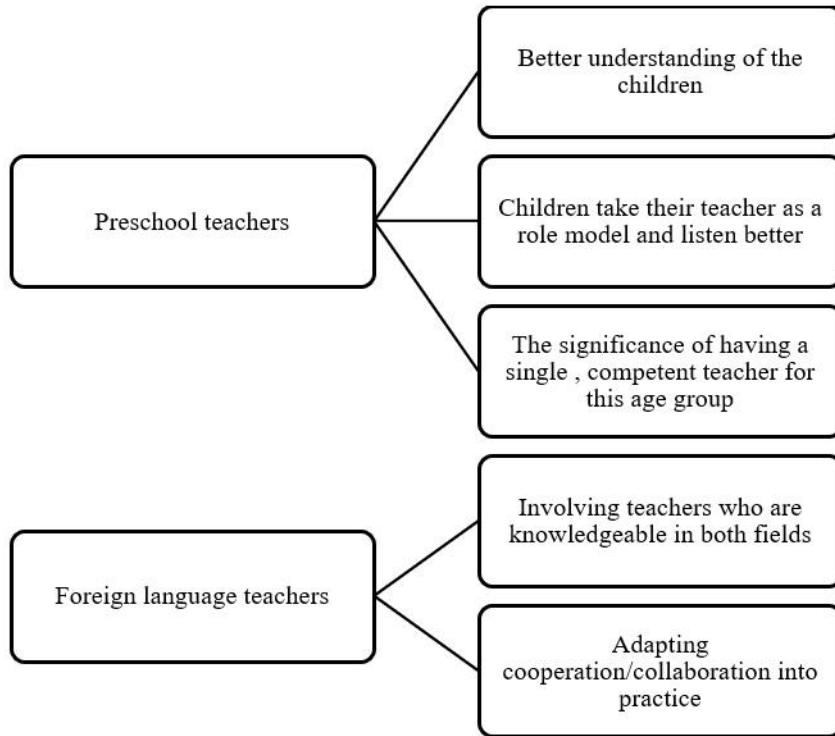


Figure 2. *Teaching duty of a foreign language in preschools*

Figure 2 illustrates the perspectives of the participants regarding the role of teaching foreign languages in preschools. When participants were asked who should be responsible for teaching foreign languages in preschools, it was found that they placed a strong emphasis on preschool teachers. Upon coding the responses, three codes emerged. The first code pertained to the "better understanding of children". Some participants believed that preschool education differs from other age groups and requires specialized knowledge and understanding. Consequently, the responsibility of teaching foreign languages should rest with preschool teachers who have received the necessary training to work with this age group. The second code was related to the role of teachers as "role models" and their ability to establish positive relationships with children. Participants believed that preschool teachers had more extended contact with children and were therefore better suited to manage classroom behavior and provide high-quality instruction. The third code related to the "importance of having a single, competent teacher for this age group". The participants argued that preschool education already has many factors that can disrupt classroom dynamics and that introducing another teacher could further complicate things. Thus, they advocated for continuity and stability in the form of a single, competent teacher. As these codes indicate, the relationship between teachers and students and the sensitivity of children were key factors in the participants' responses. Those who chose "foreign language teachers" also believed that foreign language teachers should not lecture alone. They claimed that teaching should be done by either involving teachers who are knowledgeable in both fields or adapting cooperation/collaboration into practice. While the first code refers to any teacher who is competent in both fields, the second code refers to hiring both subject-specific teachers and encouraging them to work collaboratively.

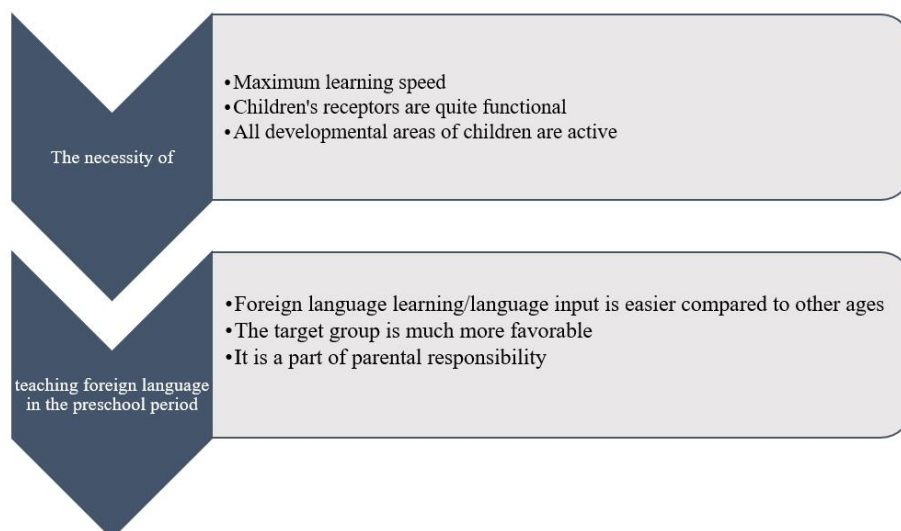


Figure 3. *The necessity of teaching a foreign language in the preschool period*

Figure 3 displays the perspectives of the participants regarding the necessity of teaching foreign languages in the preschool period. Upon coding the responses, six codes were obtained. The participants mainly expressed that the preschool age group is quite practical for learning a foreign language. They supported their hypothesis by citing the "maximum learning speed" of children, the "functionality of children's receptors", the "activeness of all developmental areas of children", the "ease of teaching foreign languages/language input", the "usefulness of the preschool age group", and "parental responsibility." Five of the codes were related to children's characteristics, while one of them concerned parents' duty. The participants' reasons clearly showed that preschool children have a better mastery of learning a foreign language, as they identified in their statements. The participants believed that the preschool period is not only feasible but also advantageous for children's learning development due to their brains' high plasticity and neural development, which makes it easier for them to acquire new information and skills. They also pointed out that preschool children's receptors are quite functional, so they can absorb and process new information more easily than other age groups, which provides them with another advantage. Additionally, the participants indicated that preschool children are advantageous not only in receptive skills but also in other developmental areas since they simultaneously use multiple areas due to their age characteristics. Thanks to these features, the participants believed that it is easier to teach a foreign language/deliver a language input to preschool children than to other age groups. Although the final code appeared different from the others, it was connected since a conscious parent has the responsibility to utilize their children's characteristics and pave the way for learning a foreign language at an early age.

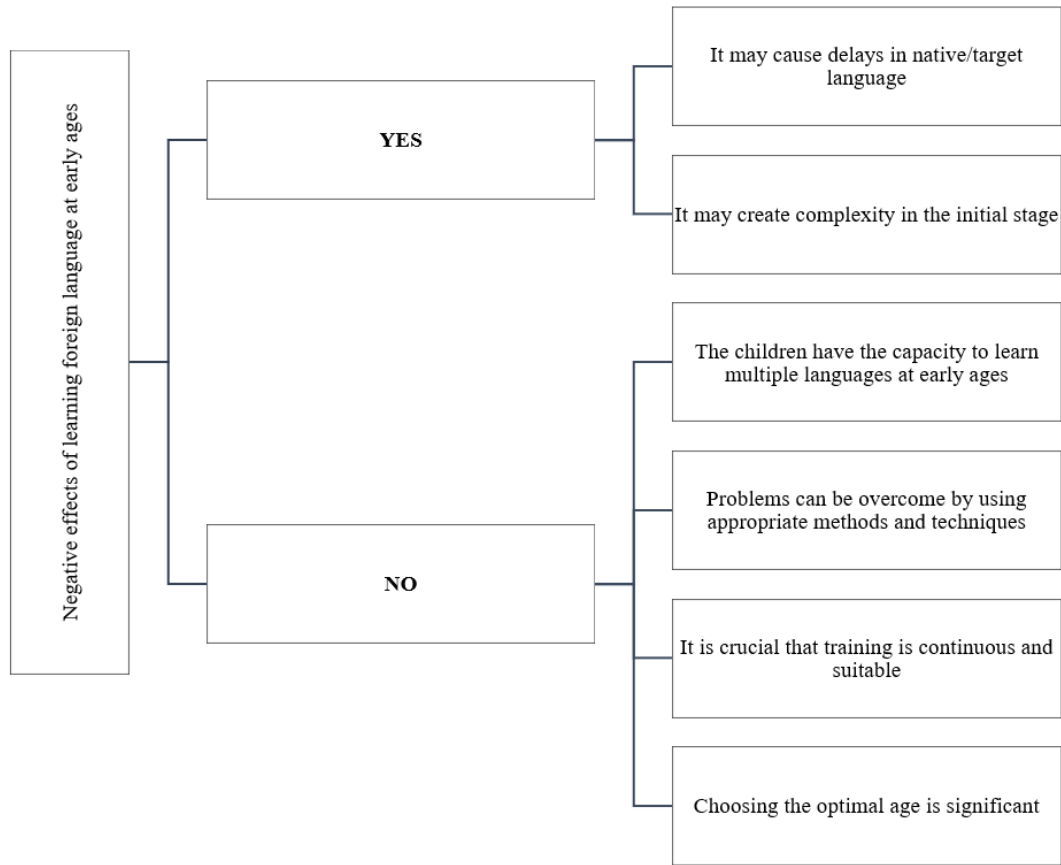


Figure 4. *Negative effect of learning foreign languages at early ages*

Figure 4 depicts the perspectives of participants on the negative effects of learning a foreign language at an early age. When the responses of participants were examined, six codes were identified: two for those who believe that learning a foreign language has negative effects on the native language, and four for those on the opposite side. While two participants claimed that it might cause some negative outcomes, such as speech delays in either the native or foreign language and complexity in the initial stages, others (14 of them) believed that it would not affect children's languages negatively. These participants provided four reasons for their hypothesis. They argued that children have the capacity to learn multiple languages at an early age. They also stated that even if there were problems, they could be overcome by using appropriate methods and techniques. Some of them mentioned that it is crucial to have continuous and suitable training to avoid such problems. Finally, some participants emphasized the importance of choosing the optimal age to start teaching a foreign language.

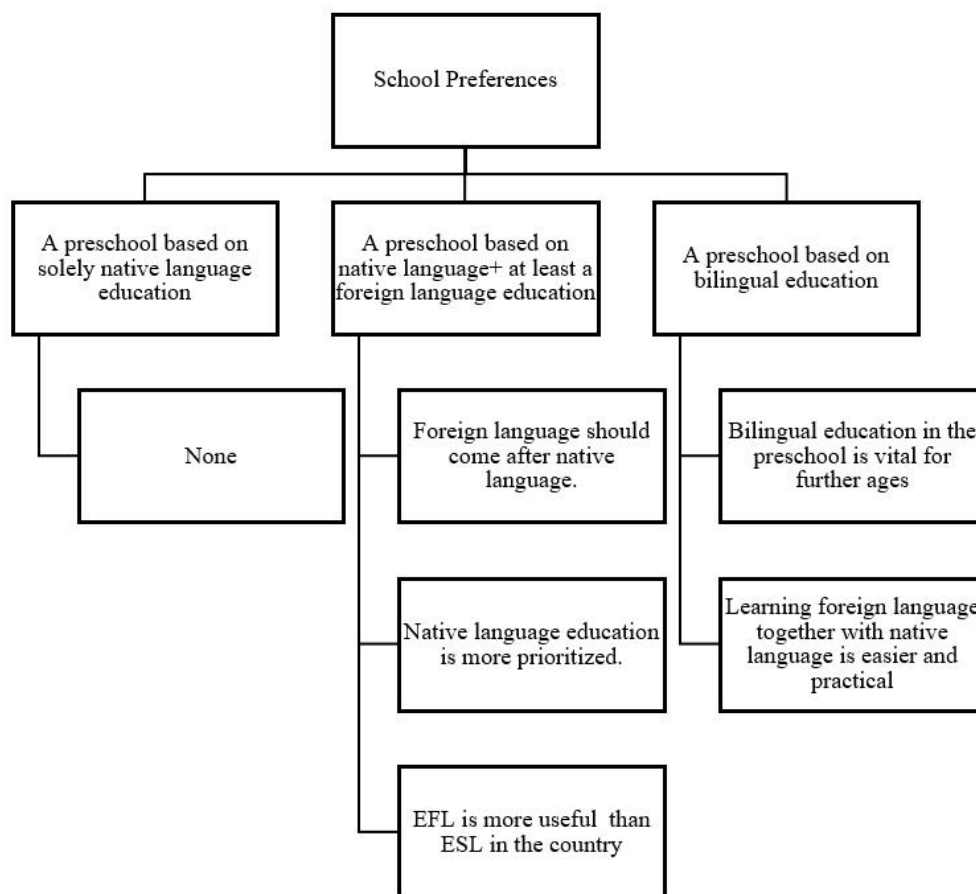


Figure 5. *School type preferences of the prospective preschool teachers*

Figure 5 shows the perspectives of the participants regarding school preferences after graduation. When they were given three options, none of them chose a preschool based solely on native language education. Fourteen participants preferred to work in a preschool that offered native language education in addition to at least one foreign language. Upon coding the responses of these teachers, three codes were obtained. In the first code, the participants' opinions on the sequence of learning languages were discovered, as they stated that foreign language should come after native language. In the second code, some participants underlined the significance of native language development at early ages and stated that their first goal was to teach the native language effectively. Therefore, it should be prioritized more in preschool. The last code of this theme highlighted the conditions of foreign language acquisition in the country. The participants emphasized that EFL (English as a foreign language) is more useful than ESL (English as a second language) in the country. Therefore, a preschool aiming to teach a language as a foreign language will be more practical. Regarding school preferences, four participants chose to work in a preschool based on bilingual education. They reasoned that learning a foreign language at an early age has advantages, and it is easier to teach two languages simultaneously.

Discussion, Conclusion and Recommendations

This study examined changes in pre-service preschool teachers' attitudes toward teaching foreign languages and their beliefs about foreign language education in preschool settings from different perspectives. Based on the research results obtained from both quantitative and qualitative data, the following conclusions were reached:

The first result pertained to attitude changes in teaching foreign languages. The Foreign Language Teaching Attitude Scale scores revealed that pre-service preschool teachers demonstrated a significant

positive shift in their attitudes toward the priority and necessity of foreign language instruction between the pre-test and post-test assessments. This improvement may be attributed to the activities implemented during the training program. Since foreign language training at universities is typically theory-based, pre-service teachers may initially hold negative or indifferent attitudes toward foreign language instruction. However, during the training sessions, they had the opportunity to engage in practical activities that could be directly applied in their future careers. This pragmatic approach may have played a critical role in shaping their positive attitude changes regarding these factors. Conversely, while there was a slight increase in attitudes toward the quality and efficiency of foreign language instruction, these changes were not as significant as expected. A closer examination of these factors suggests that they relate specifically to the quality and efficiency of foreign language education provided at schools and universities. Since the research design did not involve participants' actual university coursework or school-based instruction, but instead established a distinct learning and teaching environment, pre-service preschool teachers' attitudes toward these particular factors may have remained largely unaffected.

The second key result focused on the sufficiency of foreign language training in university programs. Participants widely agreed on its inadequacy and proposed several solutions, including enhancing comprehensibility, increasing weekly instructional hours, shifting towards more practical training, integrating child language teaching methods, implementing engaging and interactive practices, embedding language training within university education, and providing specialized instruction on language teaching methodologies. A study conducted by Çetintaş and Yazıcı (2016) also highlighted the deficiencies in foreign language education within undergraduate programs, emphasizing the need for significant improvements in this area. Additionally, the study underscored the importance of incorporating courses on bilingual foreign language education and teaching methodologies into undergraduate curricula. As a long-term solution, it was suggested that integrating bilingual foreign language education methods at an early stage—both within preschool education undergraduate programs and in the German, French, and English undergraduate programs of education faculties that train foreign language teachers—would be a crucial step toward addressing these shortcomings.

The third key result addressed foreign language teaching in preschools. While most participants agreed that preschool teachers should assume this responsibility, some expressed differing opinions. Five distinct teaching duty codes were identified: three advocating for preschool teachers and two for foreign language teachers. Pre-service preschool teachers supported their involvement in foreign language instruction, emphasizing their close relationship with students, their understanding of children's sensitivities, and their potential effectiveness as role models. They argued that having a single competent teacher for this age group would be more effective in fostering language learning. Conversely, some participants believed that foreign language teaching should not be the sole responsibility of foreign language teachers. Instead, they proposed involving teachers proficient in both preschool education and foreign language teaching or adopting a collaborative teaching approach. This issue has been well-documented in the literature. Bayyurt (2012) found that English teachers often lack sufficient prior knowledge and awareness of appropriate methods for teaching English to young learners. Similarly, Şad and Sarı (2019) examined the proficiency of English teachers in early-age foreign language instruction and found no significant differences based on gender, faculty type, or prior education in early language teaching, suggesting a broader need for attention to this issue. Unlike other disciplines, English language teaching in Turkey is not divided into education level-specific undergraduate programs, allowing graduates from general English language teaching (ELT) programs to teach at all levels, from preschool to higher education. This approach may lead to challenges in developing level-specific competencies. Research on English instruction by non-specialist teachers (classroom teachers) (Çelik & Işık, 2019; Gönül, 2020; Zengin & Ulaş, 2020) has shown that their involvement in English lessons negatively impacted instructional quality. These studies indicate that classroom teachers lacked proficiency in foreign language teaching, and those who participated in English lessons expressed that it would be more beneficial for subject-specific teachers to conduct these courses.

The fourth key finding of the study revealed a strong belief among participants in the necessity of teaching foreign languages in the preschool period. Participants provided various reasons to support this

perspective, including the high learning speed of preschoolers, the functionality of their cognitive receptors, the simultaneous engagement of multiple developmental areas, and the role of parental support. These findings suggest that preschool age presents a practical and advantageous window for language acquisition, making it easier to teach foreign languages to preschool children compared to other age groups. Given these insights, it is crucial to recognize the importance of early language learning and actively support foreign language education in preschool settings to capitalize on young children's unique cognitive and developmental characteristics. This study contributes to the existing literature by emphasizing the role of early childhood education in fostering bilingualism. Several studies support the importance of foreign language instruction in the preschool period (Anşın, 2006; İlder & Er, 2007; İrem, 2019). However, to ensure an effective teaching and learning process, it is essential to focus on age-appropriate methodologies, including the use of games, songs, and nursery rhymes. Research suggests that successful foreign language acquisition in early childhood depends on the use of developmentally appropriate materials and instructional techniques tailored to children's linguistic and cognitive abilities.

The fifth key finding of the study explored participants' perspectives on the potential negative effects of learning a foreign language at an early age. The results showed that there were differing opinions on this subject. While some participants expressed concerns that early foreign language learning might lead to speech delays and initial confusion, others argued that it does not negatively impact language development and that any challenges can be mitigated through appropriate instructional methods, continuous and structured training, and selecting the optimal age to introduce a foreign language. The perspectives shared by pre-service teachers are supported by previous research in the literature. Sandhofer and Uchikoshi (2013) found that children learning two languages simultaneously may experience a slower initial learning and development process compared to monolingual children. Additionally, Espinosa (2015) noted that while bilingual children tend to have a smaller vocabulary in each language individually, their total vocabulary across both languages is comparable to that of monolingual children. In terms of recall times and verbal expression, bilingual children may initially take longer to retrieve words and may score lower than their monolingual peers due to the complexity of processing two languages simultaneously (Petitto et al., 2011). However, as children's proficiency in both languages improves, many of these challenges gradually diminish and eventually disappear (Conboy, 2013).

The final key finding of the study focused on pre-service preschool teachers' school type preferences. The results indicated a growing interest in foreign language-oriented preschool education, as none of the participants preferred working in a preschool that exclusively offered native language education. Although the preschool period is a significant phase for further educational phases and functions as a foundation for many things, it is vital that native and foreign language education be offered properly during this period. Otherwise, harder efforts may be needed to correct mistakes and fill gaps in learning during this phase. When analyzing other preferences, a significant number of participants favored native language-based preschools that incorporated a foreign language component, rather than bilingual education. At first glance, this preference may appear to contradict the increasing trend of bilingual education. However, the reasons behind this preference provide valuable insights. The first reason participants cited was the sequence of language instruction. They believed that prioritizing native language education first, followed by the introduction of a foreign language, would lead to more effective and sustainable language learning. Their primary concern was ensuring that native language instruction was properly established, as an unsuccessful early language learning experience could have long-term negative effects on further educational stages. The second reason related to the suitability of the local context for bilingual education. Participants argued that the sociolinguistic environment in their country was not conducive to bilingualism. Instead of attempting to train children as bilinguals, they believed it would be more practical to focus on strengthening their skills in the target foreign language. On the other hand, some participants expressed a preference for bilingual education in preschools, supporting their choice with two key arguments. First, they emphasized the importance of raising bilingual children during the critical period for language acquisition, as highlighted in the literature. They believed that early exposure to two languages would provide long-term cognitive and linguistic benefits. The second reason centered on the ease of language learning at this stage. Participants noted that since children's first language experiences occur during the preschool period,

they are free from the negative washback effects of previous language learning experiences. As a result, teaching both languages simultaneously would be easier, more natural, and more enjoyable for young learners.

Recommendations

The research results suggest some recommendations for policy makers, practitioners, and future researchers. These include:

- ✓ While the present study collected qualitative and quantitative data with a limited sample size, future research should aim to obtain quantitative data from a larger sample to provide a more comprehensive understanding of the current situation.
- ✓ The findings of this research demonstrate the need for concrete measures to be taken in order to enhance the proficiency of foreign language trainers during the pre-school education period. These measures may take the form of hiring foreign language teachers or improving the foreign language skills of pre-service preschool teachers.
- ✓ The research findings indicate a need to shift the emphasis of foreign language education in universities. In addition to language acquisition, instruction should include pedagogical training that equips pre-service teachers with the necessary skills to teach the language effectively. Moreover, practical activities ought to be incorporated into the curriculum rather than relying solely on a theory-based educational model.
- ✓ It is crucial to educate both educators and parents about the potential effects of bilingual education on the mother tongue during the preschool period. Disseminating precise and timely information regarding both the positive outcomes and negative challenges that may arise in this process is essential for the effective implementation of bilingual education. Such information-sharing will play a pivotal role in the success of the program.
- ✓ The project activities carried out within the framework of this research can be extended to a university and/or city level. This approach could effectively eliminate negative perceptions of foreign language education among pre-service pre-school teachers. Additionally, similar activities could provide opportunities for teacher candidates to interact with both mother tongue and foreign language education disciplines, leading to benefits for all involved. Such activities could raise awareness about foreign language education among pre-service pre-school teachers and facilitate pre-service foreign language teachers' understanding of the pre-school education period.

References

- Al-Darwish, S. (2012). Kindergarten children and language learning: Missing pillars for language acquisition. *International Journal of Higher Education*, 2(1), 44–52. <https://doi.org/10.5430/ijhe.v2n1p44>
- Almeida, F. (2018). Strategies to perform a mixed methods study. *European Journal of Education Studies*, 5(1), 137-151. <https://zenodo.org/badge/DOI/10.5281/zenodo.1406214.svg>
- Anşın, S. (2006). Çocuklarda yabancı dil öğretimi. *D.Ü. Ziya Gökalp Eğitim Fakültesi Dergisi*, 6, 9-20. <https://dergipark.org.tr/tr/pub/zgefd/issue/47964/606853>
- Auleear Owodally, A. M. (2015). Supporting early oral language skills for preschool ELL in an EFL context, Mauritius: Possibilities and challenges. *Early Child Development and Care*, 185(2), 226–243. <https://doi.org/10.1080/03004430.2014.919494>
- Baki, A., & Gökçek, T. (2012). Karma yöntem araştırmalarına genel bir bakış. *Elektronik Sosyal Bilimler Dergisi*, 11(42), 1-21. <https://dergipark.org.tr/tr/pub/esosder/issue/6156/82721>
- Bayyurt, Y. (2012, Kasım). 4+ 4+ 4 Eğitim sisteminde erken yaşta yabancı dil eğitimi. Yabancı Dil Eğitimi Çalıştayı, Hacettepe Üniversitesi, Ankara.

- Baqiyudin, G., Nurhasan, N., & Suroto, S. (2023). Improving The Gross Motor Skills Of Mentally Retarded Children Through Rhythmic Brain Gym Activities. *International Journal of Educational Research & Social Sciences*, 4(5), 845-849. <https://doi.org/10.51601/ijersc.v4i5.726>
- Bernstein, K. A., Kilinc, S., Troxel Deeg, M., Marley, S. C., Farrand, K. M., & Kelley, M. F. (2021). Language ideologies of Arizona preschool teachers implementing dual language teaching for the first time: pro-multilingual beliefs, practical concerns. *International Journal of Bilingual Education and Bilingualism*, 24(4), 457–480. <https://doi.org/10.1080/13670050.2018.1476456>
- Černá, M. (2015). Pre-primary English language learning and teacher education in the Czech Republic. In S. Mourão & M. Lourenço (Eds.), *Early years second language education: International perspectives on theory and practice* (pp. 165–176). Routledge.
- Conboy, B. (2013). Neuroscience research: How experience with one or multiple languages affects the developing brain. In Child Development Division, California Department of Education (CDE) (Ed.), *California's Best Practices for Young Dual Language Learners: Research Overview Papers*.
- Chu, Y.-W. (2014). Teachers' beliefs in teaching english for kids at a kindergarten: A case study of students from the Department of Applied English. *English Language Teaching*, 7(10), 100–112. <https://doi.org/10.5539/elt.v7n10p100>
- Çelik, Ö. (2017). *Ortaokul fen bilimleri dersi 6.sınıf öğretim programı vücudumuzdaki sistemler teması bakımından değerlendirilmesi: Konya il merkezi örneği* [Yüksek lisans tezi, Necmettin Erbakan Üniversitesi]. Ulusal Tez Merkezi.
- Çelik, S., & Işık, A. (2019). İlkokullarda yabancı dil öğretimi ile ilgili öğretmen görüşleri. *Manisa Celal Bayar Üniversitesi Eğitim Fakültesi Dergisi*, 7(1), 1-11. <https://dergipark.org.tr/pub/mcbuefd/issue/54488/742554>
- Çetintaş, B. G., & Yazıcı, Z. (2016). Erken çocukluk döneminde anaokulu ve anasınıflarında iki dilli eğitim uygulamaları ve deneyimleri üzerine öğretmen görüşleri. *Akdeniz İnsani Bilimler Dergisi*, 6(2), 173-187. <https://dergipark.org.tr/pub/mjh/issue/82957/1427793>
- Domino, G., & Domino, M. L. (2006). *Psychological testing: An introduction*. Cambridge University Press.
- Ellis, G. (2016). A short, in-service training course for pre-school teachers in France. In V. A. Murphy & M. Evangelou (Eds.), *Early Childhood Education in English for Speakers of Other Languages* (pp. 265–278). British Council.
- Espinosa, L. (2015). *Getting it right for young children from diverse backgrounds: Applying Research to improve practice* (2nd Ed.). Pearson.
- Fauzi, W. J., Radzuan, N. R. M., Ngah, E., Rani, A. A., & Ali, F. (2021). Digitising English language learning for early childhood educators in Malaysian context: The rationale. *Asia-Pacific Journal of Research in Early Childhood Education*, 15(3), 113–134. <https://doi.org/10.17206/apjrece.2021.15.3.113>
- Fojkar, M. D., & Skubic, D. (2017). Pre-Service Preschool Teachers' Beliefs about Foreign Language Learning and Early Foreign Language Teaching in Slovenia. *Center for Educational Policy Studies Journal*, 7(4), 85-104. <https://eric.ed.gov/?id=EJ1165346>
- Gimatdinova Çağaç, F. (2018). Benefits of learning a foreign language at an early age. *The Journal of International Social Research*, 11(59), 132-137. <http://dx.doi.org/10.17719/jisr.2018.2622>
- Goh, P. S.-C. (2019). Preschool teachers' perspectives on using english language to teach. *GEMA Online Journal of Language Studies*, 19(4), 346–362. <https://doi.org/10.17576/gema-2019-1904-18>
- Gönül, S. (2020). *Sınıf öğretmenlerinin ilkokullarda yabancı dil öğretimine ilişkin görüşleri* [Yüksek lisans tezi, Yıldız Teknik Üniversitesi]. Ulusal Tez Merkezi.
- Hartshorne, J. K., Tenenbaum, J. B., & Pinker, S. (2018). A critical period for second language acquisition: Evidence from 2/3 million English speakers. *Cognition*, 177, 263-277. <https://doi.org/10.1016/j.cognition.2018.04.007>
- Hegde, A. V., Hewett, B., & Terrell, E. (2018). Examination of teachers' preparedness and strategies used to teach English language learners in kindergarten. *Early Child Development and Care*, 188(6), 774–784. <https://doi.org/10.1080/03004430.2016.1237513>

- Huang, H.-T., Chang, D.-F., & Weng, H.-J. (2019). Fuzzy method for determining the gaps between parents and teachers perceived on implementing of preschools English curriculum policy. *ICIC Express Letters, Part B: Applications*, 10(12), 1077–1084. <https://doi.org/10.24507/icicelb.10.12.1077>
- Ioannou-Georgiou, S. (2015). Early language learning in Cyprus: voices from the classroom. In S. Mourão & M. Lourenço (Eds.), *Early years second language education: International perspectives on theory and practice* (pp. 95–108). Routledge.
- İltter, B., & Er, S. (2007). Erken yaşta yabancı dil öğretimi üzerine veli ve öğretmen görüşleri. *Kastamonu Eğitim Dergisi*, 15(1), 21-30. <https://dergipark.org.tr/tr/pub/kefdergi/issue/49108/626693>
- İrem, O. (2019). Yabancı dil öğretimi/öğreniminde yaş etkeni üzerine bir değerlendirme. *Dil Dergisi*, 170(1), 40-53. <https://dergipark.org.tr/tr/pub/dilder/issue/43587/528966>
- Jacoby, J. W., & Lesaux, N. K. (2019). Supporting dual language learners in Head Start: Teacher beliefs about teaching priorities and strategies to facilitate English language acquisition. *Journal of Early Childhood Teacher Education*, 40(2), 120–137. <https://doi.org/10.1080/10901027.2018.1529006>
- Khurramovna, S. S., & Bakhtiyarovna, A. S. (2021). Methodology of teaching English to preschool children. *Eurasian Journal of Humanities and Social Sciences*, 3, 148–150. <https://bit.ly/3Q0qlyN>
- Kılıç, S. (2015). Kappa test. *Journal of Mood Disorders*, 5(3), 142-144.
- Kirsch, C., Aleksić, G., Mortini, S., & Andersen, K. (2020). Developing multilingual practices in early childhood education through professional development in Luxembourg. *International Multilingual Research Journal*, 14(4), 319–337. <https://doi.org/10.1080/19313152.2020.1730023>
- Mahmoud Ghoneim, N. M., & Abdelsalam Elghotmy, H. E. (2015). The effect of a suggested multisensory phonics program on developing kindergarten pre-service teachers' EFL reading accuracy and phonemic awareness. *English Language Teaching*, 8(12), 124–143. <https://doi.org/10.5539/elt.v8n12p124>
- Milton, C., du Plessis, S., & van der Heever, H. (2020). English as an additional language: Professional development needs of early childhood practitioners in historically disadvantaged contexts. *South African Journal of Childhood Education*, 10(1), Article a804. <https://doi.org/10.4102/sajce.v10i1.804>
- Ng, M. L. (2015). Difficulties with team teaching in Hong Kong kindergartens. *ELT Journal*, 69(2), 188–197. <https://doi.org/10.1093/elt/ccu057>
- Landis, J., & Koch, G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 33(1), 159-174.
- Long, M. H. (2017). *Problems in second language acquisition*. Routledge.
- Petitto, L. A., M. S. Berens, I. Kovelman, M. H. Dubins, L. J. Williams, & M. Shalinsky. (2011). The 'Perceptual wedge hypothesis' as the basis for bilingual babies' phonetic processing advantage: New insights from fNIRS brain imaging. *Brain Language*, 121 (2), 130– 43. <https://doi.org/10.1016/j.bandl.2011.05.003>
- Ping, Z., Vicente Nicolás, G., & Coyle, Y. (2013). Preschool English education in the Spanish curriculum. Analysis of the Region of Murcia. *Porta Linguarum : International Journal of Language Teaching and Learning*, 20, 117–133. <https://doi.org/10.30827/digibug.27178>
- Pollard-Durodola, S. D., González, J. E., Simmons, D. C., Taylor, A. B., Davis, M. J., Simmons, L., & Nava-Walichowski, M. (2012). An examination of preschool teachers' shared book reading practices in Spanish: Before and after instructional guidance. *Bilingual Research Journal*, 35(1), 5–31. <https://doi.org/10.1080/15235882.2012.667374>
- Portiková, Z. (2015). Pre-primary second language education in Slovakia and the role of teacher training programmes. In S. Mourão & M. Lourenço (Eds.), *Early years second language education: International perspectives on theory and practice* (pp. 177–188). Routledge.
- Posner, J. G. (1995). *Analyzing the curriculum* (2nd ed.). McGraw-Hill.
- Sandhofer, C., & Uchikoshi, Y. (2013). The relationship between dual language development and development of cognition, mathematics, socialemotional development, and related domains. In California's Best Practices for Young Dual Language Learners: Research Overview Papers, Child Development Division, California Department of Education (CDE). <http://www.cde.ca.gov/sp/cd/ce/documents/dllresearchpapers.pdf>

- Sevi, L. (2010). Öğretmen adaylarının yabancı dil eğitiminin gerekliliğine ilişkin görüşleri [Yüksek lisans tezi, Kütahya Dumlupınar Üniversitesi]. Ulusal Tez Merkezi.
- Soto-Boykin, X. T., Larson, A. L., Olszewski, A., Velury, V., & Feldberg, A. (2021). Who is centered? A systematic review of early childhood researchers' descriptions of children and caregivers from linguistically minoritized communities. *Topics in Early Childhood Special Education, 41*(1), 18-30. <https://doi.org/10.1177/0271121421991222>
- Şad, S.N., & Sarı, M. (2019). English teachers' competencies in teaching English to young learners (The case of Kütahya province). *Inonu University Journal of the Graduate School of Education, 6*(12), 144-163. <https://doi.org/10.29129/inujse.567423>
- Thoma, N., & Platzgummer, V. (2023). 'It's a bit contradictory': teachers' stances to (practiced) language policies in German-language ECEC in Italy. *International Journal of Multilingualism, 20*(4), 1319-1335. <https://doi.org/10.1080/14790718.2023.2237061>
- Tyler, W. R. (1993). *Basic principles of curriculum and instruction*. The University of Chicago Press.
- Vanpatten, B. & Benati G.A. (2015). *Key Terms in Second Language Acquisition* (2nd Ed.). Bloomsbury.
- Wang, S., & Hou, Y. (2021). Learning stories as an assessment: A case study exploring its local application in China. *Early Childhood Education Journal, 49*, 693–710. <https://doi.org/10.1007/s10643-020-01092-y>
- Yule, G. (2022). *The study of language*. Cambridge university press.
- Zengin, E., & Ulaş, A. H. (2020). Sınıf öğretmenlerinin yabancı dil öğretiminde karşılaştıkları problemlerin belirlenmesi. *Turkish Journal of Educational Studies, 7*(1), 27-42. <https://doi.org/10.33907/turkjes.581983>

A Correlational Analysis of Pre-service Teachers' Lifelong Learning Tendency and Teaching Motivation

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Abstract

This study aims to explore the relation between lifelong learning tendency and teaching motivation among pre-service teachers. In this study, a correlational survey model was used to investigate the relation between pre-service teachers' lifelong learning tendency and their teaching motivation. The study also examined whether lifelong learning tendency and teaching motivation differed in terms of perception of being a successful teacher in the future and wishing to be a teacher after graduation. The participants of this research were 452 pre-service teachers studying at the Education Faculty of a state university in Turkey in the spring term of 2020-2021. The research data were collected with personal information form and with "Lifelong Learning Tendency Scale" and "Motivation to Teach Scale". The results obtained from the research showed that pre-service teachers' thinking that they will be successful teachers in the future affects their lifelong learning tendencies and teaching motivations positively. As pre-service teachers' desire to teach after graduation increased, their motivation to teach increased. There is a positive low level significant relation between pre-service teachers' lifelong learning tendencies and their teaching motivation. Teaching motivation of pre-service teachers has a positive low effect on their lifelong learning tendencies. It is necessary for pre-service teachers to have a high motivation to teach and thus have a high lifelong learning tendency, to keep up with the times, to improve themselves, to update their knowledge, and to change.

Keywords: Lifelong learning, teaching motivation, pre-service teacher, curiosity, perseverance.

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Öğretmen Adaylarının Hayat Boyu Öğrenme Eğilimleri ile Öğretme Motivasyonlarının İlişkisel Analizi

Makale Türü	Başvuru Tarihi	Kabul Tarihi
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Öz

Bu çalışma, öğretmen adaylarının yaşam boyu öğrenme eğilimi ile öğretme motivasyonu arasındaki ilişkiyi araştırmayı amaçlamaktadır. Bu çalışmada öğretmen adaylarının yaşam boyu öğrenme eğilimleri ile öğretme motivasyonları arasındaki ilişkiyi araştırmak amacıyla ilişkisel tarama modeli kullanılmıştır. Araştırmada ayrıca gelecekte başarılı bir öğretmen olma algısı ve mezun olduktan sonra öğretmen olmayı isteme durumu açısından yaşam boyu öğrenme eğilimi ve öğretme motivasyonunun farklılaşp farklılaşmadığı da incelenmiştir. Bu araştırmanın katılımcılarını 2020-2021 bahar döneminde Türkiye'deki bir devlet üniversitesinin Eğitim Fakültesi'nde öğrenim gören 452 öğretmen adayı oluşturmaktadır. Araştırma verileri kişisel bilgi formu ile "Hayat Boyu Öğrenme Eğilimleri Ölçeği" ve "Öğretme Motivasyonu Ölçeği" ile toplanmıştır. Araştırmadan elde edilen sonuçlar, öğretmen adaylarının gelecekte başarılı öğretmen olacaklarını düşünmelerinin yaşam boyu öğrenme eğilimlerini ve öğretme motivasyonlarını olumlu yönde etkilediğini göstermiştir. Öğretmen adaylarının mezuniyet sonrası öğretmenlik yapma istekleri arttıkça öğretme motivasyonları da artmıştır. Öğretmen adaylarının yaşam boyu öğrenme eğilimleri ile öğretme motivasyonları arasında pozitif yönde düşük düzeyde anlamlı bir ilişki vardır. Öğretmen adaylarının öğretme motivasyonları, onların yaşam boyu öğrenme eğilimleri üzerinde olumlu yönde düşük bir etkiye sahiptir. Öğretmen adaylarının öğretme motivasyonlarının yüksek olması ve dolayısıyla yaşam boyu öğrenme eğilimlerinin yüksek olması için, çağa ayak uydurabilmeleri, kendilerini geliştirebilmeleri, bilgilerini güncelleyebilmeleri ve değişebilmeleri gerekmektedir.

Anahtar Sözcükler: Yaşam boyu öğrenme, öğretme motivasyonu, öğretmen adayı, merak, sebat.

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Introduction

Most children starting primary school today will start working in the future in entirely new types of jobs that do not yet exist (European Commission, 2018). It seems inevitable that universities, which are vocational education institutions, will become inadequate day by day to produce the workforce of the future. Every knowledge learned today becomes obsolete and outdated tomorrow. The only way to contribute to the qualified manpower of the future is to raise individuals who learn how to learn and have a high tendency for lifelong learning. Lifelong learning is an umbrella concept that is not bound to any place, time, or age limit, including all kinds of learning such as formal, informal, distance and out-of-school. Lifelong learning (LL) is a continuous, voluntary and self-motivated learning process for individual or professional purposes (Cliath et al., 2000). LL is defined as all activities aimed at improving the knowledge, skills, and competencies of an individual throughout his/her life, individually, socially or professionally (European Commission, 2018). Pre-service teachers with a high tendency towards lifelong learning has an inquisitive mind motivated to learn (Candy et al., 1994). It is inevitable for teachers to be lifelong learners for a sustainable professional development process (Acar & Uçuş, 2017). There are many affective and professional characteristics associated with pre-service teachers' lifelong learning tendencies. The self-perception level of success and willingness to engage in the lessons of pre-service teachers are related to their lifelong learning tendencies (Kula, 2022). A low and positive correlation between pre-service teachers' lifelong learning tendencies and achievement motivation (Yılmaz & Kaygin, 2018); a moderate and positive correlation between LL and learning-oriented motivation and teacher self-efficacy perceptions (Ay, Uslu, & Arık, 2021); a positive correlation between LL and teaching attitude (Ünal & Akay, 2017); a positive correlation between LL and student-centred teaching belief and change tendencies (Şentürk & Baş, 2021); a positive correlation between LL and social emotional learning (Akcaalan, 2016); a positive correlation between LL and social entrepreneurship characteristics (Sezen-Gultekin, & Gur-Erdogan, 2016); and a positive correlation between LL and emotional intelligence levels (Bozdemir et al., 2020) has been determined. In Zhou and Tu (2021)'s research, it was determined that organizational learning culture, managerial effectiveness, learning content focus, collaborative learning, and psychological empowerment are factors that increase teachers' lifelong learning.

Lifelong learning for adults is often associated with a professional career, increasing one's knowledge and skills in the field of work (Andronie, 2012). Therefore, it is thought that the lifelong learning tendency level of a pre-service teacher may affect future teaching characteristics (Thwe, & Kálmán, 2023). At the same time, it is known that teachers' professional competencies are predictive of lifelong learning tendencies (Şen & Yıldız Durak, 2022). As the key concept of a quality education system, teachers' professional attitudes, energy and motivation along with their teaching skills are critical in creating the quality of learning. These teaching skills includes many factors that interact with each other such as the teacher's teaching motivation, communication skills, professionalism, discipline and sensitivity. This research focuses on pre-service teachers' lifelong learning tendencies and teaching motivations.

Teaching Motivation

Motivation stimulates and activates the organism, enabling the individual to direct the behavior towards a specific goal. A teacher's teaching motivation is one of the main sources for being an effective instructor. Because a motive or a chain of motives underlies every human behavior (Cüceloğlu, 2010). Motivation is defined as any process involving initiating, directing and maintaining physical and psychological activities (Gerrig et al., 2015). According to self-determination theory (Deci & Ryan, 2000), which focuses on the processes behind personality development and the organization of behaviors, motivation is; a complex concept that depends on various internal and external factors that push the individual to behavior and determine the quality and continuity of these behaviors. Intrinsic motivation creates behaviors that the individual enjoys and finds interesting, originating from the effects like interest, curiosity and need coming from within the individual (Ryan & Deci, 2000). Extrinsic motivation, on the other hand, can be defined as the source of behaviors that occur in order to avoid punishment or to obtain a reward (Ryan & Deci, 2000). The level of teachers' performance directly connects to their motivation (Leithwood, 2006). However, it is known that teachers show lower levels of motivation and higher levels of stress compared to other occupational groups (Neves de Jesus, &

Lens, 2005). In addition, some research results in China and Turkey showed that external factors play a determining role in teachers' professional motivation (Kilinc, Watt, & Richardson, 2012; Lin et al. 2012). This can be explained by the fact that teachers in developing countries are more extrinsically motivated and the possible determining role of socioeconomic determinants in teachers' internal motivation (Bukhari, et al. 2023). These and similar research results show the need for research on determining variables related to teaching motivation.

The possibility of pre-service teachers to perform effective practices at school, be a good teacher and work with devotion while raising future generations depends on their teaching motivation. There are studies showing that there are positive and significant correlations between the motivations of individuals and their performance (Amri, & Ramdani, 2021). This leads to the conclusion that teachers' teaching motivation will directly affect their professional performance (Haryaka, & Sjamsir, 2021). It is thought that determining which variables affect pre-service teachers' lifelong learning tendencies and teaching motivations and the relation between variables will contribute to the support of their professional development and the improvement and development of teacher training programs. Increasing the lifelong learning tendencies of pre-service teachers will make their professional development sustainable and will support training qualified teachers by increasing their teaching motivation. It is believed that determining the variables that affect the lifelong learning tendency and teaching motivation and revealing the correlations between the variables will increase the quality of the pre-service education. There was no study conducted with pre-service teachers examining the variables affecting lifelong learning tendency and teaching motivation and the relation between variables. In this context, it is thought that this study will make an important contribution to the literature.

This study aims to explore the correlation between lifelong learning tendency and teaching motivation among pre-service teachers. Research sub-problems are as follows:

1. Does pre-service teachers' perception of themselves as a successful teacher in the future have a significant effect on their lifelong learning tendency and teaching motivation levels?
2. Does pre-service teacher's wishing to be a teacher after graduation have a significant effect on their lifelong learning tendency and teaching motivation levels?
3. Is there a significant relation between pre-service teachers' lifelong learning tendency and their teaching motivation levels?
4. Does teaching motivation predict lifelong learning tendency among pre-service teachers?

Method

Research Design

In this study, a correlational survey model was used to investigate the relations between pre-service teachers' lifelong learning tendency and their teaching motivation. Correlational survey research aims to determine whether there is a relation between two or more variables in order to make predictions for the future and if there is, to reveal the direction and degree of this relation (Fraenkel, Wallen, & Hyun, 2012). The study also examined whether lifelong learning tendency and teaching motivation differ in terms of perception of being a successful teacher in the future and wishing to be a teacher after graduation.

Study Group

The participants of this research were 462 pre-service teachers studying at the Education Faculty of a state university in Turkey in the spring term of 2020-2021. In order to ensure the normality of the data, 10 data outside the normality distribution were extracted. The research was conducted with data obtained from 452 participants. 74.1% (n=335) of the pre-service teachers participating in the study were female and 25.9% (n=117) were male. 58.4% (n=268) of the pre-service teachers' age range was 17-20 years old, 37.6% (n=170) 21-25 years old, 2.7% (n=12) 26-30 years old, 0.9% (n=4) 31-35 years old and 0.4% (n=2) 36 years and older. 1.3% (n=6) of pre-service teachers thought that they will be a low-achieving teacher in the future, 31% (n=140) thought that they will be a moderately successful teacher, and 67.7% (n=306) thought that they will be a highly successful teacher. 6.2% (n=28) of the

pre-service teachers stated that they did not want to teach after graduation and 93.8% (n=424) stated that they wanted to teach after graduation.

Data Collection Tools

The research data were collected with personal information form and with two different instruments.

Personel information form: In the personal information form developed by the researcher, there were questions about pre-service teachers' gender, department they study, grade level, age range, how successful they perceived themselves as a teacher in the future, and whether they wanted to teach after graduation.

Lifelong learning tendency scale (LLTS): Pre-service teachers' lifelong learning tendency level was determined with LLTS (Diker Coşkun & Demirel, 2010) a four-dimensional, 6-point Likert scale with the extreme points labeled as "strongly disagree" (1) and "strongly agree" (6). The dimensions of the scale were specified as motivation (6 items), perseverance (6 items), lack of regulating learning (6 items), and lack of curiosity (9 items). The Cronbach's alpha reliability coefficient of the total scale in this study was .735. The Cronbach's alpha reliability coefficient of the "motivation" sub-scale was .878, the "perseverance" sub-scale was .879, the "lack of regulating learning" sub-scale was .742 and the "lack of curiosity" sub-scale was .875.

Motivation to teach scale (MTS): The Motivation to Teach Scale (MTS), developed by Kauffman, Yılmaz Soylu and Duke (2011), and adapted into Turkish by Güzel Candan and Evin Gencil (2015), was used to determine pre-service teachers' teaching motivations. This scale was designed to measure pre-service teachers' intrinsic and extrinsic teaching motivations. The scale consisted of 12 items and was arranged in a 6-point likert type. The scale is scored as strongly disagree 1, disagree 2, somewhat disagree 3, somewhat agree 4, agree 5, strongly agree 6. The scale consisted of two dimensions: intrinsic motivation and extrinsic motivation. The lowest score that could be obtained from the entire scale was 12, and the highest score was 72. While Cronbach's Alpha was .90 for the factor of intrinsic motivation, it was .79 for the factor of extrinsic motivation and it was .92 for the total scale. Reliability coefficient in this study was .776 for the factor of intrinsic motivation, whereas it was .715 for the factor of extrinsic motivation, and it was .843 for the total scale. The results of confirmatory factor analysis performed to determine the construct validity demonstrated that the 2-factor and 12-item construct of the scale was preserved as it was. The findings showed that the scale could be used with studies to be conducted in Turkey.

Data Analysis

Before the data collection, pre-service teachers were informed about the purpose of the study. Data were collected in the spring term of 2020-2021. The data was collected online from pre-service teachers due to the Covid 19 pandemic. Data were analyzed using the Statistical Package for Social Sciences (SPSS, version 22), at a significance level of .05.

The data were first subjected to analysis of normality using the skewness-kurtosis coefficients, and 10 data outside the normal distribution were extracted. After that, the analyses were started after the conditions of normality were met. It was observed that LLTS skewness .638, kurtosis 1.844; MTS skewness -.412, kurtosis .032. When kurtosis and skewness values are between -2.0 and +2.0, the data is considered to be normally distributed (George and Mallery, 2016). For this reason, parametric tests were used in the analysis of the data. Mean and standard deviation of research variables were computed to obtain descriptive statistics. An independent samples t-test was used to compare two independent means, one-way analysis of variance was used to compare more than two means and pearson correlation test was used to investigate the relationship between variables. Multiple regression analysis was done so as to reveal the degree of correlations found between the variables in the model. While the independent variables of the research were perceiving oneself as a successful teacher in the future and wanting to be a teacher after graduation; the dependent variables were lifelong learning tendency and teaching motivation.

Ethical Principles

Ethical committee approval for the study was obtained from the Social and Humanities Sciences Research Ethics Committee of Kirsehir Ahi Evran University (Approval Number: 2021/2/6).

Results

Perceiving Yourself as a Successful Teacher

The descriptive statistics within the sub-dimensions of LLTS, $\bar{x} = 5.01$ for pre-service teachers' motivation sub-dimension, $\bar{x} = 4.52$ for perseverance sub-dimension, $\bar{x} = 1.81$ for lack of regulating learning sub-dimension, and $\bar{x} = 2.07$ for lack of curiosity sub-dimension. Furthermore, it is seen that within the sub-dimensions of MTS, $\bar{x} = 4.20$ for intrinsic motivation sub-dimension, and $\bar{x} = 3.65$ for extrinsic motivation sub-dimension. The level of lifelong learning tendency and teaching motivation of pre-service teachers were examined according to their perception of themselves as a successful teacher in the future. The results are given in Table 1.

Table 1. Comparison of pre-service teachers' scores based on LLTS and MTS by their perception of themselves as a successful teacher in the future

Scales and Sub-dimensions	Perception of themselves as a successful teacher in the future	N	\bar{x}	SD	F	p	Post-Hoc
LLTS-motivation	1. Low	6	4.58	1.78	44.861	.000*	3>2
	2. Moderate	140	4.55	.82			
	3. High	306	5.22	.61			
LLTS-perseverance	1. Low	6	4.19	1.48	30.043	.000*	3>2
	2. Moderate	140	4.06	.91			
	3. High	306	4.74	.81			
LLTS-lack of regulating learning	1. Low	6	2.11	.98	15.479	.000*	2>3
	2. Moderate	140	2.07	.74			
	3. High	306	1.68	.68			
LLTS-lack of curiosity	1. Low	6	2.74	1.20	18.133	.000*	2>3
	2. Moderate	140	2.37	.88			
	3. High	306	1.92	.71			
MTS- intrinsic motivation	1. Low	6	1.93	1.05	29.101	.000*	2>1
	2. Moderate	140	3.91	1.08			
	3. High	306	4.37	.88			
MTS- Extrinsic motivation	1. Low	6	1.90	.88	10.996	.000*	2>1
	2. Moderate	140	3.50	1.13			
	3. High	306	3.76	1.03			

LLTS: Lifelong learning tendency scale; MTS: Motivation to Teach Scale

* $p < 0.05$

As it is clearly seen in Table 1, the pre-service teachers' perceptions of being a successful teacher in the future affect LLTS and MTS sub-dimensions in a statistically significant way. When homogeneity of variances cannot be achieved in one-way ANOVA, Tamhane's T2 is the most widely used post-hoc test to see the changes in the dependent variable according to the groups within the factor (Antalyalı, 2010). Therefore, Tamhane's T2 was used as a post-hoc test. According to the results of Tamhane's T2 test, it was concluded that the motivation and perseverance levels of pre-service teachers who have a high perception of being a successful teacher in the future are higher than those who have moderate perception. Pre-service teachers who have a moderate perception of being a successful teacher in the future have a higher lack of regulating learning and lack of curiosity than those with a high perception. It can be said that as the perception of pre-service teachers to be a successful teacher in the future increases, their intrinsic and extrinsic motivations increase.

Wishing to Become a Teacher after Graduation

The level of lifelong learning tendency and teaching motivation of pre-service teachers were examined according to their wishing to be a teacher after graduation. The results are given in Table 2.

Table 2. Comparison of pre-service teachers' scores based on LLTS and MTS by wishing to be a teacher after graduation

Scales and Sub-dimensions	Wishing to be a teacher after graduation	N	\bar{X}	Sd	t	p
LLTS-Motivation	Yes	424	4.99	450	-.975	.330
	No	28	5.14			
LLTS-perseverance	Yes	424	4.51	450	-.486	.627
	No	28	4.60			
LLTS-lack of regulating learning	Yes	424	1.80	450	-.683	.495
	No	28	1.90			
LLTS-lack of curiosity	Yes	424	2.07	450	-.097	.922
	No	28	2.09			
MTS- intrinsic motivation	Yes	424	4.31	450	9.891	.000*
	No	28	2.55			
MTS- Extrinsic motivation	Yes	424	3.73	450	5.911	.000*
	No	28	2.52			

LLTS: Lifelong learning tendency scale; MTS: Motivation to Teach Scale
 * p<0.05

As seen in Table 2, the motivation, perseverance, lack of regulating learning and lack of curiosity sub-dimensions of pre-service teachers' lifelong learning tendencies are not affected in a statistically significant way by their willingness to teach after graduation ($p>.05$). Intrinsic and extrinsic motivations of pre-service teachers are affected in a statistically significant way by their desire to teach after graduation. The intrinsic and extrinsic motivations of those who want to teach after graduation are higher than others. Pre-service teachers' thoughts on starting teaching after school increases their teaching motivation.

The Relationship between Lifelong Learning Tendencies and Teaching Motivation Levels

Pearson correlation coefficients among the pre-service teachers' lifelong learning tendency and their teaching motivation levels are presented in Table 3.

Table 3. The relationship between lifelong learning tendency and their teaching motivation levels of pre-service teachers

Variables	1	2	3	4	5	6
1. Motivation	1					
2. Perseverance	.790**	1				
3. Lack of regulating learning	-.301**	-.284**	1			
4. Lack of curiosity	-.537**	-.592**	.599*	1		
5. Intrinsic motivation	.272**	.308**	-.156**	-.199**	1	
6. Extrinsic motivation	.077	.095*	.068	.071	.640**	1

**p<0.01
 * p<0.05

The results in Table 3 show a positive low-level relation between the motivation and intrinsic motivation ($r =.272$, $p< .01$), perseverance and intrinsic motivation ($r =.308$, $p< .01$), perseverance and extrinsic motivation ($r =.095$, $p< .05$). On the other hand, there was a negative low-level relation between lack of regulating learning and intrinsic motivation ($r =-.156$, $p<.01$), lack of curiosity and intrinsic motivation ($r=-.199$, $p<.01$). In order to determine the predictors of the lifelong learning tendency, multiple regression analysis was conducted. The results of the analysis are presented in Table 4.

Table 4. The prediction of the lifelong learning tendency by the teaching motivation

Variables	B	Standard error	β	t	p	Partial r	Durbin-Watson
Constant	3.03	.07	-	42.07	.000	-	1.98
Intrinsic motivation	-.02	.02	-.05	-.74	.46	-.04	
Extrinsic motivation	.07	.02	.21	3.38	.001	.16	
R=.179 R ² =.032 F=7.441 p=.001							
Dependent variable: lifelong learning tendency							

Table 4 suggests that intrinsic and extrinsic motivation variables are a significant predictor of lifelong learning tendency ($R=.179$, $R^2=.032$; $p<.01$). Cohen (1988) interpreted the effect sizes for the regression coefficient (R^2) as: low .02, moderate .13, and strong .26. According to the standardized regression coefficient (β), the relative importance of the predictor variables on the lifelong learning tendency scores; extrinsic and intrinsic motivation. The t-test results regarding the significance of the regression coefficients shows that extrinsic motivation is a significant predictor of lifelong learning tendency scores. The F value of 7,441 in the table indicates that the model as a whole is significant at all levels ($p<.01$). The results of multiple regression analysis revealed that the teaching motivation of pre-service teachers has a positive low effect on their lifelong learning tendency ($F=7.441$, $p<0.01$).

Discussion and Conclusion

In this study, which aims to determine the relationship between pre-service teachers' lifelong learning tendencies and teaching motivation, it has been concluded that pre-service teachers who have a high perception of being a successful teacher in the future have higher motivation and perseverance levels than those who have moderate perception. In other words, as the pre-service teachers believe that they will be a successful teacher in the future, their motivation and persistence, which are sub-dimensions of lifelong learning tendency, increase. In addition, pre-service teachers who have a moderate perception of being a successful teacher in the future have higher levels of lack of regulating learning and lack of curiosity than those with a high perception. When pre-service teachers believe that they will be successful teachers in the future, their self-regulation and curiosity levels, in other words, their lifelong learning tendencies increase. Diker Coşkun (2009) states in her study with university students that as the lifelong learning tendencies of the students increase, their beliefs about future work success also increase. There are similar research results in the literature regarding the perception of success and lifelong learning tendency (Demirel & Akkoyunlu, 2017). The results of the research conducted with the teachers also overlap with the results of the current research. It is known that as the professional self-efficacy perceptions of teachers increase, their lifelong learning tendencies also increase (Ayra, & Kösterelioğlu, 2015). The result obtained in this study; the perceptions of pre-service teachers that they will be successful teachers in the future increase their lifelong learning tendencies, can be explained by Possible Selves Theory. According to the Possible Selves Theory developed by Markus and Nurius (1986), possible selves are how individuals imagine themselves in the future (Hoyle & Sherrill, 2006). It provides clues for future behavior by allowing individuals to evaluate and interpret the current appearance of the self (Dunkel & Anthis, 2001). In terms of professional identity development, it is possible to say that Possible Selves Theory offers a theoretical framework suitable for examining the professional identity development of pre-service teachers in terms of focusing on future selves (Hamman, et al., 2010). When individuals think about their possible selves, for example, they hope to be a successful teacher in the future, this possible self about the future becomes a source of motivation for them to achieve their goal and avoid undesirable consequences (Nuttin, 1984). In this context, it is thought that the higher motivation, persistence, curiosity and self-regulation levels of pre-service teachers who hope to be successful teachers in the future may also be related to their possible self perceptions.

It is concluded that as the pre-service teachers' perception of being a successful teacher in the future increases, their intrinsic and extrinsic motivations, which are sub-dimensions of teaching motivation, increase. There are different studies in the literature that support the research result. It is known that pre-service teachers' possible teacher selves play an important role on their intrinsic and extrinsic teaching motivations (Gün, & Turabik, 2019). One of the most important jobs of teachers is teaching. Considering the definition and characteristics of motivation, it is thought that teaching motivation is very valuable for teachers and pre-service teachers. Studies have shown that teachers' desire to be successful affects their motivation (Börü, 2018). Also according to Maslow's theory of hierarchy of needs, the desire to be successful is an important factor that motivates people to work (Riggio, 2017). Teachers' ability to motivate their students in the teaching and learning process also depends on their own motivation (Bernaus et al., 2009; Dörnyei & Ushioda, 2011). In this context, the increase in teachers' motivation to teach increases the success of students (Neves de Jesus & Lens, 2005; Suryanti Tambunan et al., 2016). Teaching motivation is known to be associated with personal accomplishment and positive teaching behavior (Roth et al., 2007). In addition, it is known that pressure

factors such as teachers' having to comply with a curriculum, colleagues and performance standards reduce their motivation to teach (Pelletier et al., 2002). It is believed that revealing these variables that affect the motivation of pre-service teachers and teachers will make important contributions to the development process of teacher training programs. Because teaching motivation is an important factor that predicts the quality of teaching (Watt & Richardson, 2008).

Another result of this study is that the intrinsic and extrinsic motivations of pre-service teachers are significantly affected by their desire to teach after graduation. The intrinsic and extrinsic motivations of those who want to teach after graduation are higher than the others. In other words, pre-service teachers' thoughts of starting teaching after school increases their teaching motivation. The teaching motivation researches in the literature suggest that pre-service teachers who want to be a teacher after graduation have higher levels of teaching self-efficacy belief, motivation (intrinsic and extrinsic motivation) and professional attitude than those who do not (Gök et al., 2019). A study conducted with classroom teachers showed that teachers' love for the teaching profession increases their intrinsic motivation (Ada et al., 2013). In this study, it can be thought that the pre-service teachers' desire to teach after graduation stems from their positive perceptions about the profession. Because, among the important motivation sources that affect the motivation of teachers are their love for their profession and their feeling of competence (Börü, 2018). There are many studies examining the relation between pre-service teachers' motivation to teach and their attitudes towards the teaching profession (Ayık et al., 2015; Başaran & Dedeoğlu Orhun, 2013; Bozpolat, 2016; Gök, & Atalay Kabasakal, 2019). Aksoy (2010) found that the attitudes of pre-service teachers who want to be a teacher after graduation are higher than those who do not.

In this study, a positive low level significant correlation was found between pre-service teachers' lifelong learning tendency and teaching motivation. Teaching motivation of pre-service teachers has a positive low effect on their lifelong learning tendency. It is thought that teacher training programs affect the knowledge, skills, motivation and attitudes of future teachers (Blömeke et al., 2011; König, Rothland, Tachtsoglou, & Klemenz, 2016; Tatto et al., 2012). It is important for pre-service teachers to have experiences that will positively affect their lifelong learning tendencies and teaching motivations during pre-service education. The development of teachers and their teaching skills is based on professional development supported by lifelong learning. Professional development cannot take place without learning, and pedagogical and knowledge-based understanding (Nicholls, 2000). It is known that in addition to knowledge-based education in teacher training programs, practical opportunities encourage lifelong learning of teacher candidates (Matsumoto-Royo et al., 2021). There was a positive significant correlation between lifelong learning and personal-professional competence (Eksi, et al., 2020). There was a positive and statistically significant correlation between pre-service teachers' lifelong learning and attitudes towards the teaching profession (Kula, 2023). The education system expects teacher training institutions to train teachers with high motivation. Research in the field of teacher training should focus on experiences that shape, develop and maintain teachers' attitudes and motivations in the teacher education process (Tang, et al., 2014). Different domains such as family, government, society, economy and work can positively or negatively affect an individual's lifelong learning journey. If the desire is to create a successful lifelong learning culture for pre-service teachers, the role of positive environments and supportive relationships should not be ignored (Ng, 2010).

Recommendations

The results of this study provide important data to train qualified teachers, who will play an important role in shaping future generations. Teachers should gain a positive attitude towards the profession as highly motivated, lifelong learners during the education given to pre-service teachers in education faculties. The fact that individuals work with love, desire, curiosity and excitement also affects their performance and success in that job. "What are the practices that will make pre-service teachers eager to work in the teaching profession?" is a question that teacher training institutions and education policy makers should consider. This study revealed that pre-service teachers' perceptions of being a successful teacher and teaching after graduation affect their lifelong learning tendencies and motivation to teach. Pre-service teachers living in different regions with different teacher training practices and cultures have different teaching attitudes and motivations (Tang, Wong, Wong, & Cheng, 2018). Therefore, there is a need to determine the characteristics of teacher education that will attract

pre-service teachers in Turkey, which is a bridge between east and west and a country with intense interaction between different cultures. It was also seen that future research was needed to determine the reasons for the relationship between lifelong learning tendencies and teaching motivations.

Pre-service teachers with high lifelong learning tendency will become teachers who are highly motivated, do not give up quickly in the face of difficulties, have developed self-regulation skills and have constant curiosity for learning. Studies show that measures should be taken to cultivate pre-service teachers who are lifelong learners with high motivation to teach during teacher training programs. There is a need for experimental studies to clarify the external factors that predict the lifelong learning tendencies of pre-service teachers. It is recommended to determine situational and dispositional barriers, and also institutional barriers (Merriam et al., 2007), which affect pre-service teachers. It is necessary for teachers to have high teaching motivation and thus lifelong learning tendencies, to keep up with the times, to improve themselves, and to update their knowledge.

Limitations

This study has a number of limitations. Quantitative methodology was used in the research. A research design including qualitative methods would be helpful to determine the educational activities that will increase the lifelong learning tendencies and teaching motivation of pre-service teachers and to obtain in-depth information. In this study, pre-service teachers' perceptions of being a successful teacher in the future and their willingness to teach after graduation were identified to be independent variables. Different independent variables that may affect lifelong learning tendency and teaching motivation can be tested. Thus, new ways of training highly motivated teachers with lifelong learning, who are willing to update their knowledge, skills and awareness may be identified. This and similar studies will provide important contributions to the field of teacher training.

This research was conducted with pre-service teachers studying at a university in the Central Anatolian region of Turkey. The number of the pre-service teachers participating in the study was low. Variables can be tested in future studies with participants from different regions, with different characteristics, and with a higher number of participants.

References

- Acar, I. H., & Ucus, S. (2017). The characteristics of elementary school teachers' lifelong-learning competencies: A convergent mixed-methods study. *Educational Sciences: Theory & Practice*, 17, 1833-1852. <http://dx.doi.org/10.12738/estp.2017.6.0082>
- Ada, Ş., Akan, D., Ayık, A., Yildirim, İ., & Yalçın, S. (2013). Öğretmenlerin motivasyon etkenleri [Teachers' motivation factors]. *Journal of Atatürk University Social Sciences Institute*, 17(3), 151-166.
- Akcaalan, M. (2016). Investigation of the relationships between lifelong learning and social emotional learning. *International Journal of Educational Research Review*, 1(1), 14-20.
- Amri, A., & Ramdani, Z. (2021). Effect of organization commitment, work motivation, and work discipline on employee performance (case study: pt. pln (persero) p3b Sumatera upt Padang). *International Journal of Educational Management and Innovation*, 2(1), 88-99. <https://doi.org/10.12928/ijemi.v2i1.3183>
- Andronie, M. (2012). *Trends and developments in lifelong learning systems. The 8th International Scientific Conference e-learning and Software for Education*. Conference proceedings of eLearning and Software for Education «(eLSE). (No. 02, pp. 22-26). "Carol I" National Defence University Publishing House.
- Antalyalı, Ö. L. (2010). Varyans analizi [Analysis of variance]. In Ş. Kalaycı (Ed.), *SPSS uygulamalı çok değişkenli istatistik teknikleri [SPSS applied multivariate statistical techniques]* (130-183), Ankara: Asil.
- Ay, E., Uslu, S., & Arık, S. (2021). The relationship between the lifelong learning tendencies and teacher self-efficacy levels of social studies teacher candidates. *Discourse and Communication for Sustainable Education*, 12(1), 67-84. <https://doi.org/10.2478/dcse-2021-0006>
- Ayık, A., Ataş Akdemir, Ö., & Seçer, İ. (2015). Adaptation of the motivation to teach scale into Turkish: The validity and reliability study. *Current Research in Education*, 1 (1), 33-45.
- Ayra, M., & Kösterelioğlu, I. (2015). The relationship between teachers' lifelong learning tendencies and their perceptions of professional self-efficacy. *E Journal of New World Sciences Academy*, 10(1), 17-28.

- Başaran, M., & Dedeoğlu Orhun, B. (2013). Factors affecting the preservice teachers' professional motivation. *İnönü Üniversitesi Eğitim Fakültesi Dergisi*, 14 (3), 129-151.
- Bernaus, M., Wilson, A., & Gardner, R. C. (2009). Teachers' motivation, classroom strategy use, students' motivation and second language achievement. *Porta Linguarum*, 12, 25-36.
- Blömeke, S., Suhl, U., & Kaiser, G. (2011). Teacher education effectiveness: Quality and equity of future primary teachers' mathematics and mathematics pedagogical content knowledge. *Journal of Teacher Education*, 62(2), 154-171. <http://dx.doi.org/10.1177/0022487110386798>
- Bozdemir, H., Aşkın Tekkol, İ., & Faiz, M. (2020). Investigation of primary school teacher candidates' lifelong learning tendencies and emotional intelligence levels. *Cukurova University Faculty of Education Journal*, 49(1), 352-381. <http://dx.doi.org/10.14812/cufej.595336>
- Bozpolat, E. (2016). Identification of the predictor variables of candidate teacher teaching motivations. *International Journal of Higher Education*, 5(2), 148-162. <http://dx.doi.org/10.5430/ijhe.v5n2p148>
- Börü, N. (2018). The Factors affecting teacher-motivation. *International Journal of Instruction*, 11(4), 761-776.
- Bukhari, S. G. A. S., Jamali, S. G., Larik, A. R., & Chang, M. S. (2023). Fostering intrinsic motivation among teachers: Importance of work environment and individual differences. *International Journal of School & Educational Psychology*, 11(1), 1-19. <https://doi.org/10.1080/21683603.2021.1925182>
- Candy, P., Crebert, G., & O'Leary, J. (1994). *Developing lifelong learners through undergraduate education*. Commissioned Report No. 28, National Board of Employment Education and Training. Canberra: Australian Government Publishing Service.
- Cliath, B. A., Rialtais, O. D. F., Alliance, T. S., Laighean, S. T., Rialtais, F., & Post-tráchtá, A. R. (2000). *Learning for life: White paper on adult education*. Stationery Office. http://www.onestepup.ie/assets/files/pdf/fe_adulted_wp.pdf
- Cohen, J.W. (1988). *Statistical power analysis for the behavioral sciences* (2nd edit.). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Cüceloğlu, D. (2010). *İnsan ve davranışı [Human and human behavior]*. İstanbul: Remzi Bookstore.
- Deci, E. L., & Ryan, R. M. (2000). The 'what' and 'why' of goal pursuits: Human needs and the selfdetermination of behavior. *Psychological Inquiry*, 11, 227-268. https://doi.org/10.1207/S15327965PLI1104_01
- Demirel, M., & Akkoyunlu, B. (2017). Prospective teachers' lifelong learning tendencies and information literacy self-efficacy. *Educational Research and Reviews*, 12(6), 329-337. <http://dx.doi.org/10.5897/ERR2016.3119>
- Diker Coşkun, Y. (2009). *An investigation of university students' lifelong learning tendencies in terms of some variables*. (Doctoral dissertation), Hacettepe University, Institute of Social Sciences, Ankara.
- Diker Coşkun, Y., & Demirel, M. (2010). Lifelong learning tendency scale: the study of validity and reliability. *Procedia-Social and Behavioral Sciences*, 5, 2343-2350. <https://doi.org/10.1016/j.sbspro.2010.07.461>
- Dörnyei, Z., & Ushioda, E. (2011). *Teaching and researching motivation* (2nd ed.). Harlow, UK: Pearson Education Limited.
- Dunkel, C. S., & Anthis, K. S. (2001). The role of possible selves in identity formation: A short-term longitudinal study. *Journal of Adolescence*, 24, 765-776. <https://doi.org/10.1006/jado.2001.0433>
- Eksi, H., Özgenel, M., & Metlilo, E. (2020). The Effect of motivation of success of university students on personal-professional competence: mediation role of lifelong learning tendency. *International Journal of Evaluation and Research in Education*, 9(3), 583-593. <https://doi.org/10.11591/ijere.v9i3.20664>
- European Commission. (2018). *Proposal for a council recommendation on key competences for lifelong learning*. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018SC0014&from=EN>
- Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate research in education*. New York: McGraw-Hill.
- George, D., & Mallery, P. (2016). *IBM SPSS statistics 23 Step by Step: A Simple Guide and Reference*. Routledge.
- Gerrig, R. J., Zimbardo, P. G., Campbell, A. J., Cumming, S. R., & Wilkes, F. J. (2015). *Psychology and life*. Pearson Higher Education AU.

- Gök, B., & Atalay Kabasakal, K. (2019). Analysing prospective teachers' self-efficacy belief, teaching motivation and attitudes towards teaching from the perspective of several variables. *Pegegog Journal of Education and Instruction*, 9(4), 1081-1112. <https://doi.org/10.14527/pegegog.2019.035>
- Gün, F., & Turabik, T. (2019). The effects of possible selves of teacher candidates on their teaching motivation. *Cumhuriyet International Journal of Education*, 8(1), 214-234. <http://dx.doi.org/10.30703/cije.468371>
- Güznel Candan, D. & Evin Gencil, İ. (2015). Adaptation of the motivation to teach scale into Turkish. *Mehmet Akif Ersoy University Journal of Education Faculty*, 36, 72-89.
- Hamman, D., Gosselin, K., Romano, J., & Bunuan, R. (2010). Using Possible-Selves Theory to understand the identity development of new teachers. *Teaching and Teacher Education*, 26, 1349-1361. <https://doi.org/10.1016/j.tate.2010.03.005>
- Haryaka, U., & Sjamsir, H. (2021). Factors influencing teachers' performance in junior high school. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 12(6), 2058-2071. <https://doi.org/10.17762/turcomat.v12i6.4810>
- Hoyle, R. H., & Sherrill, M. R. (2006). Future orientation in the self-system: Possible selves, self-regulation, and behavior. *Journal of Personality*, 74(6), 1673-1696. <https://doi.org/10.1111/j.1467-6494.2006.00424.x>
- Kılınc, A., Watt, H. M., & Richardson, P. W. (2012). Factors influencing teaching choice in Turkey. *Asia-Pacific Journal of Teacher Education*, 40(3), 199-226. <https://doi.org/10.1080/1359866X.2012.700048>.
- König, J., Rothland, M., Tachtsoglou, S., & Klemenz, S. (2016). Comparing the change of teaching motivations among preservice teachers in Austria, Germany, and Switzerland: Do in-school learning opportunities matter?. *International Journal of Higher Education*, 5(3), 91-103. <http://dx.doi.org/10.5430/ijhe.v5n3p91>
- Kula, S. S. (2022). The relationships between the academic boredom and lifelong learning tendency. *International Journal of Progressive Education*, 18(3), 12-24. <https://doi.org/10.29329/ijpe.2022.439.2>
- Kula, S. S. (2023). The relationship between lifelong learning and attitudes towards the teaching profession of pre-service teachers. *Acta Educationis Generalis*, 13(1), 55-73. <https://doi.org/10.2478/atd-2023-0003>
- Leithwood, K. (2006). *Teacher working conditions that matter: Evidence for change*. Toronto, ON: Elementary Teachers' Federation of Ontario.
- Lin, E., Shi, Q., Wang, J., Zhang, S., & Hui, L. (2012). Initial motivations for teaching: Comparison between preservice teachers in the United States and China. *Asia-Pacific Journal of Teacher Education*, 40(3), 227-248. <https://doi.org/10.1080/1359866X.2012.700047>.
- Markus, H., & Nurius, P. (1986). Possible selves. *American Psychologist*, 41, 954-969. <http://dx.doi.org/10.1037/0003-066X.41.9.954>
- Matsumoto-Royo, K., Ramírez-Montoya, M. S., & Conget, P. (2021). Opportunities to develop lifelong learning tendencies in practice-based teacher education: Getting ready for education 4.0. *Future Internet*, 13(11), 292. <https://doi.org/10.3390/fi13110292>
- Neves de Jesus, S., & Lens, W. (2005). An integrated model for the study of teacher motivation. *Applied Psychology*, 54(1), 119-134. <https://doi.org/10.1111/j.1464-0597.2005.00199.x>
- Ng, S. K. (2010). Motivation for lifelong learning: role of positive environments and supportive relationships. *International Journal of Learning*, 16(12), 417-429.
- Nicholls, G. (2000) Professional development, teaching, and lifelong learning: The implications for higher education, *International Journal of Lifelong Education*, 19(4), 370-377. <https://doi.org/10.1080/02601370050110419>
- Nuttin, J. R. (1984). *Motivation, planning, and action: A relational theory of behavior*. Dynamics. Hillsdale, NJ: Erlbaum
- Pelletier, L. G., Séguin-Levesque, C., & Legault, L. (2002). Pressure from above and pressure from below as determinants of teachers' motivation and teaching behaviors. *Journal of Educational Psychology*, 94(1), 186-196. <https://doi.org/10.1037/0022-0663.94.1.186>
- Riggio, R. E. (2017). *Introduction to industrial/organizational psychology*. Routledge.
- Roth, G., Assor, A., Kanat-Maymon, Y., & Kaplan, H. (2007). Autonomous motivation for teaching: How self-determined teaching may lead to self-determined learning. *Journal of Educational Psychology*, 99(4), 761-774.

- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: classic definitions and new directions. *Contemporary Educational Psychology, 25*, 54-67. <https://doi.org/10.1006/ceps.1999.1020>
- Sezen-Gultekin, G., & Gur-Erdogan, D. (2016). The relationship and effect between lifelong learning tendencies and social entrepreneurship characteristics of prospective teachers. *The Anthropologist, 24*(1), 113-118. <https://doi.org/10.1080/09720073.2016.11891996>
- Suryanti Tambunan, A. R., Abdul Hamid, F., & Sundayana, W. (2016). The urban EFL teachers' motivation in Indonesia: Maslow's hierarchy of needs theory and Herzberg's motivational-hygiene theory. *International Journal of Humanities and Social Science, 6*(9), 115-122.
- Şen, N., & Yildiz Durak, H. (2022). Examining the relationships between English teachers' lifelong learning tendencies with professional competencies and technology integrating self-efficacy. *Education and Information Technologies, 27*(5), 5953-5988. <https://doi.org/10.1007/s10639-021-10867-8>
- Şentürk, C., & Baş, G. (2021). Investigating the relationship between teachers' teaching beliefs and their affinity for lifelong learning: The mediating role of change tendencies. *International Review of Education, 67*(5), 659-686. <https://doi.org/10.1007/s11159-021-09917-7>
- Tang, S. Y. F., Cheng, M. M. H. & Cheng, A. Y. N. (2014). Shifts in teaching motivation and sense of self-as-teacher in initial teacher education. *Educational Review, 66*(4), 465-481. <http://dx.doi.org/10.1080/00131911.2013.812061>
- Tang, S. Y., Wong, P. M., Wong, A. K., & Cheng, M. M. (2018). What attracts young people to become teachers? A comparative study of pre-service student teachers' motivation to become teachers in Hong Kong and Macau. *Asia Pacific Education Review, 19*(3), 433-444. <https://doi.org/10.1007/s12564-018-9541-x>
- Tatto, M.T., Schwille, J., Senk, S., Ingvarson, L., Rowley, G., Peck, R., Bankov, K., Rodriguez, M., & Reckase, M. (2012). *Policy, practice, and readiness to teach primary and secondary mathematics in 17 countries. Findings from the IEA teacher education and development study in mathematics*. International Association for the Evaluation of Educational Achievement. Amsterdam, The Netherlands.
- Thwe, W. P., & Kálmán, A. (2023). The regression models for lifelong learning competencies for teacher trainers. *Heliyon, 9*(2). <https://doi.org/10.1016/j.heliyon.2023.e13749>
- Ünal, K. & Akay, C. (2017). Teaching profession and lifelong learning: from the perspective of teacher candidates. *Mersin University Journal of the Faculty of Education, 13*(3), 821-838. <http://dx.doi.org/10.17860/mersinefd.339943>
- Watt, H. M., & Richardson, P. W. (2008). Motivation for teaching. *Learning and Instruction, 18*(5), 405-407.
- Yilmaz, E., & Kaygin, H. (2018). The relation between lifelong learning tendency and achievement motivation. *Journal of Education and Training Studies, 6*, 1-7. <https://doi.org/10.11114/jets.v6i3a.3141>
- Zhou, H., & Tu, C. C. (2021). Influential factors of university teachers' lifelong learning in professional development. *Australian Journal of Adult Learning, 61*(2), 267-297.

Effective Learning Experiences of Middle School Students in Social Studies Lesson: A Narrative Inquiry

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Abstract

Social studies lesson purposes to provide students in primary and middle school levels with knowledge, skills and values related to daily life. The realization of the social studies lesson's purpose of providing students with knowledge, skills and values is possible with the design of effective learning processes. In this research, whether purpose of the social studies lesson to provide knowledge, skills and values was realized or not is examined within the scope of middle school students experiences. The participant group of the research, in which narrative inquiry design from qualitative research methodology was used, included three middle school students. A semi structured interview form that developed by the researcher was used to collect the data, and descriptive analysis technique was used in the analysis process. At the end of the research, it was determined that effective social studies teaching depends on the teaching style used in the classroom, the personality of the teachers and the use of various equipments in the lessons. In addition, in the study it was concluded that lessons in which students learn effectively contribute to students' academic achievement, participation in class and preparation for class. Depending on the results obtained in the research, recommendations for researchers and education planners were developed.

Keywords: Social studies, effective learning, middle school students, experinces, narrative inquiry.

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Ortaokul Öğrencilerinin Sosyal Bilgiler Derslerinde Etkili Öğrenme Yaşantıları: Bir Anlatı Araştırması

Makale Türü	Başvuru Tarihi	Kabul Tarihi
Araştırma	21.04.2024	17.07.2024

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Öz

Sosyal bilgiler dersi, ilkokul ve ortaokul öğrencilerine günlük yaşama yönelik bilgi, beceri ve değerler kazandırmayı hedeflemektedir. Sosyal bilgiler dersinin öğrencilere bilgi, beceri ve değer kazandırma hedefinin gerçekleşmesi, etkili öğrenme süreçlerinin tasarlanması ile mümkün olmaktadır. Bu bakış açısıyla gerçekleştirilen çalışmada sosyal bilgiler dersinin bilgi, beceri ve değer kazandırma amacının gerçekleşip gerçekleşmediği ortaokul öğrencilerinin yaşantıları kapsamında irdelenmiştir. Nitel araştırma yöntemlerinden anlatı araştırması deseninin kullanıldığı çalışmanın katılımcı grubunda üç ortaokul öğrencisi yer almıştır. Katılımcı grup, sosyal bilgiler dersinin okutulduğu 5, 6 ve 7. sınıfların her birinden birer kişi olacak biçimde tasarlanmıştır. Çalışmanın verileri, çalışmacı tarafından geliştirilen yarı yapılandırılmış görüşme formu ile toplanmış ve betimsel analiz tekniği ile çözümlenmiştir. Çalışma sonunda etkili sosyal bilgiler öğretiminin öğretmenin kişilik yapısına ve farklı araç-gereç kullanımına bağlı olduğu ortaya konmuştur. Ayrıca öğrencilerin etkili öğrenmeler gerçekleştirdikleri derslerin kendilerine akademik başarı, derse katılım ve derse hazırlık konularında katkı sağladığı yönünde bakış açısına sahip oldukları sonucuna ulaşılmıştır. Çalışmada elde edilen sonuçlara bağlı olarak çalışmacılara ve eğitim planlayıcılara yönelik önerilerde bulunulmuştur.

Anahtar Sözcükler: Sosyal bilgiler, etkili öğrenme, ortaokul öğrencileri, yaşantı, anlatı araştırması.

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Introduction

Education is the process of providing individuals with the competence to sustain their lives in complex living conditions. This process purposes to shape the individuals' mental, emotional, physical, and social development (Başaran, 1978). On the other hand, teaching is the practices carried out gradually in the school environment in accordance with predetermined purposes and including specific time intervals (Şimşek, 2015). As can be understood from this definition, students learn at school through teaching activities. The social studies lesson, which provides content for daily life to primary and middle school students, is also taught through teaching activities in schools.

Social studies is a lesson that blends information compiled from social science disciplines in accordance with the readiness level of primary and middle school students. Social studies purposes to equip students with knowledge, skills, and values that they can benefit from in multidimensional life conditions and to raise students as effective citizens (Deveci & Bayram, 2021). In order to realize this purpose, effective learning processes need to be designed in social studies teaching.

Effective learning refers to the permanent acquisition of knowledge and at the same time the transfer of knowledge to daily life (Picard et al., 2004). The constructivist education approach has been implemented in schools in Türkiye since 2005 in order for students to realize effective learning. The social studies lesson has also been taught in accordance with the constructivist education approach in Türkiye since that date. On the other hand, the social studies lesson in Türkiye is also taught with post-constructivist teaching practices (Bayram, 2022). In order for effective learning to occur, students need to be at the center of the learning process and construct their learning through experiences (Dewey, 2015). In terms of social studies teaching, it can be said that in order for effective learning to occur, teaching processes in which students use research, observation, collaboration, and analysis techniques should be designed.

In the literature review, many studies (Heafner, 2004; Üstün, 2019; Almali & Yeşiltaş, 2020; Azı, 2020; İbak, 2023; Ünalımış, 2023) examining effective learning processes in social studies teaching were found. However, it was determined that these studies examined effective learning processes not within the scope of student experiences, but within the scope of the effects of teaching practices or teaching models in social studies lesson. However, examining learning processes within the scope of student experiences can make important contributions in determining how teaching can be done more effectively. The absence of a research in this context in the literature was considered as a deficiency in terms of literature and this research was conducted. This research is expected to provide a resource on effective social studies teaching for social studies curriculum designers, teachers, and prospective teachers. It is also expected that it will guide researchers who plan to conduct similar studies.

Purpose

In the research, it was purposed to examine the effective learning experiences of middle school students in social studies lessons. Within this scope, answers to the following questions were sought:

How were the effective learning experiences of the student who completed;

- the 5th,
- the 6th,
- the 7th,

grade of middle school formed in the social studies lesson?

Method

In this research, a qualitative research method was used. Qualitative research is used in studies that purpose to examine events, phenomena, situations, attitudes, and experiences within their own structure without any intervention (Denzin & Lincoln, 2018). The reason for using the qualitative research method in this research is that the purpose of the research is to examine the effective learning experiences of middle school students in depth without any influence. This research was conducted within the scope of the permission obtained from scientific research ethics committee of a university in Türkiye with the decision dated 28.04.2023 and numbered E-95531838-050.99-69656.

Design

Narrative inquiry, was used in the research. Narrative inquiry is purposed at examining the experiences of individuals on specified topics within the scope of self-produced stories of the individuals (Webster & Mertova, 2007). The reason why this research was conducted with this design is that the effective learning experiences of the students in the participant group of the research were examined within the scope of the stories produced by the students.

Participant Group

The participant group of the research included 3 middle school students. One of these students has just completed the 5th grade, one has just completed the 6th grade and one has just completed the 7th grade. The participant group was formed in two stages using the criterion sampling method. In the first stage, a middle school with an average academic achievement level and an average socio-economic level was determined. The reason why the middle school with an average academic achievement level and an average socio-economic level was determined as a criterion was that the effective learning experiences of the students were to be examined independently of academic achievement and economic level variables. In the second stage, the criterion of having just completed the grades in which the social studies lessons was taught was taken as a basis. In this context, 1 student who had just completed the 5th grade, 1 student who had just completed the 6th grade, and 1 student who had just completed the 7th grade, were selected.

The names of the students were kept confidential within the scope of ethical principles. Instead, students took part in the research with a code name of their own choosing. The 5th grade student chose the code name Muhafız, the 6th grade student chose the code name Gökür, and the 7th grade student chose the code name Tuğhan. Descriptive information about the participants is as follows:

Muhafız: The 11 year old participant with the code name Muhafız is an individual who likes to do sports and also has the habit of reading books. Defining himself as a researcher and a person who follows scientific developments, Muhafız's personality structure was defined by the researcher as reconciliatory and problem-solving oriented.

Gökür: The participant with the code name Gökür, who was noted by the researcher as a shy individual, is 12 years old. Gökür likes watching television and traveling with her friends, is successful in her studies and has a personality open to development. Gökür transferred to her current school in the second semester of last year.

Tuğhan: Tuğhan, one of the most social students at the school where the research was conducted, is 14 years old. Tuğhan stated that he was involved in a wide variety of activities in his daily life and that the most important concept for him was family. Tuğhan is a sociable individual who is also able to express himself clearly.

Collection of the Data

A semi structured interview form which developed by the researcher was used to collect the data. While developing the form, five field experts, one from the fields of guidance and psychological counselling, two from social studies, one from Turkish language and one from measurement and evaluation, were consulted. The final structure of the interview form was created based on the feedbacks. The final version of the interview form included 5 questions. A pilot study was also conducted to check the comprehensibility of the interview form.

The data were collected in stages by teleconference method. In the first stage, students were interviewed and primary data were collected. Then, it was determined that the data collected was insufficient and the students were interviewed again. In the second interview, some questions were asked again and a rich data set was created. In the last stage of the data collection process, a short interview was conducted to collect additional data. Information about the data collection process is shown in Table 1:

Table 1. *The process of data collection*

Participant	1. Interview	2. Interview	3. Interview	Total	Grand Total
Muhafız	58'42"	25'13"	11'10"	95'5"	
Göknur	55'33"	27'10"	15'21"	98'30"	281'5"
Tuğhan	57'29"	19'35"	10'26"	87'30"	

As seen in Table 1, a total of three interviews were conducted with the students. Looking at the duration of the interviews, it is seen that the interviews with Muhafız continued for 95'5", with Göknur for 98'30" and with Tuğhan for 87'30". Within the scope of the information above, it is seen that the interviews with all students continued for a total of 281'5". After the end of the data collection process, the data were organized and filed for the analysis stage.

Analysis

Descriptive analysis technique was used in the research. Descriptive analysis is based on the analysis process within the scope of predetermined themes (Creswell, 2013). The reason for using the descriptive analysis technique in analyzing the data of this research is that the analysis was made according to the questions in the interview form. As a matter of fact, the questions in the interview form were assigned as themes in the analysis process.

In order to ensure the reliability of the analysis process, the questions in the interview form, the raw and the analyzed versions of the data collected from a participant were sent to 3 associate professors who are competent in qualitative research and their opinions were obtained in terms of the appropriateness of the analysis. The analysis was redone within the scope of the feedback received from the experts. During the analysis, Miles and Huberman's (1994) reliability formula was used. The reliability of the coding was found to be 91.17%. A value above 80% indicates that it is reliable (Miles & Huberman, 1994).

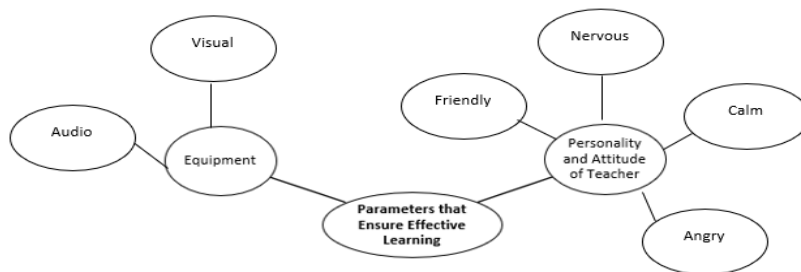
In the research, firstly, the participants were asked to narrate the social studies lessons in which they realized the most effective learning. Then, the parameters that enabled them to realize effective learning in these lessons were focused on. After determining these parameters, the results of effective learning processes were also examined.

Findings

The findings of the research are given under two main headings: "Parameters that Ensure Effective Learning" and "Outcomes of Effective Learning".

Parameters that Ensure Effective Learning

Student experiences related to various parameters that enable their to realize effective learning were reached. These parameters are shown in Figure 1:

**Figure 1.** *Parameters that ensure effective learning*

When Figure 1 is examined, it is seen that the findings of parameters that ensure effective learning are combined under two themes: the "Personality and Attitude of Teacher" theme with codes "Friendly, Nervous, Calm and Angry" and the "Equipment" theme with codes "Audio and Visual". These themes with codes are given below as headings.

Personality and Attitude of Teacher

It was determined that the social studies lessons in which students realized effective learning were related to the teacher's personality and attitude in the lesson. As a matter of fact, students stated that the lessons of teachers who were calm and cared about the students were more effective. The findings obtained from the students are supported by the direct statements of the students and interpreted below.

Tuğhan:

"Actually, we liked the teacher very much. Not only me, but the other friends also liked the teacher very much. He/she was very interested in us. He/she was always smiling. I don't remember him/her ever getting angry. When the teacher came to class, he/she was cared about all of us. One by one, he would say, "How are you?" and we would study together."

Based on Tuğhan's words, it can be concluded that the teacher's behavior towards students is also a factor in Tuğhan's learning in social studies lessons. As a matter of fact, Tuğhan emphasized the teacher's communication with students and friendliness while talking about the social studies lessons in which he learned the most.

Göknur:

"In my previous school, our teacher was a bit older. He/she was also a bit angry. We couldn't make noise in the class. We were afraid to talk. We didn't talk unless our teacher asked us a question. We didn't want to participate in the class. Because we didn't participate in the class, we couldn't learn anything. Our teacher in this school is very good. I like his/her very much. He/she is very kind to us. He/she never gets angry. He/she asks us questions. We also ask him/her questions. If there is something we don't understand, we immediately ask questions. So we are not afraid of the teacher. We learn a lot in class."

The findings from the interview with Göknur revealed that Göknur was afraid of the social studies teacher at her previous school because the teacher was older and nervous. For this reason, Göknur did not want to participate in class and could not learn the lesson. On the other hand, when Göknur's statements were examined, it was clearly understood that Göknur praised the social studies teacher at her current school for the teacher's communication with students and his/her attitude towards students, and that Göknur learnt effectively thanks to the teacher's attitude.

Muhafiz:

First of all, Muhafiz talked about his perspective on the teacher profile he prefers. Muhafiz's view in this context is as follows:

"I think the personality of the teacher is very important. If the teacher is good, students want to come to school. If the teacher is not good, students don't want to come to school. The teacher has to be a good person. Some teachers have very harsh personalities. I don't enjoy the lessons of teachers with harsh personalities. So I come to classes reluctantly. Some teachers are very mild-mannered. The lessons of such teachers are very enjoyable."

Within the scope of Muhafiz's statements, it is understood that Muhafiz has the view that effective learning occurs in the lessons of teachers with calm personalities. Continuing his words, Muhafiz said the following:

"Our social studies teacher is a bit strict. We are always worried that the teacher will get angry with us. But in the lesson we did in the laboratory, our teacher never got angry. He/she did not silence us. On the contrary, he/she said, "Children, if there is anything you don't understand, be sure to ask!" The science teacher said the same thing. When the teacher didn't get angry, I asked a lot of questions, and I understood the lesson."

The findings obtained from the interviews with Muhafiz showed that the social studies lessons in which Muhafiz learned effectively were the lessons in which the social studies teacher did not behave angrily.

Equipment

It was determined that the social studies lessons in which students realized effective learning were the lessons in which different equipments were used. As a matter of fact, students stated that they learnt more in the lessons in which audio and visual equipments were used. The findings in this context are interpreted below, supported by the direct statements of the students.

Tuğhan:

“In those lessons (the lessons in which the graduate student did experimental procedures), the teacher brought balloons to the class. Our names were written on those balloons. We all found our names. We also listened to songs in class. We listened to all kinds of songs. The teacher brought colorful books. Those books were very beautiful. We used them. Sometimes we watched movies. We learnt the lesson from the movies. It was very nice. I wish we could have lessons like that again.”

Tuğhan revealed that the use of a wide variety of equipment in social studies lessons provided effective learning. In fact, Tuğhan's emphasis on balloons, music, colorful books and movies shows that Tuğhan misses the social studies lessons in which these concepts were used.

Göknur:

“In my previous school, we only used books. In my current school, we use a smart board. Sometimes we watch videos. We also design materials. For example, we designed a model of a world map when we were doing a lesson on climate. We all made a map in a lesson on history. In another history lesson, we watched a movie. This way, I enjoy the lesson. I understand the lesson. I don't enjoy it when I only use books. Then I don't understand the lesson either.”

When Göknur's words are examined, it is understood that the use of different equipments in the lessons made her happy and that Göknur realized effective learning in this way.

Muhafız:

“We went to the laboratory for a lesson on rainfall. There were different equipments than usual. There was a round glass (glass tub). Inside that glass was something like a small saucepan. There was also a small electric oven. So there was everything. The lesson is good when different equipments were used. What is learnt in the lesson is not forgotten. You even want to do more lessons.”

Muhafız, just like Tuğhan and Göknur, thinks that a wide variety of equipment should be used for effective learning. As a matter of fact, Muhafız stated that using different equipments in social studies lessons helped him to realize effective learning.

Outcomes of Effective Learning

In the research, students' experiences related to the outcomes of effective learning were identified. These results are shown in Figure 2:

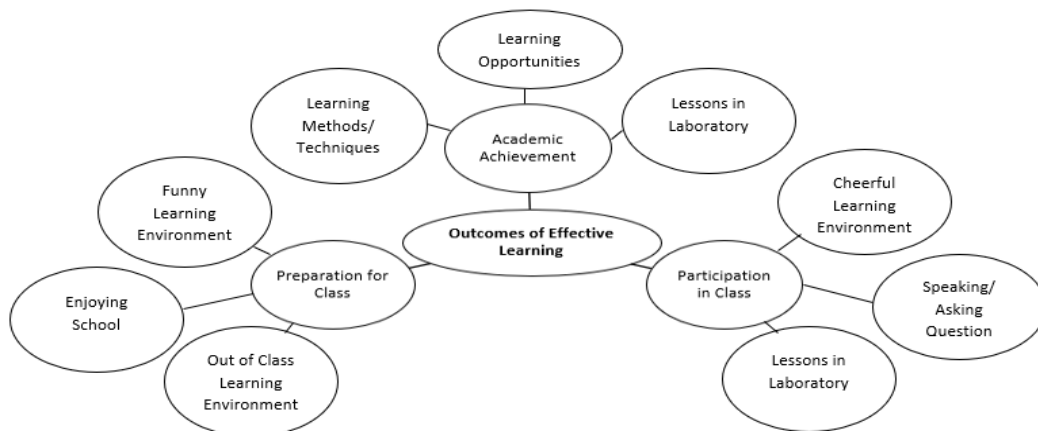


Figure 2. Outcomes of effective learning

When Figure 2 is examined, it is seen that the outcomes of effective learning findings are combined under 3 themes: the "Academic Achievement" theme with codes "Learning Methods/Techniques, Learning Opportunities and Lessons in Laboratory", the "Participation in Class" theme with codes "Cheerful Learning Environment, Speaking/Asking Question and Lessons in Laboratory" and the "Preparation for Class" theme with "Funny Learning Environment, Enjoying School and Out of Class Learning Environment". These themes with codes are given below as headings.

Academic Achievement

It was determined that social studies lessons in which students realized effective learning contributed to students' academic success. The findings in this context are interpreted below, supported by the direct statements of the students.

Tuğhan:

"I learnt a lot in those lessons (the lessons in which the graduate student did experimental procedures). Last year my highest mark was the mark of social studies lesson. Because the topics we studied in the class stayed in my mind. Even though a year has passed, I still remember them very well. Let me tell you a little bit. Now, if there is production in a country, that country develops and becomes rich. But if there is no production, the country cannot develop. The country remains poor. That is why everyone in the country must produce. Everyone must work. Everyone must be hardworking. Also, the country should use the products it produces. A country that brings and uses products from outside (from abroad) spends its money abroad. It becomes poor."

Tuğhan's statements correspond to the content of the Production, Distribution, and Consumption theme of social studies lesson. When Tuğhan's statements were examined, it was determined that Tuğhan had most of the outcomes of the mentioned theme. Continuing his words, Tuğhan expressed the contribution of effective learning processes to his academic achievement with the following words:

"I got 95 points in social studies that semester. Normally I am not very good at school. But that semester the lesson was very good. I was studying because I was interested in the lesson. Actually, it would be more accurate to say that I was learning the lesson. When I learned the lesson, I got a high score. That was the lesson I got the highest mark in middle school."

Based on Tuğhan's experiences, it was determined that the social studies lessons in which the graduate student conducted experimental procedures and used various methods and techniques contributed to Tuğhan's academic achievement.

Göknur:

"I have been very successful in my new school. I have been very successful not only in social studies but in all lessons. I got full points in social studies last semester. I am also very successful in my current other lessons. My teachers also say that I am successful. I am successful in history, geography and all other subjects of social studies."

Göknur's perspective is that the opportunities at her new school paved the way for her to achieve high academic success. Continuing, Göknur added the following:

"Because I like this school. I like my social studies teacher. I like the style my teacher uses. I like everything about my school. When there is love, my lessons are good. I get high marks on tests, I get high marks on oral and written exams."

Göknur's sentences show that she associates her academic success in the social studies lesson with all the variables in her current school.

Muhafız:

"Because the lesson I mentioned was enjoyable, my achievement in that lesson was high. Because I fully understood the lesson. I think it makes a lot of sense to study in the laboratory. Also, our teacher's understanding attitude made the lesson meaningful. For example, our teacher asked a lot of questions in that lesson. I answered all of them correctly."

Based on Muhafız's words, it is understood that Muhafız increased his academic achievement due to the social studies lesson was taught with the science lesson in the laboratory.

Participation in Class

It was determined that social studies lessons in which students realized effective learning contributed to students' participation in class. The findings in this context are interpreted below, supported by the direct statements of the students.

Tuğhan:

"When the lessons are cheerful, it is nice to participate. So the person wants to participate in the class. I was participating in class during those lessons (lessons in which a graduate student did experimental procedures)."

Göknur:

"I have already been participating in class since I came to this school. I speak at almost every lesson, I ask questions, and I tell what I know in the class."

Muhafız:

"In fact, in the lesson we studied in the laboratory, not only me, but all the students were participating. Because the lesson was going well. We were not bored."

Considering the words of all the students in the research, it is understood that the students think that the social studies lessons in which they realize effective learning positively affect their participation in the class.

Preparation for Class

It was determined that social studies lessons in which students realized effective learning led students to prepare for the lesson. The findings in this context are interpreted below, supported by the direct statements of the students.

Tuğhan:

"I was always waiting for those lessons. Because I had a lot of fun in those lessons (the lessons in which the graduate student did experimental procedures). I was also preparing for the lesson. I was studying the subjects given by the teacher. I was going to the class prepared."

Göknur:

"I prepare for all lessons at this school. I also prepare for the social studies lesson. I do the homework the teacher gives me, I read the subjects, I read the book before the lesson starts, I go to class prepared, because I like my school."

Muhafız:

"I prepared for the lesson in the laboratory. I don't prepare much for the other lessons. If the lessons were taught in the laboratory or outside the classroom, I would still go to the lessons prepared."

All three students stated that the social studies lessons in which they realized effective learning motivated them to prepare for the lesson.

Discussion, Conclusion and Recommendations

These findings were organized and the results of the research were presented and discussed in the light of similar researches in the literature.

In the research it was concluded that students' effective learning experiences were related to the teacher's personality and attitude in the lessons. Similarly, Toropova, Myrberg and Johansson (2019) found that effective learning is related to the personality of teacher. Skaalvik and Skaalvik (2014) found that teachers' personality and emotional states affect students' learning processes. Similarly, Simbula, Guglielmi, and Schaufeli (2010) also found that teachers' personality has an impact on teachers' teaching skills.

In the research, it was determined that the social studies lessons in which students realized effective learning were the lessons in which different equipments were used. Cai et al. (2021), who examined the effect of augmented reality in physics teaching, similarly determined that the use of different equipments

in lessons is contributed to students' effective learning. Sattar et al. (2019), who conducted a similar research, concluded that the use of a wide variety of equipment contributed to students' effective learning. Händel et al. (2020), who investigated the impact of digital reading on learning processes during the Covid-19 pandemic, also found that the use of different equipments helped students to learn effectively.

It was determined that social studies lessons in which students realized effective learning contributed to students' academic achievement. Similarly, Hwang, Wang and Lai (2021), who examined the effect of online learning environments on students' academic achievement, concluded that learning environments where different methods and techniques are used have a positive effect on students' academic achievement. Harahap, Nasution and Manurung (2019), who examined the effect of blended learning approach on students' academic achievement, found that non-traditional teaching approaches increased students' academic achievement. Iglesias-Pradas et al. (2021), who concluded that the remote teaching approach contributed to students' academic achievement during the Covid-19 pandemic, reached similar results.

In the research it was determined that social studies lessons in which students realized effective learning contributed to students' participation in class. Al-Amin et al. (2021) examined how online learning environments affect students' participation in class. At the end of the research, they found that the students who participated in the research thought that different learning environments motivated them to participate in class. Ruthotto et al. (2020), who examined the effect of virtual learning environments on students' participation in class, also reached similar results. Ahmad (2021), who investigated the reasons for students' participation in classroom discussions, found that the use of different teaching methods and techniques was among the reasons for students' participation.

It was determined that social studies lessons in which students realized effective learning led students to prepare for the lesson. Goedhart et al. (2019) found that the flipped classroom environment led students to prepare for lessons. Similarly, Su-Ping et al. (2020) found that non-traditional teaching methods and techniques motivated students to prepare for lessons. Shatri (2020) determined that using information technology in learning process contributed to students to prepare for lessons.

Social studies is a lesson that purposes to provide primary and middle school students with knowledge, skills and values related to daily life. In order to realize this purpose, effective learning processes need to be designed in social studies teaching. In this research, which purposed to examine the effective learning experiences of secondary school students in social studies lesson, it was determined that effective social studies teaching depends on the teacher's personality and attitude and the use of different equipments. At the same time, it was also determined that effective learning experiences in the social studies lesson contributed to students' academic achievement, participation in class and preparation for class. Based on the results of the research, it can be said that the use of different teaching methods and techniques in social studies lesson is necessary for designing effective learning processes. On the other hand, it can also be said that the personality of social studies teachers and the use of different equipment in the social studies lesson are important factors for designing effective learning processes.

Depending on the results, various recommendations were designed. The recommendations are presented below.

Recommendations for Researchers

- Researchers can conduct researches using different qualitative research designs to examine effective learning processes in social studies lesson.
- Researchers can conduct quantitative researches examining effective learning processes in social studies lesson.
- Researchers can conduct mixed-methods based researches examining effective learning processes in social studies lesson.
- Researchers can conduct researches examining effective learning processes in social studies lesson at primary school level.

- Researchers can conduct researches with large participant groups examining effective learning processes in social studies lesson.

Recommendations for Education Planners

- Teachers can develop effective ways of communication with students in order to implement effective learning processes in social studies lesson.
- Teachers can use various equipments to design effective learning processes in social studies lesson.
- Teachers can develop effective ways of communication with students and use various teaching methods and techniques and various equipments in order to increase students' academic achievement in social studies lesson.
- Teachers can develop effective ways of communicating with students and use various teaching methods and techniques and various equipments in order to increase students' participation in class in social studies lesson.
- Teachers can develop effective ways of communicating with students and use various teaching methods and techniques and various equipments in order to increase students' preparation for class in social studies lesson.
- MoNE could provide in-service training for social studies teachers on designing effective teaching processes.
- A lesson on designing effective learning processes can be added to the social studies teaching program by the Higher Education Council.

References

- Ahmad, C. V. (2021). Causes of students' reluctance to participate in classroom discussions. *ASEAN Journal of Science and Engineering Education*, 1(1), 47-62. <http://dx.doi.org/10.xxxxx/AJSEE.v1i1>
- Al-Amin, M., Al Zubayer, A., Deb, B., & Hasan, M. (2021). Status of tertiary level online class in Bangladesh: Students' response on preparedness, participation and classroom activities. *Heliyon*, 7(1), e05943. <https://doi.org/10.1016/j.heliyon.2021.e05943>
- Almali, H., & Yeşiltaş, E. (2020). The effect of web 2.0 technologies used teaching geography topics in social studies education on students academic achievement and attitudes. *Turkish Scientific Researches Journal*, 5(2), 165-182. <https://dergipark.org.tr/en/pub/tubad/issue/59101/828476>
- Azi, F. B. (2020). *The effect of augmented reality applications on academic success and course attitudes in social studies* (Master's dissertation). Necmettin Erbakan University, Institute of Educational Sciences, Konya, Türkiye.
- Başaran, İ. E. (1978). *Introduction to education*. Bimaş Printing.
- Bayram, H. (2022). The impact of allosteric learning on students' academic achievement and research skills in the 5th grade social studies course. *Elementary School Forum (Mimbar Sekolah Dasar)*, 9(1), 58-80. <https://doi.org/10.53400/mimbar-sd.v9i1.43805>
- Cai, S., Liu, C., Wang, T., Liu, E., & Liang, J. C. (2021). Effects of learning physics using Augmented Reality on students' self-efficacy and conceptions of learning. *British Journal of Educational Technology*, 52(1), 235-251. <https://doi.org/10.1111/bjet.13020>
- Denzin, N. K., & Lincoln, Y. S. (2018). The discipline and practise of qualitative research. In Norman K. D., & Yvonna, S. L. (Eds.), *The Sage handbook of qualitative research* (pp.1-32). Sage.
- Deveci, H., & Bayram, H. (2022). Definition, scope and importance of social studies. In Ö. Gürdoğan Bayır, & T. Selanik Ay (Eds.) *Social studies teaching with examples of primary and secondary school applications* (pp.11-34). Vizetek Publishing.
- Dewey, J. (2015). *Okul ve Toplum [School and Society]*. (Translators: H. A. Başman, & S. Kaymakçı). Pegem Academy Publication.
- Goedhart, N. S., Blijnaut-van Westrhenen, N., Moser, C., & Zweekhorst, M. B. (2019). The flipped classroom: supporting a diverse group of students in their learning. *Learning Environments Research*, 22, 297-310. <https://doi.org/10.1007/s10984-019-09281-2>

- Händel, M., Stephan, M., Gläser-Zikuda, M., Kopp, B., Bedenlier, S., & Ziegler, A. (2020). Digital readiness and its effects on higher education students' socio-emotional perceptions in the context of the COVID-19 pandemic. *Journal of Research on Technology in Education*, 54(2), 267-280. <https://doi.org/10.1080/15391523.2020.1846147>
- Harahap, F., Nasution, N. E. A., & Manurung, B. (2019). The effect of blended learning on student's learning achievement and science process skills in plant tissue culture course. *International Journal of Instruction*, 12(1), 521-538. <https://files.eric.ed.gov/fulltext/EJ1201370.pdf>
- Heafner, T. (2004). Using technology to motivate students to learn social studies. *Contemporary Issues in Technology and Teacher Education*, 4(1), 42-53. <https://www.learntechlib.org/primary/p/21905/>
- Hwang, G. J., Wang, S. Y., & Lai, C. L. (2021). Effects of a social regulation-based online learning framework on students' learning achievements and behaviors in mathematics. *Computers & Education*, 160, 104031. <https://doi.org/10.1016/j.compedu.2020.104031>
- Iglesias-Pradas, S., Hernández-García, Á., Chaparro-Peláez, J., & Prieto, J. L. (2021). Emergency remote teaching and students' academic performance in higher education during the COVID-19 pandemic: A case study. *Computers in Human Behavior*, 119, 106713. <https://doi.org/10.1016/j.chb.2021.106713>
- İbak, C. (2023). *The effect of using the drama method in the 6th grade social studies class on student success* (Master's dissertation). Bahçeşehir University, Institute of Postgraduate Education, İstanbul, Türkiye.
- Picard, R. W., Papert, S., Bender, W., Blumberg, B., Breazeal, C., Cavallo, D., Machover, T., Resnick, M., Roy, D., & Strohecker, C. (2004). Affective learning: A manifesto. *BT Technology Journal*, 22(4), 253-269. <https://doi.org/10.1023/B:BTJ.0000047603.37042.33>
- Ruthotto, I., Kreth, Q., Stevens, J., Trively, C., & Melkers, J. (2020). Lurking and participation in the virtual classroom: The effects of gender, race, and age among graduate students in computer science. *Computers & Education*, 151, 103854. <https://doi.org/10.1016/j.compedu.2020.103854>
- Sattar, M. U., Palaniappan, S., Lokman, A., Hassan, A., Shah, N., & Riaz, Z. (2019). Effects of virtual reality training on medical students' learning motivation and competency. *Pakistan Journal of Medical Sciences*, 35(3), 852-857. <https://doi.org/10.12669/pjms.35.3.44>
- Shatri, Z. G. (2020). Advantages and disadvantages of using information technology in learning process of students. *Journal of Turkish Science Education*, 17(3), 420-428. <https://www.tused.org/index.php/tused/article/view/1099/633>
- Simbula, S., Guglielmi, D., & Schaufeli, W. B. (2011). A three-wave study of job resources, self-efficacy, and work engagement among Italian schoolteachers. *European Journal of Work and Organizational Psychology*, 20(3), 285-304. <https://doi.org/10.1080/13594320903513916>
- Skaalvik, E. M., & Skaalvik, S. (2014). Teacher self-efficacy and perceived autonomy: Relations with teacher engagement, job satisfaction, and emotional exhaustion. *Psychological Reports*, 114(1), 68-77. <https://doi.org/10.2466/14.02.PR0.114k14w0>
- Su Ping, R. L., Verezub, E., Adi Badiozaman, I. F. B., & Chen, W. S. (2020). Tracing EFL students' flipped classroom journey in a writing class: Lessons from Malaysia. *Innovations in Education and Teaching International*, 57(3), 305-316. <https://doi.org/10.1080/14703297.2019.1574597>
- Şimşek, S. (2015). Basic concepts related to education. In N. Saylan (Eds.) *Introduction to educational science* (pp.1-17). Anı Publication.
- Toropova, A., Myrberg, E., & Johansson, S. (2021). Teacher job satisfaction: the importance of school working conditions and teacher characteristics. *Educational Review*, 73(1), 71-97. <https://doi.org/10.1080/00131911.2019.1705247>
- Ünalmsı, A. (2023). *The effect of evidence-based education on scientific thinking and decision making skills in social sciences education* (Doctoral dissertation). Nevşehir Hacı Bektaş Veli University, Institute of Social Sciences, Nevşehir, Türkiye.
- Üstün, S. (2019). *The effect of using multiple representations on academic success and attitude of students in social studies* (Master's dissertation). Kastamonu University, Institute of Social Sciences, Kastamonu, Türkiye.
- Webster, L., & Mertova, P. (2007). *Using narrative inquiry as a research method: An introduction to using critical event narrative analysis in research on learning and teaching*. Routledge.

Determining the Digital Literacy Levels and Opinions of Classroom Teachers attending eTwinning Activities*

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Abstract

The study aims to determine the digital literacy levels and opinions of classroom teachers who participated in eTwinning activities in Mersin province in the 2022-2023 academic year according to various variables. A mixed method was used in the study. The "Digital Literacy Scale" developed by Bayrakçı (2020) was used to collect quantitative data. The digital literacy scale consists of 6 sub-dimensions and 29 items: ethics and responsibility, general knowledge and functional skills, daily use, professional production, privacy and security, and social dimension. The research study group of the research consisted of 362 volunteer classroom teachers who participated in eTwinning activities working in Mersin province. The study's qualitative data of the study were collected through semi-structured interviews with 7 classroom teachers using the interview form prepared by the researchers and the data were analyzed by content analysis. Within the scope of the research, the digital literacy levels of classroom teachers who participated in eTwinning activities were found to be high. In the interviews, the teachers stated that the eTwinning activity improved their digital literacy skills. As a result of the research, teachers who participated in professional development courses were found to have higher DLS scores than teachers who did not participate in professional development courses. It was concluded that the DLS scores increased as the duration of being a member of eTwinning and the duration of using technological devices increased. According to the findings of the qualitative analysis, teachers stated that eTwinning activities contributed to recognizing and using Web 2.0 tools, knowing e-safety rules, developing online communication skills and improving digital literacy skills.

Keywords: eTwinning, digital literacy, classroom teacher.

* This research is derived from the master's thesis of the first author and a part of the study was presented as an oral presentation at the International Necatibey Education and Social Sciences Research Congress between 26-28 October 2023.

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eTwinning Faaliyetlerine Katılan Sınıf Öğretmenlerinin Dijital Okuryazarlık Düzeylerinin ve Görüşlerinin Belirlenmesi*

Makale Türü	Başvuru Tarihi	Kabul Tarihi
Araştırma	11.12.2023	28.07.2024

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Öz

Bu çalışmanın amacı, 2022-2023 eğitim öğretim yılında Mersin ilinde görev yapan, eTwinning faaliyetlerine katılan sınıf öğretmenlerinin çeşitli değişkenlere göre dijital okuryazarlık düzeylerini ve görüşlerini belirlemektir. Araştırmada karma yöntem kullanılmıştır. Nicel verilerin toplanmasında Bayrakçı (2020) tarafından geliştirilen “Dijital Okuryazarlık Ölçeği” kullanılmıştır. Dijital okuryazarlık ölçeği; etik ve sorumluluk, genel bilgi ve işlevsel beceriler, günlük kullanım, profesyonel üretim, gizlilik ve güvenlik, sosyal boyut olmak üzere 6 alt boyut ve 29 maddeden oluşmaktadır. Araştırmanın çalışma grubunu Mersin ilinde görev yapan eTwinning faaliyetlerine katılmış gönüllü 362 sınıf öğretmeni oluşturmuştur. Araştırmanın nitel verileri araştırmacılar tarafından hazırlanan görüşme formu kullanılarak 7 sınıf öğretmeniyle yarı yapılandırılmış görüşme ile toplanmıştır ve veriler içerik analiziyle incelenmiştir. Araştırma kapsamında eTwinning faaliyetine katılan sınıf öğretmenlerinin dijital okuryazarlık düzeyleri yüksek bulunmuştur. Yapılan görüşmelerde öğretmenler eTwinning faaliyetinin dijital okuryazarlık becerilerini geliştirdiğini belirtmişlerdir. Araştırma sonucunda, mesleki gelişim kurslarına katılan öğretmenlerin katılmayan öğretmenlere göre DOÖ puanları daha yüksek bulunmuştur. Öğretmenlerin eTwinning’e üye olma süresi ve teknolojik cihazları kullanma süresi arttıkça DOÖ puanlarının arttığı sonucuna ulaşılmıştır. Nitel analiz bulgularına göre de öğretmenler, eTwinning faaliyetlerinin Web 2.0 araçlarını tanıma ve kullanma, e-güvenlik kurallarını bilme, çevrimiçi iletişim becerilerini geliştirme gibi katkıları olduğunu ve dijital okuryazarlık becerilerini geliştirdiğini belirtmişlerdir.

Anahtar Sözcükler: eTwinning, dijital okuryazarlık, sınıf öğretmeni.

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Introduction

The 21st century's rapid technological advancements have profoundly transformed education, politics, the economy, and social life, increasing communication and interaction. The European Commission's DigComp 2.2 (Digital Competence Framework for Citizens) report highlights the importance of digital skills in society and the workplace, emphasizing the need for digital literacy and citizenship among teachers and students. It underscores skills such as managing, evaluating, and utilizing information and data, alongside communication and collaboration through digital technologies (Vuorikari et al., 2022). Paul Glister (1997) defines digital literacy as "*the set of skills required to effectively use information presented in digital environments*". The European Union Council (2018) describes digital literacy as the ability to use digital technologies securely, critically, and ethically in learning, work, and societal interactions. This includes data management, effective communication, media literacy, creative content production, digital security and ethics, and high-level thinking skills like problem-solving and critical thinking (Duran & Özen, 2018).

Global initiatives aim to enhance digital skills in education by aligning with technological advancements. For instance, Spain's National Institute of Educational Technologies and Teacher Training (INTEF, 2017) and Turkey's General Directorate of Teacher Training and Development (2017) focus on integrating digital literacy and 21st-century skills. These efforts highlight the significance of global digital transformation and skill development. Supported by projects and standards like P21 (P21 Leadership States, 2017) and ISTE (International Society for Technology in Education, 2016) in the United States, these initiatives involve 33 institutions to help teachers use ICT effectively and teach critical thinking, problem-solving, and collaboration (UNESCO, 2018).

The Role of eTwinning in Teacher Education

eTwinning is an institutionalized collaborative learning environment where the educational community works on a common project through remote cooperation (Papadakis, 2016). Integrated into Erasmus+ since 2014, it has been Europe's largest e-learning platform since 2005, supporting collaboration and fostering digital literacy skills among teachers and students (eTwinning, 2022; Yamaç, 2018). It enhances global education by increasing cultural awareness and providing technological communication tools without needing face-to-face meetings (Camilleri, 2016). eTwinning aids teacher candidates with project-based teaching, interdisciplinary work, and soft skills development. It also promotes flexibility, innovation, peer collaboration, multiculturalism, and European and UNESCO values, offering students exposure to different cultures (İzgi Onbaşılı et al., 2022).

eTwinning enhances original expression, communication, entrepreneurial, mathematical, and social competencies (Döğler, 2022). It promotes cross-border collaboration, best practice sharing, and pedagogical skill enhancement, aiding digital transformation in education (Bal, 2019; Gheorghe, 2008; Huertas-Abril & Palacios-Hidalgo, 2023; Ürekli et al., 2024). eTwinning projects improve teachers' professional and personal development, teaching, cultural interaction, self-confidence, and language skills (Acar & Peker, 2024). Teachers use the platform for projects, online courses, professional growth, and collaboration, significantly benefiting both personally and professionally (Acar & Peker, 2021). The aim is high-quality education in Europe through collaboration and ICT integration (Crişan, 2013; Kaplan & Alkan, 2023; Paz-Albo & López, 2017; Prieto & Cirugeda, 2017).

Starting in Europe in 2005 and in Turkey in 2009, eTwinning activities have positioned Turkey as a leader in terms of schools, teachers, and projects (URL-1). The achievements of Turkish teachers in the European Awards in 2021 and the 2023-2024 academic year highlight Turkey's commitment to digital transformation (URL-2). This platform enhances Turkish teachers' digital literacy skills and promotes collaboration with European colleagues (Demir & Kayaoğlu, 2022; eTwinning Activity Introduction Brochure, 2019). Research shows eTwinning projects enhance teachers' digital literacy and ICT integration in education (Avcı, 2021; Gheorghe, 2008; Kamylyis et al., 2013; Velea, 2011).

This study aims to contribute to the development of teacher training programs in Turkey by conducting an in-depth analysis of primary school teachers' digital literacy levels and their perspectives on these projects in Mersin province. In this context, the research problem has been identified as "What are the digital literacy levels of classroom teachers participating in eTwinning activities and what are their perspectives?" The following sub-problems have been addressed:

- 1) How are the digital literacy levels of classroom teachers participating in eTwinning activities?
- 2) Do the digital literacy levels of classroom teachers participating in eTwinning activities vary based on:
 - Their duration of membership on the eTwinning portal,
 - The duration of their usage of technological tools for eTwinning activities,
 - Their attainment of quality labels for eTwinning projects,
 - Their involvement as founders or partners in eTwinning projects,
 - Their participation in eTwinning professional development courses?
- 3) What are the views of classroom teachers participating in eTwinning activities regarding the contribution of eTwinning activities to digital literacy skills?

Method

Research Design

The study used a mixed methods approach, combining qualitative and quantitative research. This method involves collecting, analyzing, integrating, and interpreting both types of data within the same study (Tashakkori & Creswell, 2007). To determine the digital literacy levels of classroom teachers in eTwinning activities, a convergent parallel design was employed. This design diversifies, compares, and integrates data relevant to the research questions using both methods (Morse, 1991). As Teddlie and Tashakkori (2015) note, convergent parallel design combines the strengths of quantitative and qualitative methods for a holistic approach. In this design, neither method takes precedence (Yıldırım & Şimşek, 2018). Scores from the digital literacy scale were compared and integrated with interview responses, and the findings were evaluated. The convergent parallel design and research process are shown in Figure 1.

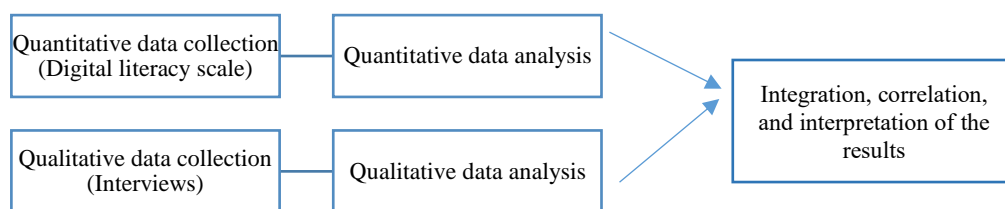


Figure 1: Research process according to the convergent parallel design

As shown in Figure 1, this study examined the digital literacy levels and views of teachers participating in eTwinning activities in Mersin province using a parallel convergent design with both quantitative and qualitative methods. Quantitative data from the "Digital Literacy Scale" and qualitative data from semi-structured interviews were analyzed simultaneously. Equal weight was given to both data types, aligning with the parallel convergent design.

Research Sample

The population of the quantitative dimension of the study consists of classroom teachers working in public and private schools in Mersin province during the 2022-2023 academic year. The sample of the study comprises 362 classroom teachers who participated in eTwinning activities. The demographic distribution of the participants involved in the study is presented in Table 1.

Table 1. Information about the teachers participating in the quantitative dimension of the study

		Number	%
Duration of Membership on the eTwinning Portal	0-1 year	70	19.3
	2-4 years	151	41.7
	5-10 years	138	38.1
	10+ years	3	0.8
Duration of Using Technological Tools for eTwinning Activities	0-1	213	58.8
	2-4	141	39
	5-7	7	1.9
	8 hours and more	-	-
Participation in eTwinning Projects	Founder	18	5
	Partner	216	59.7
	Both	124	34.3
	None	4	1.1
Attainment of Quality Labels for eTwinning Projects	National Quality Label	137	37.8
	European Quality Label	8	2.2
	Both	163	45
	None	54	14.9
Professional Development Courses Related to Digital Literacy	Participated	294	81.2
	Did not participate	68	18.8

Table 1 shows that 41.7% of classroom teachers have been eTwinning members for 2-4 years, and 38.1% for 5-10 years. Most teachers (58.8%) use technological tools for 0-1 hour daily. Regarding eTwinning projects, 59.7% have been partners, and 37.8% have earned a national quality label. Additionally, 81.2% have participated in digital literacy courses. These statistics highlight trends in membership duration, project roles, quality labels, and course participation.

The qualitative study involved 7 volunteer teachers, including a provincial coordinator, district representative, and vice principal, selected through purposive sampling based on eTwinning participation and quality label achievements (Büyüköztürk et al., 2020). Participants were coded as P1, P2, P3, etc., for confidentiality.

Research Instruments and Procedures

Digital Literacy Scale

For quantitative data collection, the "Digital Literacy Scale" by Bayrakçı (2020) was used. It has 6 sub-dimensions and 29 items, with scores ranging from 29 to 145 on a five-point Likert scale. The Cronbach's Alpha value for the study group is in Table 2.

Table 2. The reliability values for the scale and its sub-dimensions

	Reliability Coefficient	
	Cronbach's Alpha	Total Number of Items
DLS	0.934	29
Ethical and Responsibility	0.915	7
General Knowledge and Functional Skills	0.738	6
Everyday Use	0.868	6
Professional Production	0.739	2
Privacy and Security	0.852	4
Social Dimension	0.651	4

When examining Table 2, it can be observed that the reliability values of the scale are high. The reliability values of dimensions, except for the social dimension, are above 0.70. The social dimension falls below this value. It is thought that the low number of items may lead to lower reliability.

Semi-Structured Interview Form

Qualitative data were collected through interviews, an effective method for capturing opinions, experiences, and emotions (Yıldırım & Şimşek, 2018). Researchers used a semi-structured interview form, refined through input from three experts and pilot testing. Questions included motivations for participating in eTwinning and measures taken for cybersecurity and copyright. Six face-to-face interviews were conducted. To ensure validity and reliability, all researchers helped prepare questions and analyze data. External validity was maintained by clearly defining data sources, and internal reliability was achieved by quoting data directly. The inter-rater agreement was 91%, calculated using the Miles and Huberman formula [(Agreement / (Agreement + Disagreement)) x 100], indicating reliable coding (Miles & Huberman, 1994).

Data Analysis

Prior to analyzing the data obtained from the "Digital Literacy Scale" within the scope of the study, the normality of the data was assessed using the Kolmogorov-Smirnov test and skewness-kurtosis values, and the results are presented in Table 3.

Table 3. *The results of the normality test for the DLS and its sub-dimensions.*

	DLS	Ethical and Responsibility	General Knowledge and Functional Skills	Everyday Use	Professional Production	Privacy and Security	Social Dimension
Kolmogorov-Smirnov	.092	.186	.118	.174	.253	.234	.131
P	.000	.000	.000	.000	.000	.000	.000
Skewness	-0.047	-0.152	0.431	-0.308	0.751	0.055	0.265
Kurtosis	0.068	-1.210	-0.030	0.264	-0.490	-0.153	-0.021

According to Table 3, the skewness value is -0.047 and the kurtosis value is 0.068, both within the range of +1 to -1, indicating a normal distribution (Demir et al., 2016). With a sample size over 35, the Kolmogorov-Smirnov test was applied, and p-values of 0.00 for digital literacy and its sub-dimensions support normality at a 95% confidence level (Bayrakçı, 2020). Various statistical analyses were conducted using SPSS 22.0, including independent samples t-test, descriptive statistics, and one-way ANOVA, as the data were normally distributed.

In the qualitative phase, data from semi-structured interviews were analyzed using Miles and Huberman's (1994) model, which involves data reduction, display, and verification. After transcribing the interviews, the data were coded and visualized using "Word SmartArt". Consistency among researchers ensured coding accuracy, and inter-rater and researcher-participant verification processes validated the data.

Ethical Procedures

In this research, the principles of scientific research and publication ethics were followed. This research was organized in accordance with the permission of Mersin University Social and Humanities Ethics Committee dated 29.08.2022 and numbered 328.

Results

Quantitative Research Findings

The findings regarding the first sub-problem, "What are the digital literacy levels of classroom teachers participating in eTwinning activities?" are presented in Table 4.

Table 4. *Statistics and Levels Associated with the Digital Literacy Scale and Its Sub-Dimensions*

	DLS	Ethical and Responsibility	General Knowledge and Functional Skills	Everyday Use	Professional Production	Privacy and Security	Social Dimension
\bar{X}	112.28	30.84	21.22	25.84	5.54	16.51	15.29
\bar{X}/k	3.87	4.40	3.53	4.30	2.77	4.12	3.82
Level	High	Very High	High	Very High	Middle	High	High

Participants showed a "very high" level of digital literacy in the "ethics and responsibility" and "daily use" sub-dimensions, a "high" level in "general knowledge and functional skills," "privacy and security," and "social dimension" sub-dimensions, and a "moderate" level in "professional production." Overall, participants had a high level of digital literacy according to the Digital Literacy Scale.

The data on whether digital literacy levels differ based on the duration of eTwinning membership was analyzed using one-way ANOVA, with results presented in Table 5.

Table 5. *Comparison of teachers' DLS and sub-dimension levels by eTwinning membership duration*

		KT	Sd	KO	F	P	Significant Difference
DLS	Between groups	5807.67	2	2903.83	14.611	0.00	(0-1 ile 2-4), (0-1 ile 5-10), (5-10 ile 2-4)
	Within groups	71350.45	359	198.74			
	Total	77158.12	361				
Ethical and Responsibility	Between groups	385.07	2	192.53	16.918	0.00	(0-1 ile 2-4), (0-1 ile 5-10),
	Within groups	4085.56	359	11.38			
	Total	4470.64	361				
General Knowledge and Functional Skills	Between groups	242.76	2	121.38	10.772	0.00	(0-1 ile 2-4), (0-1 ile 5-10),
	Within groups	4045.55	359	11.26			
	Total	4288.32	361				
Everyday Use	Between groups	173.46	2	86.73	10.854	0.00	(0-1 ile 2-4), (0-1 ile 5-10),
	Within groups	2868.56	359	7.99			
	Total	3042.02	361				
Professional Production	Between groups	0.09	2	0.05	0.017	0.983	
	Within groups	1017.60	359	2.83			
	Total	1017.70	361				
Privacy and Security	Between groups	69.84	2	34.92	7.577	0.001	(0-1 ile 2-4), (0-1 ile 5-10),
	Within groups	1654.55	359	4.60			
	Total	1724.40	361				
Social Dimension	Between groups	105.54	2	52.77	11.539	0.00	(0-1 ile 2-4), (0-1 ile 5-10), (5-10 ile 2-4)
	Within groups	1641.83	359	4.57			
	Total	1747.37	361				

According to Table 5, there is no significant difference in the Professional Production levels of teachers ($F(2-359)=0.017$, $P>0.05$) based on their duration of eTwinning membership. However, significant differences were found in the Digital Literacy levels ($F(2-359)=14.611$, $P<0.05$), as well as in the sub-dimensions of Ethics and Responsibility ($F(3-358)=16.918$, $P<0.05$), General Knowledge and Functional Skills ($F(3-358)=10.772$, $P<0.05$), Daily Usage ($F(3-358)=10.854$, $P<0.05$), Privacy and Security ($F(3-358)=7.577$, $P<0.05$), and Social Dimension ($F(3-358)=11.539$, $P<0.05$) among teachers based on their duration of eTwinning membership. According to the results of the Tukey test conducted to determine which groups have differences between them, the digital literacy level of teachers who

have been members of eTwinning for 0-1 year ($\bar{X}=105.07$) is lower than that of teachers who have been members for 2-4 ($\bar{X}=111.98$) and 5-10 years ($\bar{X}=116.19$). Furthermore, the level of teachers who have been members for 2-4 years ($\bar{X}=111.98$) is lower than that of teachers who have been members for 5-10 years ($\bar{X}=116.19$). It can be concluded that as teachers' duration of eTwinning membership increases, their digital literacy levels also increase.

The data regarding the question of whether there is a difference in the digital literacy levels of classroom teachers participating in eTwinning activities based on their duration of using technological tools was analyzed using independent samples t-test, and the results are presented in Table 6.

Table 6. Comparison of teachers' digital literacy and sub-dimension levels by duration of using technological tools

	eTwinning period	N	\bar{X}	S	T	Sd	P
DLS	0-1 hour	213	109.94	13.21	-3.71	360	0.000
	2 hours and above	149	115.63	15.86	-3.59	280. 43	0.000
Ethical and Responsibility	0-1 hour	213	30.12	3.49	-4.80	360	0.000
	2 hours and above	149	31.87	3.29	-4.85	329. 85	0.000
General Knowledge and Functional Skills	0-1 hour	213	20.62	3.14	-3.98	360	0.000
	2 hours and above	149	22.06	3.68	-3.87	285. 15	0.000
Everyday Usega	0-1 hour	213	25.44	2.61	-3.18	360	0.002
	2 hours and above	149	26.41	3.18	-3.07	277. 57	0.002
Professional Production	0-1 hour	213	5.29	1.57	-3.52	360	0.000
	2 hours and above	149	5.91	1.76	-3.45	294. 80	0.001
Privacy and Security	0-1 hour	213	16.21	1.98	-3.16	360	0.002
	2 hours and above	149	16.94	2.39	-3.06	279. 38	0.002
Social Dimension	0-1 hour	213	15.05	2.08	-2.49	360	0.013
	2 hours and above	149	15.63	2.32	-2.44	295. 91	0.015

According to Table 6, the significant difference in the mean scores of teachers' Digital Literacy Scale (DLS) and its sub-dimensions based on "technological tool usage duration" was determined using an independent samples t-test. Teachers' digital literacy levels show a significant difference based on the duration of technological tool usage. Teachers who use technological tools for 2 hours or more (Mean = 115.63) have higher digital literacy levels compared to those who use them for 0-1 hour (Mean = 109.94).

The data regarding whether there is a variance in the digital literacy levels of classroom teachers participating in eTwinning activities based on their acquisition of quality labels from eTwinning projects, within the scope of the second sub-problem, was computed using one-way analysis of variance, and is presented in Table 7.

According to Table 7, there is no significant difference in teachers' levels of Professional Production ($F(2-359)=0.597$, $P>0.05$) based on their status of receiving quality labels. However, significant differences were observed in the levels of digital literacy ($F(2-359)=25.288$, $P<0.05$), Ethics and Responsibility ($F(3-358)=32.864$, $P<0.05$), General Knowledge and Functional Skills ($F(3-358)=14.003$, $P<0.05$), Everyday Usage ($F(3-358)=18.198$, $P<0.05$), Privacy and Security ($F(3-358)=10.538$, $P<0.05$), and Social Dimension ($F(3-358)=22.391$, $P<0.05$) sub-dimensions based on their status of receiving quality labels. According to the results of the Tukey test conducted to determine the differences between groups, the digital literacy level of teachers who received a national quality label ($\bar{X}=109.64$) was higher than those who did not receive any quality label ($\bar{X}=103.29$), but lower than those who received both national and European quality labels ($\bar{X}=117.24$). Additionally, the level of teachers who received both national and European quality labels ($\bar{X}=117.24$) was higher than those who did not receive any quality label ($\bar{X}=103.29$).

Table 7. Comparison of mean levels of teachers' digital literacy scale (DLS) and its sub-dimensions based on quality label receipt

		KT	Sd	KO	F	Sig.	Significant Difference
DLS	Between groups	9527.70	2	4763.85	25.28	0.000	(A-B), (A-C), (B-C)
	Within groups	67630.41	359	188.38			
	Total	77158.12	361				
Ethical and Responsibility	Between groups	691.84	2	345.92	32.86	0.000	(A-B), (A-C), (B-C)
	Within groups	3778.79	359	10.52			
	Total	4470.64	361				
General Knowledge and Functional Skills	Between groups	310,32	2	155.16	14.00	0.000	(A-B), (B-C)
	Within groups	3977.99	359	11.08			
	Total	4288.32	361				
Everyday Usega	Between groups	280.01	2	140.00	18.19	0.000	(A-B), (B-C)
	Within groups	2762.01	359	7.69			
	Total	3042.02	361				
Professional Production	Between groups	3.37	2	1.68	0.59	0.551	
	Within groups	1014.32	359	2.82			
	Total	1017.70	361				
Privacy and Security	Between groups	95.62	2	47.81	10.53	0.000	(A-C), (B-C)
	Within groups	1628.77	359	4.53			
	Total	1724.40	361				
Social Dimension	Between groups	193.79	2	96.89	22.39	0.000	(A-B), (A-C), (B-C)
	Within groups	1553.58	359	4.328			
	Total	1747.37	361				

The data regarding whether there is a difference in the digital literacy levels of classroom teachers engaged in eTwinning activities based on their involvement as founders or partners in eTwinning projects, as part of the second sub-problem, was analyzed using one-way analysis of variance (ANOVA) and is presented in Table 8.

Table 8. Comparison of teachers' DLS levels by role in eTwinning projects

		KT	Sd	KO	F	Sig.	Significant Difference
DLS	Between groups	7750.82	2	3875.41	20,263	0.000	Joint-Both
	Within groups	67895.20	355	191.25			
	Total	75646.02	357				
Ethical and Responsibility	Between groups	473.42	2	236.71	21,602	0.000	Joint-Both
	Within groups	3890.13	355	10.95			
	Total	4363.56	357				
General Knowledge and Functional Skills	Between groups	262.06	2	131.03	11.690	0,000	Joint-Both
	Within groups	3979.30	355	11.20			
	Total	4241.37	357				
Everyday Usega	Between groups	231.53	2	115.76	14.833	0.000	Joint-Both
	Within groups	2770.75	355	7.80			
	Total	3002.29	357				
Professional Production	Between groups	27.00	2	13.50	4.872	0.008	Joint-Both
	Within groups	983.86	355	2.77			
	Total	1010.87	357				
Privacy and Security	Between groups	59.29	2	29.64	6.466	0.002	Joint-Both
	Within groups	1627.66	355	4.58			
	Total	1686.95	357				
Social Dimension	Between groups	112.17	2	56.08	12.427	0.000	Joint-Both
	Within groups	1602.24	355	4.51			
	Total	1714.41	357				

According to Table 8, there is a significant difference in teachers' digital literacy levels ($F(2-355)=20.263, P<0.05$), as well as in the levels of Ethical and Responsibility ($F(2-355)= 21.602, P<0.05$), General Knowledge and Functional Skills ($F(2-355)= 11.690, P<0.05$), Daily Use ($F(2-355)= 14.833, P<0.05$), Professional Production ($F(2-355)=4.872, P<0.05$), Privacy and Security ($F(2-355)= 6.466, P<0.05$), and Social Dimension ($F(2-355)= 12.427, P<0.05$) based on their status as founders or partners in eTwinning projects. According to the results of the Tukey test conducted to determine the differences between the groups, the digital literacy level of teachers who are both founders and partners in eTwinning projects (Mean = 118.54) is higher than that of teachers who are only partners (Mean = 108.70).

The data regarding whether there is a difference in the digital literacy levels of classroom teachers participating in eTwinning activities based on their participation in digital literacy professional development courses, within the scope of the second sub-problem, was computed using an independent samples t-test and is presented in Table 9.

Table 9. *Teachers' levels on digital literacy and its sub-dimensions by participation in professional development courses*

	Participation Status	N	\bar{X}	S	Sd	T	P																																																																				
DLS	Participated	294	114.64	12,89	360	6,77	0,000																																																																				
	Did not participate	68	102.07	17,14				Ethical and Responsibility	Participated	294	31.32	3,28	360	5,55	0,000	Did not participate	68	28.79	3,79	General Knowledge and Functional Skills	Participated	294	21.50	3,27	360	3.24	0.001	Did not participate	68	20.01	3.89	Everyday Usage	Participated	294	26.26	2.66	360	5.98	0.000	Did not participate	68	24.02	3.20	Professional Production	Participated	294	5.46	1.68	360	-1.99	0.047	Did not participate	68	5.91	1.63	Privacy and Security	Participated	294	16.77	2.03	360	4.83	0.000	Did not participate	68	15,39	2.45	Social Dimension	Participated	294	15,53	2.05	360	4.32	0.000
Ethical and Responsibility	Participated	294	31.32	3,28	360	5,55	0,000																																																																				
	Did not participate	68	28.79	3,79				General Knowledge and Functional Skills	Participated	294	21.50	3,27	360	3.24	0.001	Did not participate	68	20.01	3.89	Everyday Usage	Participated	294	26.26	2.66	360	5.98	0.000	Did not participate	68	24.02	3.20	Professional Production	Participated	294	5.46	1.68	360	-1.99	0.047	Did not participate	68	5.91	1.63	Privacy and Security	Participated	294	16.77	2.03	360	4.83	0.000	Did not participate	68	15,39	2.45	Social Dimension	Participated	294	15,53	2.05	360	4.32	0.000	Did not participate	68	14.27	2.52								
General Knowledge and Functional Skills	Participated	294	21.50	3,27	360	3.24	0.001																																																																				
	Did not participate	68	20.01	3.89				Everyday Usage	Participated	294	26.26	2.66	360	5.98	0.000	Did not participate	68	24.02	3.20	Professional Production	Participated	294	5.46	1.68	360	-1.99	0.047	Did not participate	68	5.91	1.63	Privacy and Security	Participated	294	16.77	2.03	360	4.83	0.000	Did not participate	68	15,39	2.45	Social Dimension	Participated	294	15,53	2.05	360	4.32	0.000	Did not participate	68	14.27	2.52																				
Everyday Usage	Participated	294	26.26	2.66	360	5.98	0.000																																																																				
	Did not participate	68	24.02	3.20				Professional Production	Participated	294	5.46	1.68	360	-1.99	0.047	Did not participate	68	5.91	1.63	Privacy and Security	Participated	294	16.77	2.03	360	4.83	0.000	Did not participate	68	15,39	2.45	Social Dimension	Participated	294	15,53	2.05	360	4.32	0.000	Did not participate	68	14.27	2.52																																
Professional Production	Participated	294	5.46	1.68	360	-1.99	0.047																																																																				
	Did not participate	68	5.91	1.63				Privacy and Security	Participated	294	16.77	2.03	360	4.83	0.000	Did not participate	68	15,39	2.45	Social Dimension	Participated	294	15,53	2.05	360	4.32	0.000	Did not participate	68	14.27	2.52																																												
Privacy and Security	Participated	294	16.77	2.03	360	4.83	0.000																																																																				
	Did not participate	68	15,39	2.45				Social Dimension	Participated	294	15,53	2.05	360	4.32	0.000	Did not participate	68	14.27	2.52																																																								
Social Dimension	Participated	294	15,53	2.05	360	4.32	0.000																																																																				
	Did not participate	68	14.27	2.52																																																																							

According to Table 9, teachers' digital literacy level ($t(360)= -6.779, p<0.05$), as well as their scores on ethical and responsibility dimension ($t(360)= -5.557, p<0.05$), General Information and Functional Skills ($t(360)= 3.245, p<0.05$), Daily Use ($t(360)= 5.985, p<0.05$), Professional Production ($t(360)= -1.996, p<0.05$), Privacy and Security ($t(360)= 4.830, p<0.05$), and Social Dimension ($t(360)= 4.329, p<0.05$) sub-dimensions exhibit a significant difference based on their participation status in professional development courses. The digital literacy level of teachers who participated in professional development courses ($M = 114.64$) is higher compared to those who did not participate ($M = 102.07$).

Qualitative Research Findings

The qualitative findings regarding the third sub-problem of the research, "What are the opinions of classroom teachers participating in eTwinning activities regarding the contribution of eTwinning activities to digital literacy skills?" are presented below. The responses provided by the participating teachers to the questions posed through the semi-structured interview form were subjected to content analysis. The results were organized into categories and codes, and visualized using "Word SmartArt."

Figure 2 depicts the participants' responses regarding using digital technologies in the eTwinning process.

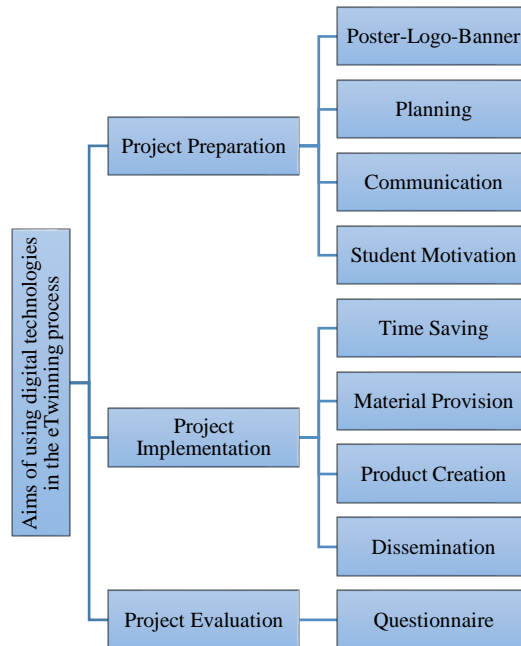


Figure 2. Purposes of utilizing digital technologies in the eTwinning process

Figure 2 shows that participants used digital technologies in the eTwinning process for various purposes: motivating students during project preparation, creating posters, logos, and banners, facilitating communication among project partners, and planning the project process. During project implementation, digital technologies were used to develop project products, disseminate the project, and evaluate it through questionnaires. Here are some participants' opinions:

T2: "I use digital technologies to prepare posters and logos for project promotion, to create project student activity products, to make acquaintance, activity planning and evaluation meetings and to carry out dissemination efforts of our project."

Figure 3 depicts the participants' response to the question, "Have you created a social media account, website, or blog page for your eTwinning projects? If so, what purposes do you use them for?" Their responses regarding what they consider when preparing these platforms were also included and analyzed.

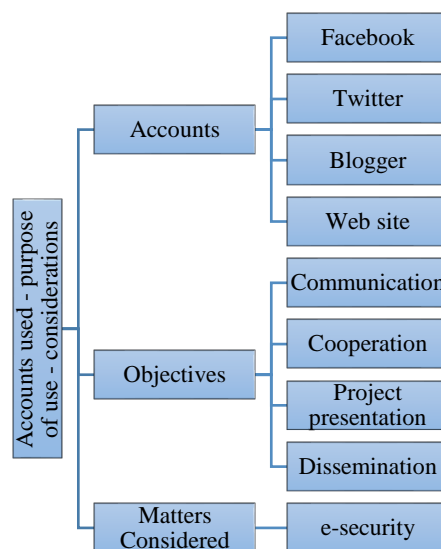


Figure 3. Accounts used - purpose of use - considerations

Figure 3 shows that all classroom teachers in the study created social media accounts, websites, or blog pages for their projects. They used these platforms for communication, collaboration, promotion, and dissemination. Teachers emphasized following e-safety rules and avoided sharing students' faces and personal information in their posts. Here are some participants' opinions:

T7: "I prepared Facebook. I used it to communicate easily with my stakeholders and to make fast and effective posts. I pay attention to e-safety rules in my posts. I do not share private information and photos where students are recognizable."

Figure 4 displays the responses of the participants to the inquiry regarding the precautions taken in terms of cybersecurity and copyright when sharing their eTwinning-related activity products on the internet, which were subsequently assessed.

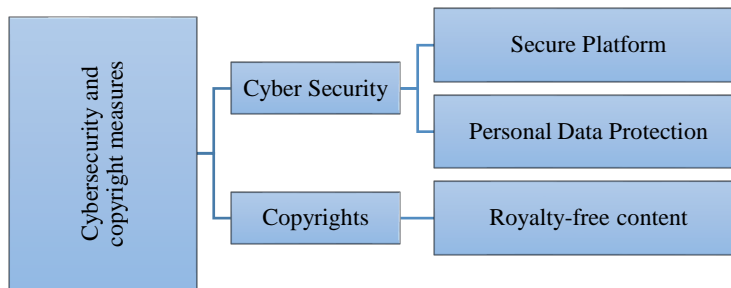


Figure 4. *Cybersecurity and copyright measures*

Figure 4 shows that teachers emphasized cybersecurity and copyright precautions, such as using secure platforms, safeguarding personal data, and choosing royalty-free content when sharing eTwinning activity products online. Here are some participants' opinions:

T2: "I pay attention to sharing on secure platforms. I do not use copyrighted content such as pictures, videos, music, etc. I get permission from the product owner for the products I have to use."

Figure 5 illustrates the responses of the participants regarding whether they believe eTwinning activities contribute to their digital literacy skills. Their answers to the question "What kind of contributions, in which areas?" were included and analyzed.

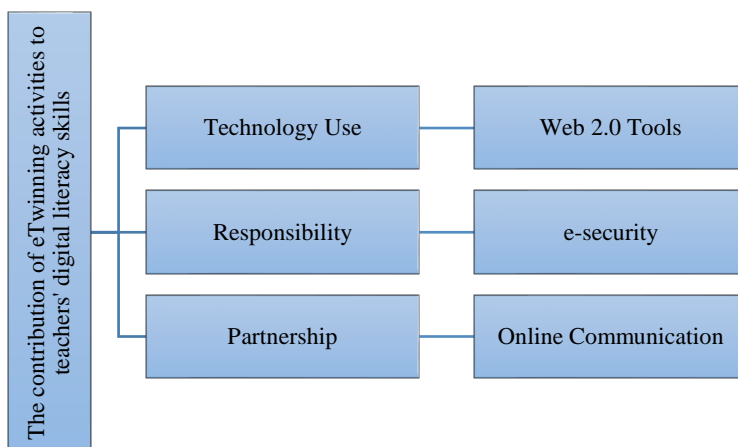


Figure 5. *The contribution of eTwinning activities to teachers' digital literacy skills*

Figure 5 shows that all participants recognized the contribution of eTwinning activities to their digital literacy. They noted that eTwinning helped them identify and use Web 2.0 tools, improve e-

safety practices, enhance online communication, and boost overall digital literacy. Here are some participants' opinions:

T7: "We need digital resources to communicate with our project partners from different countries, cities and schools. This situation helped me to improve myself in using digital tools. I learned to use different Web 2.0 tools to prepare our activities. I also learned to be a good guide to my students about e-security."

Figure 6 shows the participants' question 'What kind of content do you create digitally in your eTwinning projects? The answers they gave to the question were included and the answers were evaluated.

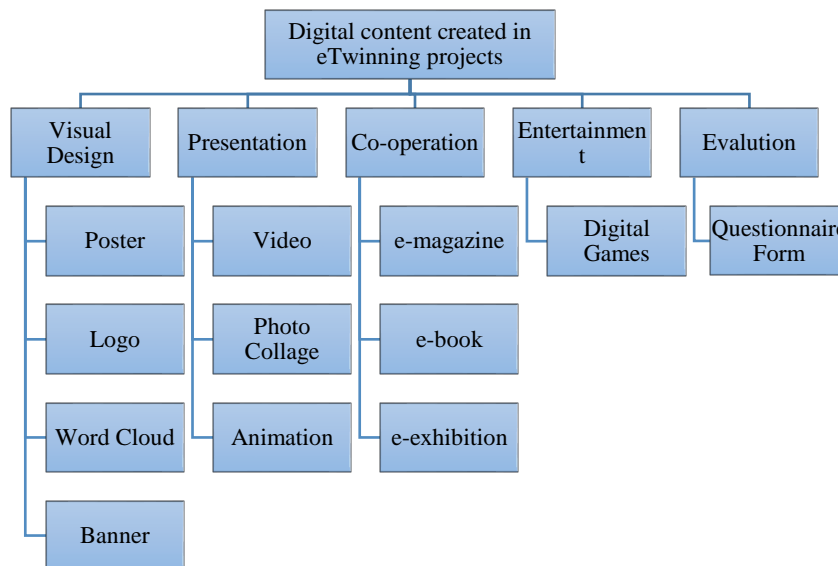


Figure 6. Digital content created in eTwinning projects

Figure 6 shows the digital contents created by the participant teachers in eTwinning projects. Some of the views of the participants are as follows;

T1: "When starting projects, I usually prepare posters. I prepare and present project activities with video and animation tools. With the story creation activities, we prepared with our students, I am preparing an e-book. Especially during the student introduction webinars, I prepare digital games at different times of the project. I also prepare questionnaires to decide on and evaluate project activities. Especially during the pandemic period, we disseminated the project activities by preparing an e-exhibition."

The qualitative findings provide deep insights into classroom teachers' views on eTwinning activities' impact on their digital literacy. Teachers stated that eTwinning improved their use of digital technologies, introduced new Web 2.0 tools, and enhanced their project preparation, implementation, and evaluation. They became more aware of cybersecurity and copyright issues on digital platforms. Participants noted significant advancements in creating digital content, including visual design, interactive presentations, and digital publishing. They used digital tools to create posters, logos, interactive e-books, digital games, and surveys for activity evaluation. Additionally, they utilized e-exhibitions and e-magazines to disseminate their projects.

Discussion, Conclusion and Recommendations

The study revealed that classroom teachers involved in eTwinning activities have a high average digital literacy score of 112, with an arithmetic mean of 3.87, indicating proficiency in digital literacy and the effectiveness of eTwinning in enhancing educators' digital skills. Supported by qualitative findings, the research shows that teachers effectively use digital technologies during eTwinning, create content on various digital platforms, and are aware of cybersecurity and copyright issues. The literature review supports that eTwinning enhances teachers' digital skills and internet security awareness

(Gökbulut, 2023; Özçakır, 2023). Additionally, eTwinning projects improve teachers' and students' language skills, ICT usage, and motivation, fostering healthy relationship-building skills (Demir & Kayaoğlu, 2022).

There is a significant relationship between teachers' duration of eTwinning membership and their digital literacy scores, excluding the professional production dimension. Professional production is considered an advanced aspect of digital literacy, necessitating specialized training. Teachers with long-term eTwinning memberships scored higher on the total scale and social dimension compared to others. Scores for ethics, general knowledge, and functional skills, as well as daily usage, were higher for teachers with 5-10 years of membership compared to those with 0-1 year, suggesting that longer eTwinning usage increases digital literacy (Erdem et al., 2021).

Comparing teachers' digital literacy levels with their durations of eTwinning membership and technological tool usage indicates that long-term technology usage positively influences digital literacy. These results show that teachers enhance their digital skills and create effective digital content using Web 2.0 tools during eTwinning. These findings align with Yazgan (2022), emphasizing eTwinning's contribution to teachers' technology usage skills. Other research indicates that eTwinning projects improve student-centered learning and ICT competencies, strengthening digital skills for both students and teachers (Avcı, 2021; Crisan, 2013; Gençtürk Erdem et al., 2021).

Significant differences in teachers' digital literacy levels were observed based on their acquisition of quality labels. Teachers with quality labels had higher digital literacy levels compared to those without. Keleş (2022) found that these teachers had higher technology usage attitudes than eTwinning novices. Döğer and Kurnaz (2022) noted that teachers with quality labels and more project experience used technology better, suggesting that quality label criteria positively influence digital literacy. Comparing teachers' levels on the Digital Literacy Scale (DLS) based on their roles as founders or partners in eTwinning projects revealed significant differences. Those who were both founders and partners scored significantly higher on the total scale and all sub-scales than those who were only partners. Teachers who participated in digital literacy professional development courses also had significantly higher levels.

Qualitative analysis revealed that teachers first learned about eTwinning through colleagues and district promotion meetings. They became members due to the portal's interesting features and its contributions to professional development and student learning. Teachers create social media accounts, blogs, and websites to collaborate, communicate, and disseminate projects. Using copyright-free images and videos, avoiding students' visible faces online, and protecting personal data increase teachers' digital literacy. Creating digital content with Web 2.0 tools significantly enhances digital literacy through eTwinning, consistent with Gençtürk Erdem et al. (2021).

The literature review shows classroom teachers' digital literacy levels vary widely, with technology integration into teaching being a critical area. Studies highlight a range of digital literacy levels (Atmojo et al., 2022), the roles of school leaders and teachers in developing digital literacy (Suwanto et al., 2022), and the importance of digital literacy for teacher candidates (Prachagool et al., 2022). Sadaf and Gezer (2020) noted that teachers see digital literacy as crucial for equipping students with 21st-century skills, with positive attitudes, perceived benefits, and self-efficacy influencing their intentions to integrate digital literacy. Teachers' digital literacy practices and attitudes toward technology use are linked to student responses (Kurniawati et al., 2018; Yanuarto & Jaelani, 2021). Studies also reflect on teachers' readiness for online teaching (Saud, 2021), emphasizing the importance of continuous professional development.

The research recommends organizing regular professional development courses and workshops to enhance teachers' digital literacy. Experimental studies could evaluate digital platforms like eTwinning among different teacher groups. Teachers can strengthen students' digital literacy by enriching teaching materials with digital technologies and developing programs to increase students' awareness of digital security and ethics. School administrations should provide infrastructure and resources to encourage international collaboration platforms, and researchers should examine their effectiveness and impact on student achievement.

References

- Acar, S., & Peker, B. (2021). What are the purposes of teachers for using the etwinning platform and the effects of the platform on teachers?, *Acta Didactica Napocensia*, 14(1), 91-103.
- Acar, S., & Peker, B. (2024). Gateway to Europe in education: eTwinning projects. *Journal of Qualitative Research in Education*, 37, 281-304.
- Atmojo, I., Ardiansyah, R., & Wulandari, W. (2022). Classroom teacher's digital literacy level based on instant digital competence assessment (idca) perspective. *Mimbar Sekolah Dasar*, 9(3), 431-445.
- Avcı, F. (2021). Teachers' views and evaluations regarding the eTwinning platform as an online learning environment. *Cumhuriyet International Education Journal*, 10(1), 1-22.
- Bal, H. (2019). Öğretmenlerin eğitimde yeni teknolojileri ve Web 2.0 araçlarını kullanımlarının değerlendirilmesi. [Assessment of teachers' use of new technologies and web 2.0 tools in education] https://yegitek.meb.gov.tr/meb_iys_dosyalar/2020_09/15140034_web20hulyabal.pdf
- Bayrakçı, S. (2020). *Dijital yetkinlikler bütünü olarak dijital okuryazarlık: ölçek geliştirme çalışması* [Digital literacy as a whole: scale development study on digital competencies]. (Unpublished Doctoral Dissertation). Marmara University.
- Büyüköztürk, Ş., Çakmak Kılıç, E., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2020). *Bilimsel araştırma yöntemleri* [Scientific research methods] Ankara: Pegem Academy Publishing.
- Crişan, G. I. (2013). The impact of teachers' participation in eTwinning on their teaching and training. *Acta Didactica Napocensia*, 6(4), 19-28.
- Camilleri, R. A. (2016). Global education and intercultural awareness in eTwinning. *Cogent Education*, 3(1), 1210489.
- Council of the European Union (2018). Council Recommendation of 22 May 2018 on keycompetences for lifelong learning. *Official Journal of the European Union*, C 189/01-13. <https://bit.ly/3jOsrDW>
- Demir, E., Saatçioğlu, Ö., & İmrol, F. (2016). Uluslararası dergilerde yayımlanan eğitim araştırmalarının normallik varsayımları açısından incelenmesi [Examination of educational research published in international journals in terms of normality assumptions]. *Current Research in Education*, 130-148.
- Demir, N., & Kayaoğlu, M. N. (2022). Multi-dimensional foreign language education: The case of an eTwinning project in Turkey. *Computer Assisted Language Learning*, 35(9), 2201-2238.
- Döğër, M. F., & Kurnaz, A. (2022). Examining the ICT level of projects done by teachers on social networks in Turkey in terms of different variables example of eTwinning activity. *International Journal of Current Education Studies (IJCES)*, 1(2), 63-89.
- Döğër, M. F. (2022). Sosyal ağların eğitimde dönüştürücü rolü eTwinning faaliyeti örneği [The transformative role of social networks in education: The case of eTwinning activities]. *Kahramanmaraş Sütçü İmam Üniversitesi Eğitim Dergisi* [Kahramanmaraş Sütçü İmam University Journal of Education], 4(2), 83-103.
- Duran, E., & Özen, N. E. (2018). Türkçe derslerinde dijital okuryazarlık [Turkish language classes and digital literacy]. *Türkiye Eğitim Dergisi* [Turkish Journal of Education], 3(2), 31-46.
- eTwinning (2022, Ocak 15). <https://www.etwinning.net/tr/pub/index.htm>
- eTwinning Faaliyeti Tanıtım Kitapçığı [eTwinning Activity Promotion Brochure] (2022, Mayıs 11) <http://yegitek.meb.gov.tr/www/etwinning-faaliyeti-tanitim-kitapcigi/icerik/2976>
- Gençtürk Erdem, E., Başar, F. B., Toktay, G., Yayğaz, İ. H. & Küçükşüleymanoğlu, R. (2021). eTwinning projelerinin öğretmenlerin dijital okuryazarlık becerilerine katkısı [eTwinning projects' contribution to teachers' digital literacy skills], *International Journal of Social Sciences and Education Research*, 7 (3), 204-219.
- Gheorghe, O. (2008). eTwinning in 2008. Elearning. Romania. Bucureşti: *TEHNE-Centrul pentru Dezvoltare și Inovare în Educație*. Available online: <http://www.elearning.ro>.
- Glister, P. (1997). Digital literacy New York. John Wiley in the digital era. *Journal of Educational Media and Hypermedia*, 13(1), 93.

- Gökbulut, B. (2023). eTwinning ağı ülkelerindeki öğretmenlerin eTwinning ile ilgili görüşlerini ve dijital okuryazarlık seviyelerini belirlemeye yönelik bir çalışma [eTwinning network: a study on teachers' perceptions and digital literacy levels]. *Öğretmen Eğitimi ve Yaşam Boyu Öğrenme Dergisi [Journal of Teacher Education and Lifelong Learning]*, 5(1), 18-37.
- Huertas-Abril, C. A. & Palacios-Hidalgo, F. J. (2023). eTwinning and the development of language teachers' digital literacy: A comparative study between two European universities. *ENSAYOS, Revista de la Facultad de Educación de Albacete*, 38(2), 86-101.
- INTEF (2017). *Common digital competence framework for teachers*. INTEF. <https://bit.ly/2CHZcgF>
- ISTE (2016). Öğretmenlerin teknoloji konusunda sahip olması gereken yeterlilikler [Competencies Required by Teachers in Technology]. (2022, Mart 23) <https://www.iste.org/standards/iste-standards-for-teachers>
- İzgi Onbaşılı, Ü., Sezginsoy Şeker, B., Claeys, H., Mancel, C., Gulbay, E., & Powers, R. (2022). Experiences of qualified teachers of the future in the scope of an international eTwinning project. *International Online Journal of Primary Education*, 11(2), 293-311.
- Kampylis, P., Bocconi, S., and Punie, Y. (2012, August). Fostering Innovative Pedagogical Practices Through Online Networks: The Case of eTwinning. In Proceedings of the SQM/INSPIRE 2012 conference, Tampere, Finland.
- Keleş, B. (2022). *eTwinning projelerindeki öğretmenlerin eğitimde teknoloji kullanım tutumlarının incelenmesi [Investigation of teachers' attitudes towards technology use in eTwinning projects]* (Unpublished Master Thesis), Mersin University, Mersin.
- Kurniawati, N., Maolida, E., & Anjaniputra, A. (2018). The praxis of digital literacy in the efl classroom: digital-immigrant vs digital-native teacher. *Indonesian Journal of Applied Linguistics*, 8(1).
- Miles, M. B. & Huberman, A.M. (1994) *Qualitative data analysis: An expanded Source book*. Sage.
- Milli Eğitim Bakanlığı [Ministry of National Education]. (2017). Öğretmenlik mesleği genel yeterlilikleri. Öğretmen Yetiştirme ve Geliştirme Genel Müdürlüğü [General competencies of the teaching profession. Directorate General of Teacher Training and Development].
- Morse, J. M. (1991). Approachestoqualitative-quantitativemethodologicaltriangulation. *Nursing Research*, 40, 120-123.
- Özçakır, Ö. (2023). *Okul yöneticileri ve öğretmen gözünden Avrupa birliği e-öğrenme topluluğu eTwinning European Union e-learning community eTwinning from the perspective of school administrators and teachers]* (Unpublished Master Thesis). Zonguldak Bülent Ecevit University.
- Papadakis, S. (2016). Creativity and innovation in European education. Ten years eTwinning. Past, present and the future. *International Journal of Technology Enhanced Learning*, 8(3-4), 279-296.
- Partnershipfor 21st Century Skills (2022, Mayıs 19) https://static.battelleforkids.org/documents/p21/P21_Framework_Definitions_New_Logo_2015_9pgs.pdf
- Paz-Albo, J. & López, I. (2017). Higher education perspectives on eTwinning: The future of Initial Teacher Training learning. In L. Gómez, A. López, & I. Candel (Eds.), INTED2017. Proceedings of the 11th international technology, education and development conference (ss. 1073-1076). Valencia, Spain: IATED Academy.
- Prachagool, V., Nuangchalerm, P., & Yawongsa, P. (2022). Digital literacy of pre-service teachers in the period time of covid-19 pandemic. *Journal of Educational Issues*, 8(2), 347.
- Prieto, J. P. A., & Cirugeda, I. L. (2017). Higher education perspectives on eTwinning: The future of Initial Teacher Training learning. In INTED2017 Proceedings (pp. 1073-1076). IATED.
- Portala kayıtlı ülke, okul, öğretmen ve proje sayısı. (2022, Ocak 16) <https://www.etwinning.net/tr/pub/community/countries.cfm>
- Sadaf, A., & Gezer, T. (2020). Exploring factors that influence teachers' intentions to integrate digital literacy using the decomposed theory of planned behavior. *Journal of Digital Learning in Teacher Education*, 36(2), 124-145.
- Saud, M. S. (2021). Digital literacy competencies among English teachers of Nepal: Are they ready for online instruction? *Malaysian Online Journal of Educational Technology*, 9(4), 1-13.

- Suwarto, D., Setiawan, B., & Machmiyah, S. (2022). Developing digital literacy practices in yogyakarta elementary schools. *The Electronic Journal of E-Learning*, 20(2),101-11.
- Tashakkori, A., & Cresswell, J. W. (2007). The new era of mixed methods. *Journal of Mixed Methods*, 1(1), 2-8.
- Teddlie, C., & Tashakkori, A. (2015). *Foundations of mixed methods research*. Thousand Oaks, CA: Sage Publications.
- UNESCO (2018). Öğretmenlere Yönelik Bilgi ve İletişim Teknolojileri Yetkinlik Çerçevesi [Information and Communication Technologies Competency Framework for Teachers] (2022, Mayıs19). https://yegitek.meb.gov.tr/meb_iys_dosyalar/2021_01/18130452_UNESCO_OYretmenlere_Yonelik_Bilgi_ve_YletiYim_Teknolojileri_Yetkinlik_Cercevesi.pdf
- URL 1: <http://etwinning.meb.gov.tr/turk-ogretmenler-2021-avrupa-odullerinde-bir-ilke-imza-atti/#:~:text=Avrupa'da%202005%20y%C4%B1l%C4%B1nda%20ba%C5%9Flayan,olarak%201.%20s%C4%B1rada%20yer%20almaktad%C4%B1r.>
- URL 2: <https://mersin.meb.gov.tr/www/mersin-etwinning-okulu-sayisinda-turkiyede-ve-avrupada-birinci/icerik/4805>.
- Uslu Kaplan, N., & Alkan, M. F. (2023). eTwinning projelerinin mesleki yeterliklere katkısına yönelik öğretmen görüşlerinin incelenmesi [Investigation of Teacher Views on the Contribution of eTwinning Projects to Professional Competencies]. *Erciyes Journal of Education*, 7(2), 58-78.
- Ürekli, T., Ağaoğlu Özer, S., Kozak, Ü., & Akar, Ş. (2024). eTwinning projelerinin ilkökul öğrencilerindeki sosyal yetkinlik gelişimlerine etkisinin sınıf öğretmenleri görüşlerine göre değerlendirilmesi [Evaluation of the Impact of eTwinning Projects on the Social Competence Development of Primary School Students: A Study Based on Classroom Teachers' Perspectives]. *Ulusal Eğitim Dergisi [National Education Journal]*, 4(1), 1–15.
- Velea, S. (2011). ICT in education: Responsible use or a fashionable practice. The impact of eTwinning action on the education process. In ICVL. Proceedings of the 6th International Conference on Virtual Learning. Bucharest: University of Bucharest Publishing House.
- Vuorikari, R., Kluzer, S. & Punie, Y. (2022). *DigComp 2.2. The Digital Competence Framework for Citizens. Publications Office of the European Union.* <https://op.europa.eu/en/publication-detail/-/publication/50c53c01-abe1-11ec-83e1-01aa75ed71a1/language-en>
- Yamaç, A. (2018). Yeni okuryazarlığa genel bir bakış: karar alıcılar, araştırmacılar ve öğretmenler için bazı öneriler [A general overview of new literacies: some recommendations for policymakers, researchers, and teachers]. *Journal of Theoretical Educational Science*, 11(3), 383-410.
- Yanuarto, W. and Jaelani, A. (2021). Higher thinking and digital literacy: empowering technology for pre-service mathematics teacher. *Al-Jabar Jurnal Pendidikan Matematika*, 12(2), 329-342.
- Yıldırım, A., & Şimşek, H. (2018). *Sosyal bilimlerde nitel araştırma yöntemleri* [Qualitative Research Methods in Social Sciences] (11th Edition). Seçkin Publishing.
- Yazgan, F. B. (2022). *Fen bilimleri öğretmenlerinin etwinning projeleri hakkındaki görüşleri* [Science teachers' views on etwinning projects] (Unpublished Master Thesis), Gaziosmanpaşa University, Tokat.

Investigating the Freshmen's Anxiety and Enjoyment through Online Speaking Skills Courses*

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Nalan Kızıltan***

Abstract

This quantitative research investigated freshmen's Foreign Language Enjoyment (FLE) and Foreign Language Speaking Anxiety (FLSA) through online speaking skills courses in order to promote the quality of online foreign language speaking skills courses by determining hindering and facilitating factors. The present research sample consists of 722 participants from 33 universities' English Language Teacher Education Programs. It was reached that a significant negative correlation was found between FLE and FLSA. In terms of gender, no significant correlation was found between participants' gender and their FLE and FLSA. When the region variable effect on FLE and FLSA was analyzed, a significant correlation was detected between regions where the participants' universities were placed and FLE and FLSA. The analysis also revealed that there was a significant correlation between the degree of plurilingualism and FLE and FLSA. Furthermore, a significant correlation was found between the perceived level of English proficiency and FLE and FLSA which showed that a higher perceived proficiency level was positively correlated with a higher FLE level and vice versa. Moreover, a significant correlation was revealed between speaking skills classroom environment preferences for speaking skills courses and FLE and FLSA; the ones with online classroom preference instead of face-to-face classroom showed higher FLE. In line with the results, pedagogical implications were offered.

Keywords: Foreign language speaking anxiety, foreign language enjoyment, online foreign language learning, undergraduate ELT students.

* This research is derived from the first author's master's thesis.

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Birinci Sınıf Öğrencilerinin Yabancı Dilde Kaygı Duyma ve Keyif Almalarının Çevrimiçi Konuşma Becerileri Dersi Üzerinden İncelenmesi *

Makale Türü	Başvuru Tarihi	Kabul Tarihi
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Rabia İrem Durmuş**

Nalan Kızıltan***

Öz

Bu nicel araştırma, online konuşma becerileri dersleri aracılığıyla birinci sınıf öğrencilerin Yabancı Dilde Keyif Alma (YDKA) ve Yabancı Dil Konuşma Kaygısı (YDKK) inceleyerek çevrimiçi yabancı dil konuşma becerileri derslerinin kalitesini artırmayı amaçlamıştır. Bu doğrultuda, engelleyici ve kolaylaştırıcı faktörlerin belirlenmesi hedeflenmiştir. Bu araştırmanın örneklemini, 33 üniversitenin İngilizce Öğretmen Eğitimi Programları'ndan 722 katılımcı oluşturmaktadır. Yapılan analizler sonucunda YDKA ve YDKK arasında önemli bir negatif korelasyon bulunduğu belirlenmiştir. Cinsiyet açısından, katılımcıların cinsiyeti ile YDKA ve YDKK arasında anlamlı bir korelasyon bulunmamıştır. Bölge değişkeninin YDKA ve YDKK üzerindeki etkisi analiz edildiğinde, katılımcıların üniversitelerinin bulunduğu bölgeler ile YDKA ve YDKK arasında anlamlı bir korelasyon saptanmıştır. Ayrıca, çokdillilik derecesi ile YDKA ve YDKK arasında anlamlı bir korelasyon bulunduğu ortaya çıkmıştır. Dahası, algılanan İngilizce yeterlilik düzeyi ile YDKA ve YDKK arasında anlamlı bir korelasyon bulunmuş ve daha yüksek algılanan yeterlilik düzeyinin daha yüksek bir YDKA düzeyi ile pozitif korelasyon gösterdiği görülmüştür. Ayrıca, konuşma becerileri sınıf ortamı tercihlerinin YDKA ve YDKK ile anlamlı bir korelasyon gösterdiği ve yüz yüze sınıf yerine çevrimiçi sınıf tercih edenlerin daha yüksek YDKA'ya sahip olduğu belirlenmiştir. Sonuçlar doğrultusunda pedagojik öneriler sunulmuştur.

Anahtar Sözcükler: Yabancı dil konuşma kaygısı, yabancı dilde keyif alma, çevrimiçi yabancı dil öğrenme, İngilizce öğretmenliği lisans öğrencileri

* Bu araştırma birinci yazarın yüksek lisans tezinden üretilmiştir.

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Introduction

The global pandemic has disrupted the education sector, compelling stakeholders since the start of 2020, including those in higher education, to grapple with the complexities of transitioning to online learning. The careful implementation of online pedagogies becomes crucial, considering technical infrastructure, digital literacy skills, and the engagement of both educators and students. English language teacher education programs face unique challenges in adapting to online education, requiring faculty and students to navigate a new learning environment. Unlike the straightforward nature of 'two plus two equals four,' foreign language classrooms demand a nuanced approach that acknowledges the indispensability of individual differences. The process of foreign language learning is inherently social, influenced by various components and the combined characteristics of learners, emphasizing the multifaceted nature of emotions in this educational journey.

Oxford (2015) emphasized the integral blend of cognition and emotion in effective foreign language learning. While existing research has predominantly focused on negative emotions, particularly foreign language anxiety, impacting learning negatively, positive emotions like foreign language enjoyment have been overshadowed. Within this context, Foreign Language Speaking Anxiety (FLSA) and Foreign Language Enjoyment (FLE) play crucial roles in shaping learners' experiences. Horwitz et al. (1986) introduced a tripartite framework for Foreign Language Anxiety (FLA), encompassing communication apprehension, fear of negative evaluation, and test anxiety within FLSA. Communication apprehension, specifically speaking anxiety, causes discomfort in verbal tasks. Fear of negative evaluation impedes participation in language activities, particularly those involving speaking skills, while test anxiety transforms communicative tasks in EFL classes. Recognizing speaking anxiety as a significant affective sub-dimension of FLA is crucial; it directly links to the fear of speaking in a foreign language within a community, influencing learners' experiences in English as a Foreign Language classrooms (EFL) (Horwitz, 2017).

Since the turn of the millennium, there has been a notable shift in focus toward understanding diverse emotions in the EFL classroom (Dewaele, 2010). This coincided with the emergence of positive psychology (PP) by Seligman and Csikszentmihalyi in 2014, introducing a strength-based approach, emphasizing the development of positive qualities rather than fixing negatives (Gao & Zhang, 2020; Seligman, 2002; MacIntyre, 2021). This contemporary perspective has significantly impacted second/foreign language teaching, expanding affective emotions research to include positive experiences (MacIntyre & Mercer, 2014). Termed a "positive renaissance" in psychology and an "affective turn" in the EFL/ESL research field (Dewaele & Li, 2018; MacIntyre & Mercer, 2014), this turn signifies a comprehensive examination of both negative and positive emotions (MacIntyre & Gregersen, 2012; Seligman & Csikszentmihalyi, 2014). Contrary to misconceptions, PP in the EFL context doesn't ignore obstacles but seeks strengths within them to foster positivity and language learning, aligning with broader positive psychology concerns (Komorowska, 2016; Seligman, 2011).

For a deeper understanding of foreign language enjoyment (FLE), it is defined as a positive emotion that "can help dissipate the lingering effects of negative emotional arousal, helping to promote personal resiliency in the face of difficulties" (Dewaele & MacIntyre, 2014, p. 241). FLE is considered a vital element of achievement emotions (Pekrun et al., 2007) to provide psychological safety in navigating an unfamiliar linguistic world. Therefore, enjoyment is seen as an emotional key to unlocking language learning potential. In the realm of positive language learning emotions, FLE has gained significant attention, particularly in relation to FLA, prompting recent research to explore potential correlations between FLE and other factors. Notably, it is predominantly associated with FLA, prompting an exploration of potential correlations between FLE and other factors in recent research endeavors.

This study sought to explore freshmen's FLE and FLSA within the context of online speaking skills courses. In alignment with the research objective, the research questions were formulated as follows:

- 1) What are the FLE and FLSA dispositions of the freshmen?
- 2) What is the correlation between FLE and FLSA in the online speaking skills class context?
- 3) To what extent is there an effect of gender on FLE and FLSA?

4) Is there a difference in the effect on FLE and FLSA according to the seven regions in Turkey?

5) To what extent does plurilingualism affect FLE and FLSA?

6) What is the effect of the perceived level of English proficiency on FLE and FLSA?

7) What is the role of the classroom environment preference on the freshmen's speaking skills on their level of FLE and FLSA?

Method

Research Design

Utilizing quantitative methods for their systematic, reliable, generalizable, and replicable qualities (Dörnyei, 2007), the chosen research design aligns with the study's aim to objectively compare and generalize results for freshmen (Gall et al., 2007). Adopting a correlational design, the study examines the correlation between FLE and FLSA levels in preservice English teachers, incorporating variables such as gender, university location, plurilingualism, proficiency perception, and classroom preferences. Online questionnaires, known for their advantages in extensive data collection (Dewaele et al., 2018), are employed, and statistical tests are applied to systematically explore the data. This comprehensive approach ensures a thorough analysis, drawing on established methodologies and contemporary research insights.

Research Sample

To enhance the robustness of the study's findings, researchers extended their scope beyond a limited geographical and school context, opting to conduct the study across seven regions in Türkiye. This broader approach, involving 722 participants from 33 universities, aims to improve the generalizability of results by capturing a more diverse and representative sample.

Regarding the distribution of the participants considering universities and regions, of the participants 68 (9,41 %) are from Marmara Region, 276 (38,22 %) from Blacksea Region, 26 (3,6 %) from Aegean Region, 176 (24,37%) from Central Anatolia Region, 65 (9%) from Mediterranean Region, 59 (8,17%) from Eastern Anatolia Region and 52 (7,20) from Southern Anatolia Region.

In line with the analyses of the participants' demographics form, it is revealed that 526 (72,85 %) of the participants are female, while 196 (27,15 %) of the participants are male. When the degree of plurilingualism is regarded, 101 (13,98 %) participants can speak only one foreign language, 486 (67,31 %) of them can speak two foreign languages, while 135 (18,69 %) of them can speak three or more languages.

Participants are asked to compare their FL performance with that of their peers in their FL class ranging from extremely poor, insufficient, sufficient, satisfactory, and excellent, self-perceived English language proficiency based on the respondents' self-evaluations of how proficient they are in the FL reveal that participants mostly regard their levels as sufficient (n =350; 48,47 %) and satisfactory (n =267; 36,98 %). Alternatively stated, these are good FL freshmen. However, 8 (1,1 %) participants are extremely poor, 70 (9,69 %) of them are insufficient, and 27 (3,73 %) are excellent, according to their self-report.

Lastly, based on classroom environment preferences, 130 (18 %) of the participants prefer online FL speaking courses, while 592 (81 %) prefer face-to-face speaking skills classes.

Research Instruments and Procedures

The survey comprised four sections: a consent form to inform participants about the study's scope, aim, duration, and expectations; a demographics form to collect personal background information; the Foreign Language Enjoyment Scale (FLES), designed by Dewaele and MacIntyre (2014), to assess enjoyment levels; and the Foreign Language Speaking Anxiety Scale (FLSAS), initially developed by Huang (2004) and adapted by Balemir (2009), to measure speaking anxiety levels. A pre-prepared consent form was administered via Google Forms before the main scales, providing relevant information about the research. Participants shared demographic details, including gender, age,

plurilingualism, proficiency levels, online class experiences, and preferences for face-to-face or online environments.

As to the research procedures, upon securing approval from the Human Research Ethics Committee, collaboration with academics from target universities facilitated participant recruitment for this research. The questionnaire, hosted on GoogleDocs, remained accessible online for three months (January-March) in 2021, adopting the snowball sampling method. The online questionnaire was chosen for its suitability with large samples, and participants volunteered, ensuring higher response quality (Wilson & Dewaele, 2010).

Data Analysis

Following a quantitative design, the data underwent analysis in SPSS version 25. Descriptive analyses provided a participant profile, including means and standard deviations. Pearson correlation coefficients were then employed for numerical description, correlations, and construct comparisons. Skewness and Kurtosis checks confirmed normality, meeting the acceptable range (-1.5 to +1.5).

The research utilized a correlational design, examining the relationship between two continuous variables (Larson-Hall, 2010). One-way ANOVA with post hoc Tukey tests and independent t-tests explored demographic data relationships. Pearson’s correlation coefficient was used to assess variable relationships.

Ethical Procedures

Adhering to ethical standards, the present study strictly follows guidelines from the “Higher Education Institutions Scientific Research and Publication Ethics Directive.” Ondokuz Mayıs University Social and Human Sciences Ethics Committee reviewed and approved the research application (Serial number: 2020/788).

Results

The findings of the research were presented in line with the research questions.

Research Question 1: What are the FLE and FLSA dispositions of the freshmen?

Descriptive statistics were conducted for FLE and FLSA. While the mean score was found as 77.88 (highly enjoyed) in FLES, in FLSAS mean score was found as 91.07 (moderately anxious). The results were shown in Table 1.

Table 1. Disposition of the level of the freshmen in FLE and FLSA scales

Name of the Scale	n	M	SD
FLES	722	77.88	9.62
FLSAS	724	91.07	16.00

Note. M=Mean, SD=Standart Deviation

Research Question 2: What is the correlation between FLE and FLSA in the online speaking skills class contexts?

Pearson Correlation Test was conducted to determine the general correlation between FLE and FLSA. According to the analysis, a significant negative Pearson correlation ($r=-.50$ $p<.001$) was found between FLE and FLSA. The result of the correlational analysis is set out in Table 2.

Table 2. Correlation between FLE and FLSA levels of the freshmen

	FLE	FLSA
FLE	1	-.499**
FLSA	-.499**	1

** p<.001

Research Question 3: To what extent is there an effect of gender on FLE and FLSA?

Independent samples t-test is conducted to find out the effect of gender on FLE and FLSA of the freshmen. In line with the test analysis, there are no significant gender differences considering FLE, which means that the gender of the freshmen does not seem to have any effects on their FLE; however, in terms of FLSA, anxiety mean scores of female participants (M=93.15) exceeds anxiety mean scores of male participants (M=85.47). Table 3 below presents statistical data on significance values explained above.

Table 3. Results of Independent Samples t-test for the effect of gender on FLE and FLSA of the freshmen

Research Question 4: Are there differences in the effect on FLE and FLSA according to the

Name of Scales	Gender	n	M	SD	t	p
FLES	Female	526	78.12	9.43	1.09	.27
	Male	196	77.23	10.11	1.06	.29
FLSAS	Female	526	93.15	15.60	5.87	.00
	Male	196	85.47	15.74	5.84	.00

Note. M= Mean, SD=Standart Deviation

seven regions in Turkey?

After grouping 33 different universities into seven regions, One-way ANOVA was conducted, and it was revealed that there seems to be a significant difference according to regions in terms of FLE (F= 4.23, p<0.01), and the analysis showed a significant correlation between regions and FLSA (F= 1.97, p > 0.01). See Table 4.

Table 4. Results of One-way ANOVA for correlation between regions and FLE and FLSA

		Sum of Squares	df	MS	F	p
FLE	Between Groups	2297.84	6	382.97	4.23	.00
	Within Groups	63584.44	703	90.44		
	Total	65882.28	709			
FLSA	Between Groups	3017.03	6	502.83	1.97	.067
	Within Groups	179463.31	705	254.55		
	Total	182480.34	711			

Note.MS=Mean Square, Groups: Southern Anatolia, Mediterranean, Central Anatolia, Marmara, Black Sea, Eastern Anatolia, Aegean

Tukey HSD post hoc tests were conducted to demonstrate the differences between the regions, and it was provided that FLE levels are found highest in the Aegean Region (M=82.85), while the lowest in the Southern Anatolia Region (M=75.60) along with this, FLSA levels of the participants are found highest in the Central Anatolia Region (M=94.15) while the lowest in the Aegean Region (M= 88.11). See Table 5 and Table 6.

Table 5. Results of Post-hoc Tukey HSD test for FLE level disposition levels of the freshmen with regard to regions

Regions		n	1	2	3
Tukey HSD- FLE	Southern Anatolia	52	75.60		
	Mediterranean	65	75.91	75.91	
	Central Anatolia	175	76.26	76.26	
	Marmara	56	77.91	77.91	77.91
	Black Sea	277	78.52	78.52	78.52
	Eastern Anatolia	59		80.97	80.97
	Aegean	26			82.85
	Sig.		.631	.058	.070

Table 6. Results of Post-hoc Tukey HSD test for FLSA level disposition levels of the freshmen with regard to regions

Regions		n	1
Tukey HSD- FLSA	Southern Anatolia	52	92.57
	Mediterranean	65	91.60
	Central Anatolia	176	94.15
	Marmara	56	91.50
	Black Sea	277	89.19
	Eastern Anatolia	59	91.60
	Aegean	26	88.11
	Sig.		.373

In Table 5, it is seen that there was a significant difference in FLE levels between Aegean Region and Central Anatolia, Mediterranean, and Southern Anatolia; in parallel, a significant difference was revealed between Central Anatolia and Southern Anatolia. Any considerable differences were not detected according to the rest of the regions.

Research Question 5: To what extent does plurilingualism affect FLE and FLSA?

One-way ANOVA was used to investigate the effect of the number of languages known by the freshmen on FLE and FLSA; according to these results, there is a significant correlation between the number of languages known and FLE and FLSA scores. See Table 7. Therefore, Tukey HSD post hoc test analysis was conducted. According to these findings, there is a significant correlation between those who speak one language and three or more languages and between two languages and three or more languages in terms of FLE. As in FLE, there seems to be a significant relationship in FLSA. According to the comparisons of the number of languages they speak with one another, it can be seen that the FLE level of the ones who speak three or more languages seems the highest, whereas the FLSA level seems the highest in those who speak one language.

Table 7. Results of One-way ANOVA analysis for the correlation between Plurilingualism and FLE and FLSA

		Sum of Squares	df	MS	F	p
FLE	Between groups	1480.11	2	740.06	8.15	.00
	Within groups	65287.92	719	90.80		
	Total	66768.03	721			
FLSA	Between groups	5803.52	2	2901.76	11.66	.00
	Within groups	179363.60	721	248.77		
	Total	185167.12	723			

Note. MS= Mean Square, Groups: OL= Only one language, TL= Two languages, ML= Three or more Languages

Table 8. Results of Post-hoc Tukey HSD test for plurilingualism

		(I)Languages Known	(J)Languages Known	Mean Difference (I-J)	SE	p
FLE	Tukey HSD	OL	TL	-.352	1.04	.939
			ML	-3.951*	1.25	.005
		TL	OL	.352	1.04	.939
			ML	-3.599	.93	.00
		ML	OL	3.951*	1.25	.00
			TL	3.599*	.93	.00
FLSA	Tukey HSD	OL	TL	3.46715	1.72	.11
			ML	9.48192*	2.07	.00
		TL	OL	-3.46715	1.72	.11
			ML	6.01477*	1.53	.00
		ML	OL	-9.48192*	2.07	.00
			TL	-6.01477*	1.53	.00
		TL	-6.01477*	1.53	.00	

Note. SE=Standart Error, OL= Only one language, TL= Two languages, ML= Three or more Languages *p<.0

Research Question 6: What is the effect of the perceived level of English proficiency on FLE and FLSA?

One-way ANOVA is used to explore the effect of the perceived level of proficiency of the freshmen on FLE and FLSA; according to these results, there is a significant difference between the perceived level of proficiency and FLE and FLSA.

Table 9. Results of One-way ANOVA Analysis for Perceived Level of English Proficiency Scores

		Sum of Squares	df	MS	F	p
FLE	Between groups	5884.17	4	1471.04	17.32	.00
	Within groups	60883.86	717	84.92		
	Total	66768.03	721			
FLSA	Between groups	20241.86	4	5060.46	22.06	.00
	Within groups	164925.27	719	229.38		
	Total	185167.12	723			

Groups: extremely poor, insufficient, sufficient, satisfactory, excellent □

As a result of revealing a significant difference, Tukey HSD post hoc tests are conducted. It has been found that there is a meaningful difference in the FLE levels of the freshmen between the ones who perceive and report their level of proficiency as extremely poor and excellent, satisfactory. Another significant difference has been detected between insufficient and sufficient, satisfactory, and excellent. Regarding FLSA, a correlation is found between extremely poor and excellent, satisfactory; insufficient and satisfactory, excellent; sufficient satisfactory, and excellent. In a common ground, both FLE and FLSA levels of the freshmen have a strong correlation with their perceived proficiency levels. It has been figured out that those whose perceived proficiency levels are excellent have high scores on FLES, and those whose perceived proficiency levels are extremely poor have higher scores in FLSAS. FLE levels increase as going downside in the five-point Likert and vice versa. See Table 10.

Table 10. Results of the Post Hoc Tukey -HSD Test for FLE and FLSA scores according to perceived level of English proficiency

	Perceived level of proficiency	n	M	SD	SE	p
Tukey HSD-FLE	extremely poor	8	67,50	11,65	4,12	.43
	sufficient	350	77,49	9,578	,51	.145
	satisfactory	267	79,53	8,743	,53	.925
	excellent	27	85,59	9,279	1,80	.108
	Total	722	77,88	9,623	,36	
Tukey HSD-FLSA	extremely poor	8	103,00	13,928	4,92	.99
	insufficient	70	99,24	13,046	1,6	.565
	sufficient	352	93,42	14,744	,79	.134
	satisfactory	267	87,29	15,341	,94	
	excellent	27	73,15	22,288	4,28	
	Total	724	91,07	16,003	,59	

Note. SD= Standard Deviation, SE=Standard Error

Research Question 7: What is the role of the classroom environment preference of the freshmen’s speaking skills on their level of FLE and FLSA?

Independent samples t-test analysis is performed to figure out the difference between the speaking classroom environment preferences of freshmen and FLES and FLSAS scores.

According to independent samples t-test analysis of the preferences, a significant difference has been found between those who prefer online speaking skills classes and face-to-face speaking skills classes in terms of FLE and FLSA scores. See Table 7. It has been apparent that the ones who prefer online speaking skills classes have higher scores in FLSAS while those who prefer face-to-face classes have higher scores in FLES, which means their FLE levels are higher than those who prefer online speaking skills classes. See Table 11.

Table 11. Results of Independent Samples t-tests for the classroom environment preferences and FLE and FLSA

	Classroom Preference	n	M	SD	t	p
Total FLE Scores	Face-to-face	593	78.28	9.51	-.24	.02
	Online	129	76.02	9.92	-.24	.02
Total FLSAS scores	Face-to-face	594	89.94	15.87	4.14	.00
	Online	130	96.23	15.61	4.10	.00

Note. M= Mean, SD= Standard Deviation

Discussion, Conclusion and Recommendations

This study investigates freshmen's anxiety and enjoyment in online speaking skills courses in English language teacher education, aiming to address issues and provide solutions for a positive online classroom environment. The research fills a gap by exploring correlations between FLE and FLSA specifically in fully online speaking courses, a topic not extensively covered before. Despite limitations such as focusing only on freshmen and using only Likert scales, the study offers valuable pedagogical insights. It contributes to understanding the emotional dynamics of online foreign language teaching, particularly relevant in the context of the widespread use of online courses.

As the first research question revealed, freshmen in pre-service English language teacher education programs were found to be highly enjoyed according to FLES scores, in accordance with the FLSAS scores, freshmen were found moderately anxious, as well. The findings were similar to the first work's results comparing the extent of overlap between FLE and FLCA conducted by Dewaele and MacIntyre (2014) on an international sample. The results were also in line with tother related studies (Deweale & Deweale, 2017; Dewey et al., 2018; Dewaele & Dewaele, 2020; Jiang & Dewaele, 2019; Dewaele et al., 2019; Chen et al., 2021; Özer & Altay, 2021) though the findings showed contradiction to the work of Su (2022) who performed a study on Chinese undergraduate students; this may result from the online nature of the present study. Accordingly, the consistency with various age groups, international samples, and diverse educational settings adds robustness to the findings. Notably, the contradiction with Su (2022) underscores the influence of contextual factors, potentially attributed to the online nature of the present study. This emphasizes that educators and researchers should recognize the influence of learning environments, online or traditional, on interpreting emotional experiences. Understanding the impact on language learners' enjoyment and anxiety levels requires acknowledging variations in educational modalities

When we turned our faces to the results of the second research question, it was concluded that there existed a negative correlation between FLE and FLSA. When the related literature observed, this finding is in agreement with Dewaele and MacIntyre's (2014), Dewaele and MacIntyre's (2019), Liu and Wang's (2021), Dewaele et al.'s (2016), Dewaele and Alfawzan's (2018), and Bensalem's (2021) findings. However, the current study's findings do not support Dewaele et al. (2019) study showing a weakly positive correlation between FLE and FLA. Although these results differed from some published studies (e.g., Dewaele and Dewaele, 2017; Dewey et al., 2018) which highlighted that there is a dynamic relationship between FLE and FLA, and some other works (e.g., Dewaele & MacIntyre, 2016; Boudreau et al., 2018) which confirmed that FLE and FLA are independent constructs. The discrepancies with studies emphasizing a dynamic relationship or the independence of FLE and FLA highlight the nuanced nature of emotional experiences in language learning. Accordingly, as researchers, we suggest that the nuanced nature of emotional experiences in language learning warrants further exploration. Therefore, educators and researchers should consider these variations when designing interventions and acknowledge the complexity of the interplay between FLE and FLSA in different educational contexts and participant groups.

Pursuant to the third research question, the gender effect is revealed. According to the findings, female freshmen's FLSA levels were found higher compared to male participants. The overall findings corroborate the findings of Dewaele and MacIntyre (2014), Dewaele et al. (2016), and Su (2022), who suggested that female participants show more FLA compared to males. This may arise from the fact that females are more concerned about their mistakes, and they feel more nervous and less confident compared to males along with their tendency toward showing physical symptoms of FLA as confirmed by Dewaele et al. (2016), as well. In contrast to earlier findings, Dewaele et al.'s (2019) study has no evidence of the fact that male participants' FLCA is not higher compared to females. However, the findings of the current study do not support Bensalem's (2021), and Özer and Altay's (2021) studies that determined no gender differences between FLE and FLA. That may spring from the fact that participants' age groups and education levels show differences. To this end, it may seem predictable to reach different results. Consequently, it can be suggested that lecturers should not ignore gender differences in their classes in the course of speaking classes. They also should use more encouraging strategies for the female freshmen. Furthermore, lecturers should tolerantly cover the mistakes to make freshmen feel comfortable while speaking.

It is determined through the fourth research question that the observed disparity in FLE levels, with the Aegean Region exhibiting the highest and Southern Anatolia the lowest, may be attributed to differences in educational and recreational resources. Cultural interest and social factors, as highlighted by Pan and Zhang (2021) and Dewaele and Dewaele (2020), emerge as influential elements shaping FLE. The stringent cultural norms prevalent in Southern Anatolia potentially contribute to the diminished FLE levels reported. Drawing parallels, Dewaele and MacIntyre (2014) identify global variations, with Asia showcasing lower FLE levels, emphasizing the role of cultural norms. The Aegean Region's heightened FLE is linked to its advanced educational infrastructure and a cosmopolitan social setting that fosters positive language learning experiences. Conversely, Central Anatolia records the highest FLSA levels, a phenomenon attributed to the presence of prestigious universities that exert academic pressure on students. The Aegean Region, geographically proximate to the West, exhibits lower FLSA levels, aligning with Dewaele and MacIntyre's (2014) cross-cultural findings. The Aegean Region's distinctive geographical and cultural attributes contribute to a more favorable environment, leading to diminished anxiety and heightened enjoyment compared to other regions surveyed in the study. This multifaceted analysis suggests that regional variations in educational infrastructure, cultural norms, and social environments significantly influence the emotional experiences of students in foreign language learning contexts. Recognizing the influence of cultural interest and social factors on FLE, educators should consider tailoring language learning approaches to accommodate diverse regional contexts. Addressing the stringent cultural norms in regions with diminished FLE levels, such as Southern Anatolia, becomes crucial for creating a more conducive learning environment. Additionally, the positive correlation between advanced educational infrastructure and heightened FLE in the Aegean Region suggests that investments in educational resources may positively impact students' emotional experiences. Language educators should adapt strategies to mitigate FLSA in regions like Central Anatolia, where academic pressures are prominent. Overall, these findings emphasize the need for region-specific interventions and support systems to enhance the overall language learning experience and emotional well-being of students in diverse geographical and cultural contexts.

The importance of being plurilingual is revealed one more time through the results of the fifth research question of the present study, which showed that freshmen with more than two languages have more enjoyment than their peers with one or two languages. The finding that the FLE level of those who speak three or more languages is the highest, whereas the FLSA level is the highest in those who speak one language may stem from cognitive ease of speaking more than one language and having a feeling of achievement and confidence to this end. However, the reason for the finding that there is no significant correlation between the participants speaking one language and two languages may be associated with a misunderstanding of the native language as speaking one language. The findings of the current study also support the previous research conducted by Dewaele and MacIntyre (2014), who reached directly the same results. Therefore, it may seem safe to suggest that fostering plurilingualism among language learners can contribute significantly to enhancing foreign language enjoyment. Implementing plurilingual approaches in language education may thus contribute to creating a more enriching and enjoyable language learning experience for students.

Regarding the present research results in pursuance of the sixth research question, on a shared basis, the freshmen's FLE and FLSA levels exhibit a robust correlation with their self-perceived proficiency; individuals perceiving excellent proficiency show elevated FLE scores, while those with extremely poor perceived proficiency demonstrate higher FLSA scores. The overall results seem to be in rapport with the earlier research into the relationship between the level of mastery and FLE and FLA levels. In this sense, the findings of the current study corroborate the findings of Dewaele et al. (2018), Dewaele and Alfawzan (2018), Li and Xu (2019), Bensalem (2021), Özer and Altay (2021), Botes et al. (2021). However, it contradicts the findings of Su (2022) who found no correlation between the level of mastery and FLE and FLA levels. It is seen that aligning these findings with prior research highlights the consistency of the relationship between proficiency levels and emotional aspects of language learning. The contradiction with Su (2022) suggests that the nuanced interplay between language proficiency and emotional states may vary across different contexts the freshmen are required to have higher perceived proficiency levels. Moreover, according to Uztoşun (2017), pre-service English language teachers do not feel satisfied with their perceived level of English, especially when

they are required to speak, as well. In this case, freshmen's perceived levels are required to be increased by activities that support the I +1 theory of Krashen (1985) to make freshmen confident about their perceived level of English proficiency. For this reason, courses should be designed and revised to enhance freshmen's speaking competence. Instruction should be supported by well-designed course content and functional interaction between lecturers and freshmen.

The effect of classroom preference is determined through the last research question which reveals that freshmen with online speaking skills classes preference have a higher FLSA compared to those with face-to-face online speaking skills classes preference. The preference for online speaking skills classes among participants, as opposed to face-to-face classes, may be linked to the face-saving nature of online education, providing a sense of comfort and relaxation as individuals feel concealed behind screens. This aligns with Salgado's (2010) research, indicating that being behind screens reduces anxiety and enhances the foreign language learning process. The inclination to hide when faced with challenges, and avoiding mistakes during communicative activities, contributes to the comfort felt behind screens. Consequently, a significant association between FLSA and the preference for online courses emerges among freshmen. Additionally, participants with higher FLE may favor online courses due to their advanced communicative skills, personal traits, and self-confidence. The significant association between FLSA and the preference for online courses underscores the need for educators to recognize the role of the online environment in shaping students' emotional experiences and implement strategies to address anxiety in both online and face-to-face language learning settings.

The implications for the present research seem to have far-reaching effects since it addresses heretofore unknown issues covering technology, interaction, and emotions in the FL learning environment, which will also become more important as the 21st century progresses. Moreover, course designs, curriculum, and English language teacher education programs should be improved from the perspective of positive psychology. The sustainability of them should be a concern of stakeholders, including lecturers, teacher educators, curriculum developers, and even policymakers considering freshmen's needs and expectations.

References

- Balemir, S. H. (2009). *The sources of foreign language speaking anxiety and the relationship between proficiency level and degree of foreign language speaking anxiety* (Unpublished Doctoral dissertation, Bilkent University, English Language Teaching department).
- Bensalem, E. (2021). Classroom Enjoyment and Anxiety among: Does Gender Matter?. *Vigo International Journal of Applied Linguistics*, 18, 9-34.
- Boudreau, C., MacIntyre, P. D., & Dewaele, J.M. (2018). Enjoyment and anxiety in second language communication: An idiodynamic approach. *Studies in Second Language Learning and Teaching*, 8, 149-170.
- Botes, E., Dewaele, J. M., & Greiff, S. (2021). The development of a short-form foreign language enjoyment scale. *The Modern Language Journal*, 105(4), 858-876.
- Chen, Z., Zhang, P., Lin, Y., & Li, Y. (2021). Interactions of trait emotional intelligence, foreign language anxiety, and foreign language enjoyment in the foreign language speaking classroom. *Journal of Multilingual and Multicultural Development*, 1-21.
- Dewaele, J. M. (2013). *Emotions in multiple languages* (2nd ed.). Palgrave Macmillan.
- Dewaele, J. M., & Alfawzan, M. (2018). Does the effect of enjoyment outweigh that of anxiety in foreign language performance?. *Studies in Second Language Learning and Teaching*, 8(1), 21-45.
- Dewaele, J. M., & Dewaele, L. (2017). The dynamic interactions in foreign language classroom anxiety and foreign language enjoyment of pupils aged 12 to 18. A pseudo longitudinal investigation. *Journal of the European Second Language Association*, 1(1), 12-22.
- Dewaele, J. M., & Dewaele, L. (2020). Are foreign language learners' enjoyment and anxiety specific to the teacher? An investigation into the dynamics of learners' classroom emotions. *Studies in Second Language Learning and Teaching*, 10(1), 45-65.
- Dewaele, J.-M., Magdalena, A. F., & Saito, K. (2019). The effect of perception of teacher characteristics on Spanish EFL Learners' anxiety and enjoyment. *Modern Language Journal*, 103(2), 412-427.

- Dewaele, J. M., Gkonou, C., & Mercer, S. (2018). Do ESL/EFL teachers' emotional intelligence, teaching experience, proficiency and gender affect their classroom practice?. *Emotions in second language teaching: Theory, research and teacher education*, 125-141.
- Dewaele, J. M., & Li, C. (2018). Editorial. In Dewaele, J.-M. (Ed.), *Emotions in SLA [Special Issue]. Studies in Second Language Learning and Teaching*, 8, 15-19.
- Dewaele, J. M., & MacIntyre, P. D. (2014). The two faces of Janus? Anxiety and enjoyment in the foreign language classroom. *Studies in Second Language Learning and Teaching*, 4(2), 237-274.
- Dewaele, J. M., & MacIntyre, P. D. (2016). Foreign language enjoyment and foreign language classroom anxiety: The right and left feet of the language learner. *Positive psychology in SLA*, 215(236), 9781783095360-010
- Dewaele, J. M., & MacIntyre, P. D. (2019). The predictive power of multicultural personality traits, learner and teacher variables on foreign language enjoyment and anxiety. In *Evidence-based second language pedagogy*. 263-286.
- Dewaele, J. M., MacIntyre, P. D., Boudreau, C., & Dewaele, L. (2016). Do girls have all the fun? Anxiety and enjoyment in the foreign language classroom. *Theory and practice of second language acquisition*, 2(1), 41-63
- Dewey, D. P., Belnap, R. K., & Steffen, P. (2018). Anxiety: stress, foreign language classroom anxiety, and enjoyment during study abroad in Amman, Jordan. *Annual Review of Applied Linguistics*, 38, 140-161.
- Dörnyei, Z. (2007). *Research Methods in Applied Linguistics, Quantitative, Qualitative and Mixed Methodologies*. Oxford University Press.
- Gall, M. D., Gall, J. P., & Borg, W. R. (2007). *Educational Research: An Introduction* Pearson Publishing.
- Gao, L. X., & Zhang, L. J. (2020). Teacher learning in difficult times: Examining foreign language teachers' cognitions about online teaching to tide over COVID-19. *Frontiers in Psychology*, 11, 1-14.
- Horwitz, E. K. (2017). On the misreading of Horwitz, Horwitz, and Cope (1986) and the need to balance anxiety research and the experiences of anxious language learners. *New insights into language anxiety: Theory, research and educational implications*, 31-47.
- Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign language classroom anxiety. *The Modern language journal*, 70(2), 125-132.
- Huang, H. (2004). The relationship between learning motivation and speaking anxiety among EFL non-English major freshmen in Taiwan. *Unpublished master's thesis, Chaoyang University of Technology*.
- Jiang, Y., & Dewaele, J. M. (2019). How unique is the foreign language classroom enjoyment and anxiety of Chinese EFL learners?. *System*, 82, 13-25.
- Komorowska, H. (2016). Difficulty and coping strategies in language education: is positive psychology misrepresented in SLA/FLT? *Positive psychology perspectives on foreign language learning and teaching*. 39-56.
- Krashen, S. D. (1985). *The input hypothesis: Issues and implications*. Addison-Wesley Longman Limited.
- Larson-Hall, J. (2010). *A guide to doing statistics in second language research using SPSS*. Routledge.
- Li, C., & Xu, J. (2019). Trait emotional intelligence and classroom emotions: A positive psychology investigation and intervention among Chinese EFL learners. *Frontiers In Psychology*, 10, 24-53.
- Liu, E., & Wang, J. (2021). Examining the relationship between grit and foreign language performance: Enjoyment and anxiety as mediators. *Frontiers in Psychology*, 12.
- MacIntyre, P. D. (2021). Exploring Applications of Positive Psychology in SLA. *Positive Psychology in Second and Foreign Language Education*, 3-17.
- MacIntyre, P., & Gregersen, T. (2012). Emotions that facilitate language learning: The positive-broadening power of the imagination. *Studies in second language learning and teaching*, 2(2), 193-213.
- MacIntyre, P. D., & Mercer, S. (2014). Introducing positive psychology to SLA. *Studies in Second Language Learning and Teaching*, 4(2), 153-172.
- Oxford, R. (2015). Emotion as the amplifier and the primary motive: Some theories of emotion with relevance to language learning. *Studies in second language learning and Teaching*, 3, 371-393.

- Özer, Z., & Altay, İ. F. (2021). Examining the level of enjoyment and anxiety among Turkish EFL students. *Journal of Language and Linguistic Studies*, 17, 663-671.
- Pan, C., & Zhang, X. (2023). A longitudinal study of foreign language anxiety and enjoyment. *Language Teaching Research*, 27(6), 1552-1575.
- Pekrun, R., Frenzel, A. C., Goetz, T., & Perry, R. P. (2007). The control-value theory of achievement emotions: An integrative approach to emotions in education. *Emotion in education*, 13-36.
- Salcedo, C. S. (2010). Comparative Analysis of Learning Outcomes in Face-to-Face Foreign Language Classes vs. Language Lab and Online. *Journal of College Teaching & Learning*, 7, 43-54.
- Seligman, M. E. (2011). *Building resilience*. Harvard business review, 89(4), 100-106.
- Seligman, M. E. P., & Csikszentmihalyi, M. (2014). Positive psychology: An Introduction. *Flow and the foundations of positive psychology*. 279-298. Springer.
- Su, H. (2022). Foreign Language Enjoyment and Classroom Anxiety of Chinese EFL Learners With Intermediate and Low English Proficiency. *Journal of Language Teaching and Research*, 13(1), 101-109.
- Uztosun, M. S. (2017). Profiles of Turkish pre-service teachers of English in terms of language learning background. *Journal of Further and Higher Education*, 41(4).

Analysis of Overeducation in Entry-Level Jobs in the Context of the Education-Employment Relationship*

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Abstract

The purpose of this research is to analyze the education-employment relationship in the context of education economics theories, based on the views of overeducated individuals who work in entry-level jobs and have graduated from associate, undergraduate and graduate degrees and have a higher level of education than their colleagues with the same status. The experiences of over-educated individuals were analyzed via content analysis by applying a semi-structured form, which was implemented by the researcher on 31 entry-level employees working in companies affiliated with the Ankara Chamber of Industry. Findings show that the causes of overeducation are economic deprivation, unemployment, field of education, educational expansion, firm structure, and labor market conditions. The recruitment criteria of employers are professional certificates, references, status difference, technical qualifications, personal characteristics, educational qualifications, and experience of individuals.

Keywords: Educational mismatch, overeducation, overskilling, education-employment relationship, theories of economics of education.

* The paper was produced from the PhD thesis completed at Ankara University Institute of Education Science prepared by the first author under the supervision of the second author.

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Giriş Düzeyi İşlerdeki Aşırı Eğitim Olgusunun Eğitim İstihdam İlişkisi Bağlamında Çözümlemesi*

Makale Türü	Başvuru Tarihi	Kabul Tarihi
Araştırma	24.07.2024	8.01.2025

Sevgi Ernas**

Hasan Hüseyin Aksoy***

Öz

Bu araştırmanın amacı, giriş düzeyi işlerde çalışan ve önlisans, lisans ve lisansüstü eğitim kademelerinden mezun olup aynı statüde çalıştıkları iş arkadaşlarına göre eğitim düzeyi daha yüksek olan aşırı eğitilmiş bireylerin görüşlerinden hareketle eğitim ekonomisi kuramları bağlamında eğitim-istihdam ilişkisini çözümlemektir. Araştırmacı tarafından geliştirilen yarı yapılandırılmış veri toplama formunun Ankara Sanayi Odasına bağlı firmalarda çalışan 31 giriş düzeyi işlerdeki çalışana uygulanmasıyla veri toplanmış, aşırı eğitilmiş bireylerin deneyimleri içerik analiziyle çözümlenmiştir. Giriş düzeyi işlerdeki aşırı eğitimlilere göre aşırı eğitimin nedenleri, ekonomik yoksunluk ve işsizlik, eğitim alanı, eğitim genişlemesi, firma yapısıdır. Aşırı eğitimin iş yaşamlarına etkileri; kazanç kaybı, iş başarısı, kariyer beklentisi, iş yetkinliği, iş yükü, iş değişikliği talebi, iş doyumu, statü karmaşasıdır. İşverenlerin işe alma ölçütleri ise; statü farkı, mesleki sertifikalar, referans, kişisel özellikler, eğitimsel yeterlilikler ve tecrübedir.

Anahtar Sözcükler: Eğitim uyumsuzluğu, aşırı eğitim, aşırı beceri, eğitim istihdam ilişkisi, eğitim ekonomisi kuramları.

* The paper was produced from the PhD thesis completed at Ankara University Institute of Education Science prepared by the first author under the supervision of the second author.

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Introduction

While economic development became a political focus for countries after the Industrial Revolution, economists addressed this concept before the revolution, bringing an economic perspective to education (Çömlekçi, 1971). The relationship between education and work has been a subject of educational economics theories. The Human Capital Theory, which argues that education enhances the productivity and skills of the workforce, is the foundational theory in this field (Schults, 1961; Becker, 1962; Carnoy, 1995). This theory posits that investing in education increases individuals' lifetime earnings through education and training (Woodhall, 1995). According to the Screening Hypothesis, which examines the relationship between education and employment, employers use certifications and diplomas to gather information about job seekers (Layard and George Psacharopoulos, 1974; Riley, 1976; Woodhall, 1995). Blaug (1995) argues that employers develop a screening system that considers not only the education which individuals have received but also their personal characteristics during the hiring process.

The Queue Hypothesis put forward that individuals with higher education levels are preferred in job applications (Carnoy, 1995). According to the Dual Labor Market Theory, markets are not homogeneous. In this theory, markets using advanced production technologies, where well-educated individuals work, are defined as primary markets, whereas markets using backward production technologies, where employee education is not emphasized, are defined as secondary markets (Harrison and Sum, 1979; Aksoy, Aras, Çankaya, and Karakul, 2011). Authors who offer critical approaches to economics of education theories argue that evaluating one's job solely in the context of earning money leads to the loss of creativity which makes humans unique (Aksoy et al., 2011, 82).

Overeducation is one of the concepts which was used in theories of economics of education to explain an exceptional situation. Overeducation describes the education which individuals possessing more than required for their current job (Freeman, 1976, 4-5; Rumberger, 1981, 15; Sicherman, 1991, 101; Alba-Ramirez, 1993, 1). Overeducated individuals are those who have higher educational qualifications than necessary for their job. The phenomenon of overeducation indicates the underutilization of knowledge and skills acquired through education (Büchel, 2001, 460). Freeman (1976) conducted an economic analysis of overeducation, explaining that it occurs in the labor market because of the continuous increase in the number of graduates and the declining economic opportunities promised by university education.

Various studies have documented that a significant portion of university graduates possess more education than required in the labor market (Carroll and Tani, 2015, 631; Dolton and Vignoles, 2000; Frenette, 2004; Hartog 2000). "Overeducation" is costly, leading to reduced earnings (Alba-Ramirez, 1993), low job satisfaction, and low productivity (Tsang, Rumberger & Levin, 1991). Employers use the surplus education that individuals acquire by bearing its cost and investing time in schools (additional years to required duration of school years) as a tool to hire or promote candidates. The increase in the qualifications required by employers at the entry stage directs individuals to pursue more education than necessary to obtain the desired job or position. Entry-level jobs, being the most visible segment in labor markets, are used by employers as a tool to select temporary workers for higher-qualified positions (Aksoy, 1999). "Overeducated" individuals, who have received more education than required for their jobs and accept lower-level jobs to find employment, form the subject of this research problem. This research aims to analyze the education-employment relationship within the context of the economics of education theories based on the views of "overeducated" individuals, who, despite graduating from associate, undergraduate, and postgraduate levels work in entry-level jobs and possess higher educational levels than their colleagues in the same status.

1. What are the experiences of "overeducated" individuals working in entry-level jobs during the hiring process?
2. According to "overeducated" individuals working in entry-level jobs, to what extent do employers consider candidates' education-related variables during the hiring process?

What are the experiences and challenges encountered by "overeducated" individuals working in entry-level jobs?

Method

A qualitative research approach was chosen for this study. Qualitative research differs from quantitative research in its assumptions regarding the nature of reality (ontological), what and how the researcher knows (epistemological), the role of values in the research process (axiological), and the methods used in the research process (methodological) (Creswell, 2017). In Turkey, there are not detailed research and committed studies regarding the overeducation and there is lack of information of the views of the subjects face this situation in the context of economics of education. With a qualitative study, first hand and not constructed information details can be gathered.

Research Design

A phenomenology design was preferred since this study aims to analyze the relationship between education and employment based on individuals' experiences. Phenomenology allows those who experience a phenomenon to express their experiences and realities in their narratives (Sokolowski, 2000). Those features of the phenomenology also can be seen the rationale of the selection the qualitative research method.

Participants

Given that this research is based on the experiences of overeducated individuals, a purposive sampling technique was used to determine the study group. In qualitative research, the purposeful selection of the sample stems from the research aims along with the methodological requirements or limitations. This technique allows researchers to select suitable participants for the study (Creswell, 2017; Marvasti, 2004; Patton, 2002).

The population of this research consists of companies affiliated with the Ankara Chamber of Industry (ASO), which are listed in the "500 Largest Industrial Enterprises in Turkey" in 2019. Attempts were made to reach 28 industrial enterprises affiliated with ASO via email and feedback was received from employee and managers, of the human resources departments a part of 14 companies. Of these, three companies did not find the questions appropriate, two companies declined because of high workload, citing reasons such as "not being able to take workers off the production line," and one company declined because of high COVID-19 cases. The study group comprises seven industrial enterprises affiliated with the ASO that agreed to participate in the research. The enterprises are anonymized in this study. Table 1 presents the demographic information of the study population.

Table 1. *Demographic information about the study group*

No	Gender	Company Code	Position	No	Gender	Company Code	Position
1	Male	Iron	Lathe Technician	17	Male	Water	Driver
2	Female	Iron	Operator	18	Male	Fire	IT Staff
3	Male	Iron	Office Worker	19	Female	Fire	Lab Technician
4	Male	Boron	Technician	20	Male	Fire	Material Supervisor
5	Male	Boron	Electrical Chief	21	Male	Fire	Accountant
6	Male	Boron	R&D Office Worker	22	Male	Fire	Design Supervisor
7	Male	Boron	Cleaning Chief	23	Male	Fire	IT Staff
8	Male	Air	Quality Controller	24	Male	Fire	Technical Staff
9	Male	Air	Quality Controller	25	Male	Fire	Quality Controller
10	Male	Air	Paint Technician	26	Male	Steel	Crane Operator
11	Female	Air	Lab Technician	27	Male	Copper	Procurement Staff
12	Male	Air	Quality Controller	28	Male	Copper	Tank Operator
13	Male	Air	IT Staff	29	Male	Copper	Production Planner
14	Male	Water	Controller	30	Male	Copper	Procurement Staff
15	Male	Water	Material Organizer	31	Male	Copper	Technical Staff
16	Male	Water	Lathe Technician				

As seen in Table 1, the study group consists of 31 overeducated individuals from seven different industrial enterprises. Of the overeducated individuals working in entry-level jobs, nine have a master's degree, and 22 have a bachelor's degree. The data for the study were collected using a semi-structured

interview form developed by the researcher, titled "Analyzing the Relationship Between Education and Employment in the Context of Overeducation." The first part of the interview form includes personal information about the overeducated individuals, while the second part consists of questions addressing the research sub-goals.

In developing the interview form, expert opinions were sought from three measurement and evaluation experts and 15 field and language experts to ensure content validity. Based on the expert feedback, one question was removed from the first section, four redundant questions were removed from the second section, and five questions were revised to meet the qualitative inquiry criteria. Additionally, two pilot studies were conducted to ensure the comprehensibility of the interview form. The final semi-structured interview form was prepared based on expert opinions and pilot study results.

Research Instruments and Procedures

The semi-structured interview form titled "Analyzing the Relationship Between Education and Employment in the Context of Overeducation" was administered to individuals working in entry-level jobs who graduated from bachelor's or master's levels. The form was developed by the researcher with the views of expert panel and the validity were provided by their views. The reliability of the form and the study were provided while processing the research with the suitable conditions to interviews, recording. Additionally, at the data analysis stage to ensure qualitative data reliability, coding was repeated three times. In each coding process, recurring patterns, categories, and themes were maintained, and the analysis was reported.

After explaining the purpose, subject, and scope of the research to the participants, interviews were conducted with those who considered themselves overeducated. The "Direct Self-Assessment" method, known as a subjective evaluation as used by Duncan and Hoffman (1981), Hartog and Tsang (1987), and Sicherman (1991), was used to identify overeducated individuals. Even with their judge before than interviews were administered decided to the interviewees, the researcher evaluated the relationship and mismatch of their position and education regarding the overeducation concept. A total of 38 individuals were interviewed, and the views of 31 self-identified overeducated individuals were collected using the interview form. Before starting the interviews, brief information about the research were given to the the participants and their consent was obtained for audio recordings. The recorded interviews were transcribed verbatim by the researcher.

Data Analysis

The data collected from the interview form were analyzed using content analysis (Neuman, 2014) with the MAXQDA program. In qualitative analysis methods, the inductive process focuses on identifying relationships and regularities based on existing concrete situations rather than general theoretical judgments and explanations. According to Neuman, (2014, 658) qualitative researchers create new concepts, and concept formation is an inherent part of data analysis and one of the methods of extracting meaning from them. In this research, data were organized into more abstract units of information in an inductive manner, creating patterns, categories, and themes from "bottom to top." The codes were systematically classified by comparing them with the data, and the relationship between education and employment in the context of overeducation was analyzed.

Results

This section addresses the causes of overeducation, the criteria employers use to hire overeducated individuals, and the effects of overeducation which are aligned with the sub-goals of the research.

1. Causes of Overeducation

The situation where individuals possess more education than are required for their job stems not only from the individual's demand and value placed on education but also from certain external factors. The primary factors include economic deprivation and unemployment, the labor market, firm structure, the field of study from which the individual graduated, and the expansion of education (as shown in Figure 1).

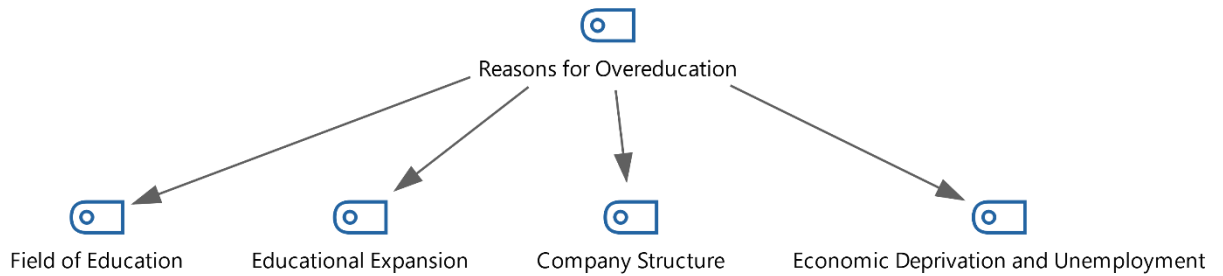


Figure 1. Causes of overeducation

Economic Deprivation and Unemployment: Overeducated individuals may accept jobs below their educational level due to the necessity of securing income and sustaining their lives despite high unemployment rates. This necessity is later coded as "desperation." Overeducated individuals express their situation as follows: "Currently, unemployment is very high in our country. People accept these jobs because they are unemployed" (Bor6). "It is entirely personal. After the pandemic... I accepted this job because I was unemployed. Out of necessity... Economic conditions forced me down this path" (Demir3).

Firm Structure: The size of a firm, its economic strength, the number of employees, and the firm's ability to sustain itself economically can contribute to a sense of security among overeducated employees. The job security provided by firms influences the decision of overeducated individuals to continue working. The views of overeducated individuals working in entry-level jobs regarding firm structure are as follows: "My loyalty to Copper is due to its corporate identity. I can say it's a sense of belonging" (Bakır27). "The institution is large. Bor is a corporate firm—one of the best in Ankara" (Bor4).

Field of Study: Overeducated individuals attribute their work situation in entry-level jobs to their chosen fields of study. They express that the imbalance between supply and demand for certain fields of study, due to not considering the supply-demand balance when determining quotas, leads to an excess in some job fields and a shortage in others. Initially, they were not aware of this imbalance regarding their field of study. "When I started using the software, I had expectations. I want to work on smart systems. However, 10 out of 70 people become software developers. It would have been better if only 20 people had gone there, and 10 had become software developers" (Hava13).

Expansion of Education: Overeducated individuals working in entry-level jobs indicate that an increase in the supply of educated individuals leads to a situation where more education is obtained than is required for the job. They predict that this situation will worsen in the future, with employers preferring those with higher education for entry-level jobs. "It changes over time. For example, previously, very few people pursued a doctorate, but now I look at our office, and everyone is starting a master's degree. They are trying to advance. Naturally, the hiring process for blue-collar workers also changes" (Bor6).

2. Employers' Hiring Criteria

According to the participants, employers' hiring criteria for entry-level jobs include status differences, professional certifications, references, personal characteristics, educational qualifications, and experience. However, it was also mentioned that discrimination is present in this process (as shown in Figure 2).

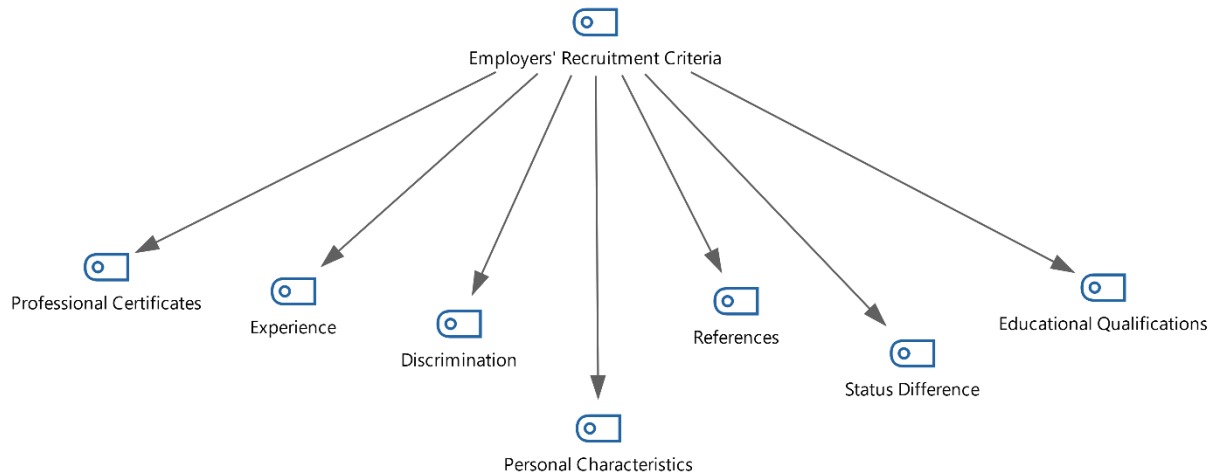


Figure 2. *Employers' hiring criteria*

Educational Qualifications: Some participants indicated that employers primarily focused on their education levels when hiring. They noted that their education levels helped them stand out from other candidates and increased their chances of being hired. "There has to be a difference between a high school graduate and a university graduate. The employer knew I was going to graduate when he hired me. He asked me questions, and since my degree was related to the job, he hired me" (Çelik26).

Status Differences: According to the participants, there are cases where employers do not consider educational levels, particularly during applications for "blue-collar" jobs.

Personal Characteristics: Participants believed that personal characteristics, in addition to educational backgrounds, play a significant role in the hiring process. Some overeducated individuals working in entry-level jobs expressed the following sentiment: "They probably tried to measure my work discipline. They looked at how adaptable I was. I was hired because I was adaptable" (Demir3). "I think my tendency to work in teams and my ability to express myself influenced my being hired" (Ateş23).

Professional Certifications: Overeducated individuals noted that employers place significant value on professional qualifications, sometimes even more than on their degree education. "I think they evaluate all the additional training, projects, and certifications you have" (Hava9).

References: Some overeducated individuals, particularly those working in defense industry companies, mentioned that they were hired based on references. They believe this is crucial for reliability. "References were more influential in my hiring. They knew I was reliable and hardworking because they had inquired" (Demir2).

Experience: Overeducated individuals working in entry-level jobs reported that employers also consider their experience, having relevant experience increases their chances of being hired.

Discrimination: Overeducated individuals who worked in entry-level jobs also expressed encountering various forms of discrimination during hiring and employment. Some participants noted that employers' trust in candidates they hire often stems from favoritism, which they have normalized: "It's not about the level of education, but about connections. Eight of us came together in together. Everyone knows someone inside. So, everyone knows each other. Father-son, brother-brother working together" (Ateş24).

3. Effects of Overeducation

Overeducated individuals reported various issues compared to their less-educated colleagues, including loss of earnings, job performance and satisfaction, career expectations, excessive workload, demand for job changes, and status confusion.

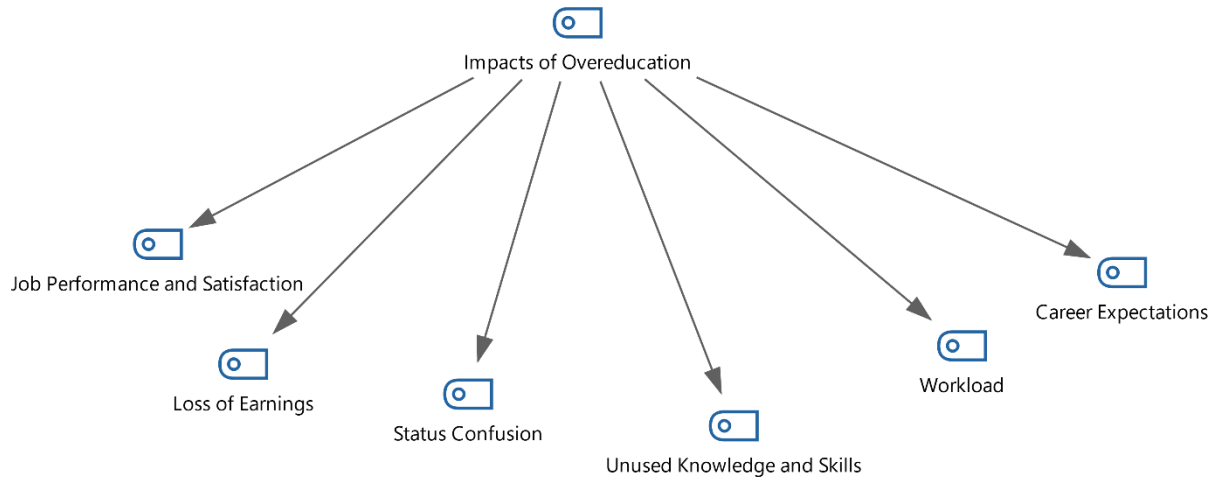


Figure 3. *Effects of overeducation*

Loss of Earnings: Many of the overeducated individuals interviewed indicated that they experienced a loss of earnings compared with their colleagues with similar educational levels. Despite having higher education levels, they stated that they received the same pay as their coworkers, which they felt was unfair. "I am currently one of the lowest-paid technicians" (Ateş24). "I am a university graduate, and I am working in the same unit as those who did not even finish middle school. They earn more than I do" (Su14). "I get the same salary as a high school graduate" (Demir2).

Job Performance and Satisfaction: Overeducated individuals reported being more successful and satisfied in their jobs than their colleagues at the same position think that their success emerge from the attitudes, behaviors, and remarks of their superiors. "Yes, fortunately, I am a well-appreciated employee in my field" (Hava11). Technicians working in jobs typically held by white-collar workers have higher job satisfaction. "Creating and doing something makes me happy. The job I am doing now is more enjoyable than working in the service sector because you can produce something tangible". (Demir1).

Unused Knowledge and Skills: Overeducated individuals in entry-level jobs stated that they have more knowledge and skills than their colleagues but are unable to use them. Some of those who reported not being able to use their knowledge and skills had educational mismatches. Overeducated individuals who cannot utilize their knowledge and skills generally reported low job satisfaction: "The education you received, the profession you learned, and the courses you took are unrelated to your current job, which is problematic." Because you receive so much education, but you don't utilize it". (Çelik26).

Career Expectations: Overeducated individuals working in entry-level jobs hoped to advance in their careers because they worked for large and prominent companies in Turkey. Newly hired overeducated individuals have high expectations for career advancement. "I aim to advance in my career rather than gaining experience. Hopefully, someone will notice" (Hava9). "Because I am a university graduate, maybe they have a long-term plan in mind. If I can prove myself, I might have a chance to move up to a higher level" (Su16).

Workload: Overeducated individuals expressed that their superiors appreciated them for their job success, which in turn increased their workload. Despite having the same status and earnings as their colleagues, they had a heavier workload that did not make them feel privileged. "You are actually in a technician position, but you are doing the job that an industrial engineer should be doing. I think I am doing more than an engineer". (Ateş21)

Status Confusion: Overeducated individuals who work in entry-level jobs are sometimes assigned to areas where white-collar employees work without changes in their rights, status, or earnings. This situation makes them feel somewhat advanced in their status due to their qualifications and job competencies, which brings them partial happiness. Their statements regarding status confusion include: "Even though I do not have the same rights as them (white-collar employees), working here gives me

pleasure. The working environment there (where blue-collar workers are) is more challenging than here. I am aware of that. When I see that, I say, 'thank goodness' and 'I am grateful'" (Bor6).

Demand for job change: Individuals experiencing horizontal mismatches expressed a desire to change jobs when they find better opportunities. Most of the overeducated individuals interviewed mentioned that they wanted to change jobs and work in positions more suited to their education. However, they were unable to fulfill these desires due to the size of the company they work for and the influence of the labor market.

Discussion, Conclusion and Recommendations

In the analyses of themes generated from interviews with overeducated individuals working in entry-level jobs, the results regarding employers' hiring criteria, the causes of overeducation, and the effects of overeducation on their working lives were identified.

Causes of Overeducation. In interviews with overeducated individuals working in entry-level jobs, the themes of overeducation included economic deprivation and unemployment, the field of study, the expansion of education, and firm structure. According to human capital theory, individuals with lower education levels are more likely to be unemployed than those with higher education levels. The theory suggests that the inability of the education system to respond quickly to changes in the labor market is among the reasons for unemployment (Kurnaz and Özyayın, 2020). Graduates are more likely to experience overeducation during periods of high unemployment (Gottschalk and Hansen, 2003). Economic deprivation and unemployment, supported by literature, are seen as the main reasons for overeducation, leading individuals to accept jobs below their education level to avoid unemployment. Economics of education theories struggle to explain why educated individuals remain unemployed, why living standards decline despite increased educational attainment, and there are contradictions in their propositions that education guarantees economic growth (Sweetland, 1996, 356). Bourdieu (2005) explained this situation by stating that capital is considered only for its economic function, which fails to analyze the structure and function of the social world. Therefore, individuals' social and structural context influences their unemployment and economic deprivation.

According to the United Nations Economic Commission for Europe's (2015, 25) Quality of Employment Indicators Report, it is important for employees to work permanently, regularly, and for a long time without the fear of losing their job at any time, which is crucial for employment quality. Institutions play a potentially driving role in the education-employment relationship within the labor market, leading to overeducation (Davia, McGuinness & O'Connell, 2017). Because the companies interviewed are among Turkey's largest 500 companies and have strong institutional structures, individuals prioritize economic stability by accepting overeducation and have not risked leaving their firms. If the additional education received by individuals does not proportionally affect their production, the social return on education becomes zero (ineffective) (Ünal, 1996, 144). Good jobs in the labor market are "scarce," and creating limited employment opportunities for the workforce. Consequently, some highly educated individuals will settle for jobs that can be performed with lower educational qualifications. In this case, the social return on excess education will be zero.

In Türkiye, the demand for higher education is increasing because of labor market conditions. The policy of raising individuals' educational levels is based on the assumption that an unmet demand exists in the labor market or that more educated workers will develop the production techniques they will use (McGuinness, 2006).

Employers' hiring criteria: According to overeducated individuals working in entry-level jobs, employers' hiring criteria include status differences, professional certifications, references, personal characteristics, educational qualifications, and experience. Overeducated individuals believe that employers consider status differences when hiring. Primary labor markets involve creative jobs that require initiative, whereas secondary labor markets involve unskilled labor that requires little experience (McNabb, 1987, 159). The rigid division of the labor market, supported by socio-economic mechanisms outside the workplace qualification plane, indicates the existence of two impermeable sections between the two markets (Uyanık, 1999, 2). According to the Queue Hypothesis, employers' expectations vary depending on the type of job (Aksoy et al., 2011). Overeducated individuals, in line with Aksoy's (1999),

indicate that employers consider educational qualifications differently depending on the status of the job. Therefore, employers act according to the conditions of the dual labor market.

Employers use "educational qualifications" as a tool to gather information about candidates, get to know individuals, and understand their future job performance. The process by which employers obtain a certain information about individuals' education can be explained by the information asymmetry of the Screening Hypothesis (Spence, 1973). According to the Queue Hypothesis, the trainability level affects the cost of on-the-job training. This training provide to increase the individual's productivity in the job (Carnoy, 1983, 1995; Aksoy et al., 2011, 173). Therefore, according to the Queue Hypothesis, employers prefer to hire highly educated individuals because of their easier adaptability to changes in the labor market and lower training costs (Smith, 1986, 95; Quintini, 2011, 9). Aksoy's (1999) research on the education-employment relationship in the US labor market indicates that education is not considered a selection criterion for entry-level jobs. The degree and academic success of an individual at school are not characteristics that employers consider when hiring entry-level jobs. However, employers use educational qualifications to transition from entry-level to higher-level positions (Aksoy, 1999). The views of overeducated individuals align with the propositions of the Screening and Queue Hypotheses, claiming that employers evaluate the education of employees for hiring and trainability.

According to the Screening Hypothesis, employers value diplomas and certificates (Whitehead, 1981, 48). Therefore, education is used as a tool to reduce costs when selecting employable and trainable individuals. Hesapçioğlu (1994, 438) notes that diplomas, certificates, and documents are considered indicators of marginal productivity. The fact that the professional certifications requested by employers at the entry stage are not used in the job indicates the dysfunctionality of these documents.

In the literature there are claims that informal job search methods, such as personal contacts, provide more detailed and reliable information between applicants and employers than formal search methods and are thus healthier. This approach reduces uncertainty in the hiring process, facilitating more qualified job matches if the basic suitability standard for the job is met (Carroll and Tani, 2015, 632). The use of references by overeducated individuals when seeking jobs can be explained by Bourdieu's (2005) concepts of social (titles of nobility, useful networks of relationships) and symbolic (prestige and recognition) capital. Participants working in the defense industry also noted the effectiveness of the element of trust and the influence of those who referred to them. Overeducated individuals working in entry-level jobs mentioned that employers were interested in their previous work experience. According to Sicherman and Galor (1991), due to the lack of experience among overeducated individuals who have entered the workforce for the first time, educational qualifications substitute for work experience.

Factors stemming from educational inequality also influence hiring criteria. Bourdieu and Passeron (2014) indicated that most working-class children cannot obtain useful diplomas from the educational field because of limited economic and cultural resources and cannot enter schools that facilitate quality employment. Even if they achieve diplomas, they lag behind in the competitive phase of transitioning to upward mobility. Bourdieu (1984) found in his research in France that some types of education are expensive, and without financial accumulation, it is impossible to enter certain professions, highlighting inequality in the distribution of job opportunities provided by different types of education.

Effects of Overeducation Overeducated individuals indicated that having more education than their job required affects their work life in terms of earnings loss, job performance and satisfaction, career expectations, workload, job change demand, and status confusion. The existence of overeducation contradicts human capital theory, especially regarding the education-income relationship. According to the Human Capital Theory and the Screening Hypothesis, higher education levels bring higher costs, but the cost of education is lower than the cost of increasing productivity. According to these two theories, overeducation is a temporary phenomenon, and those with higher education levels eventually change jobs and start earning higher wages. On the other hand, overeducated employees tend to change jobs frequently, and those who do not stay long with the same employer are not expected to see significant income increases (Mendes, Santos & Kiker, 2000). From the perspective of overeducated individuals, earnings losses are persistent, making overeducation a permanent

phenomenon. The Queue Hypothesis considers qualification mismatch as a permanent phenomenon in the labor market, asserting that having more education than is required for a job does not bring higher earnings (Quintini, 2011, 9). One of the results of this research is that the excess education received by overeducated individuals does not affect their earnings and leads to earning losses. This finding does not support human capital theory, which posits that earnings increase as individuals' education levels rise.

Spence (1973) suggested that education and learning indicate high productivity and that firms use education to predict employee potential productivity and differentiate between them. The finding that overeducated individuals increase their job performance supports the Screening and Queue Hypotheses, which are aligned with the views of overeducated individuals who work in entry-level jobs. Overeducated individuals generally report low job satisfaction. The literature indicates a negative relationship between overeducation and job satisfaction (Hersch, 1991; Tsang, Rumberger, and Levin, 1991). Therefore, the participants' views on low job satisfaction are consistent with findings in the field.

Becker (1992) stated that in cases of education-job mismatch, firms will seek to fully utilize the skills of the workforce by adapting their production processes to any changes in labor supply. It may be thought that employing overeducated individuals in white-collar positions is intended to increase work productivity. However, the fact that overeducated individuals are not promoted to higher-status jobs despite their ability to perform can be explained by dual labor market theory. As Bowles and Gintis (1975) noted, capital owners' motivation in production is typically to use "the maximum labor at the lowest wage," which explains why overeducated individuals are employed in white-collar positions without any changes to their personal rights and wages.

Participants indicated that they could not use the knowledge, skills, and experiences they acquired through education because of their positions. According to Human Capital Theory, employers utilize all the qualifications and skills of the workforce. Ultimately, in the case of overeducation, where workers' qualifications and skills are underutilized in the labor market, investments made through education might experience potential value loss (Desjardins and Rubenson, 2011, p. 18). This situation is also inconsistent with Human Capital Theory. Overeducated employees continue to work in firms without fully utilizing their potential, leading to a less productive equilibrium in the labor market (McGuinness, Pouliakas, & Redmond, 2018, p. 6).

Participants stated that their high job performance relative to their colleagues and the speed with which they completed tasks assigned by their managers increased their workload. Bowles and Gintis (1975) suggested that, in the context of surplus value theory, employers or firms benefit more from high employee performance. Participants also perceived their excessive workload compared to their colleagues as a disadvantage, perceiving that being overeducated benefited their workplaces rather than themselves.

Supporting a developmental trend that considers these imbalances arising from the power and knowledge asymmetry between educational and market institutions could help these institutions play their expected roles fairer and effectively.

References

- Aksoy, H. H. (1999). Relationship between education and employment: how do employers use educational indicators in hiring? *Journal of Interdisciplinary Education*, 3(1). 171-187.
- Aksoy, H. H., Aras, H. Ö., Çankaya, D., & Karakul, K. A. (2011). Eğitimde nitelik: eğitim ekonomisi kuramlarının eğitimin niteliğine ilişkin kurgusunun eleştirel analizi. [Quality in education: critical analysis of economics of education theories' envision regarding quality of education]. *Eğitim Bilim Toplum*, 9(33), 60-99.
- Alba-Ramirez, A. (1993). mismatch in the spanish labor market overeducation? *The Journal of Human Resources*, 28(2), 259-278. <https://doi.org/10.2307/146203>.
- Becker, G. S. (1962). Investment in human capital: A theoretical analysis. *Journal of political economy*, 70(5, Part 2), 9-49.
- Becker, G. S. (1992). *The economic way of looking at life*. Nobel Lecture. <https://www.nobelprize.org/uploads/2018/06/becker-lecture.pdf>.

- Blaug, M. (1995). Wage and education. In, M. Carnoy (Ed.), *International Encyclopedia of Economics of Education*. Second Editon. (pp. 44-52). Elsevier Science Ltd.
- Bourdieu, B. and Passeron, J.C. (2014). *Varisler, öğrenciler ve kültür*[Heirs, pupils and culture]. (L. Ünsaldı & A. Sümer, Trs.). Heretik Yayıncılık.
- Bourdieu, P. (2005). *Hukukun gücü: yasal alan sosyolojisine doğru*. [The power of law: towards a sociology of the legal field]. (CS. Demir, Trs.). Ankara: Kalan Yayınları.
- Bowles, S., & Gintis, H. C. (1975). The problem with human capital theory. *American Economic Review*, 65(2), 74-82. <https://www.jstor.org/stable/1331525>.
- Büchel, F. (2001). Overqualification: reasons, measurement issues and typological affinity to unemployment. *Extracted from: Descy, Pascaline; Tessaring, Manfred (Ed.), Training in europe, education and job match: there latedness of college major and work. second report on vocational training research in europe 2000: background report*. (CEDEFOP Reference series). Luxembourg: Office for Official Publications of the European Communities. <https://www.cedefop.europa.eu/files/3008EN244Buechel.pdf>.
- Carnoy, M. (1995). Benefits of improving the quality of education. in, *international encyclopedia of economics of education*. M. Carnoy, (Ed.). (pp.154-159) Oxford: Elsevier Science Ltd.
- Carroll, D., & Tani, M. (2015). Job search as a determinant of graduate overeducation: Evidence from Australia. *Education Economics*, 23(5), 631–644. <http://ftp.iza.org/dp7202.pdf>.
- Creswell, J. W. (2017). *Eğitim araştırmaları nicel ve nitel araştırmanın planlanması, yürütülmesi ve değerlendirilmesi*. [Planning, conducting and evaluating quantitative and qualitative research in educational research.]. (H. Ekşi, Trs.). İstanbul: Eğitim Danışmanlığı ve Araştırmaları Merkezi.
- Çömlekçi, N. (1971). *Türkiye'nin iktisadi kalkınmasında eğitimin rolü*. [The role of education in Turkey's economic development].Ankara: Sevinç Matbaası.
- Davia, M. A., McGuinness, S., & O'Connell, P. J. (2017). Determinants of regional difereces in rates of over education in Europe. *Social Science Research*, 63, 67–80. <https://doi.org/10.1016/j.ssresearch.2016.09.009>.
- Desjardins, R., & Rubenson, K. (2011). *An analysis of skill mismatch using direct measures of skills, oecd education working papers*. Paris: OECD Publishing. <https://doi.org/10.1787/5kg3nh9h52g5-en>.
- Dolton, P. J., & Vignoles, A. (2000). The incidence and effects of overeducation in the U.K. graduate labour market. *Economics of Education Review*, 19, 179–198. www.elsevier.com/locate/econedurev.
- Duncan, G. J. & Hoffman, S. D. (1981). The incidence and wage effects of overeducation. *Economics of Education Review*. 1(1), 75-86. [https://doi.org/10.1016/0272-7757\(81\)90028-5](https://doi.org/10.1016/0272-7757(81)90028-5).
- Freeman, R. B. (1976). *The overeducated american*. New York: Academic Press.
- Frenette, M. (2004) The over qualified Canadian graduate: The role of the academic programme in the incidence, persistence and economic returns to overeducation. *Economics of Education Review*, 23, 29–45. [https://doi.org/10.1016/S0272-7757\(03\)00043-8](https://doi.org/10.1016/S0272-7757(03)00043-8).
- Gottschalk, P., & Hansen, M. (2003). Is the proportion of college workers in non college jobs increasing? *Journal of Labor Economics*, 21(2), 409–448. <https://doi.org/10.1086/345564>.
- Harrison, B., & Sum, A. (1979). The theory of “dual” or segmented labor markets. *Journal of Economic Issues*, 13(3), 687–706. doi:10.1080/00213624.1979.11503671
- Hartog, J. & Tsang, M. (1987). *Estimating, testing and applying a comparative advantage earnings function for the US 1969-1973-1977*. Universiteit van Amsterdam, Department of Economic.
- Hartog, J., (2000). Overeducation and earnings: where are we and where should we go? *Economics of Education Review*, 19, 131–147. [https://doi.org/10.1016/S0272-7757\(99\)00050-3](https://doi.org/10.1016/S0272-7757(99)00050-3).
- Hersch, J. (1991). Education match and job match. *Review of Economics and Statistics*, 73, 140-144. <https://doi.org/10.2307/2109696>.
- Hesapçioğlu, M. (1994). *İnsan kaynakları yönetimi ve ekonomisi*. [Human resources management and economics] Ankara: Beta Yayın Dağıtım.
- Kurnaz, I. & Özaydın, M.M. (2020) Eğitimin işgücü piyasasındaki rolü çerçevesinde uyumsuz eşleşme olgusu: Türkiye işgücü piyasasına ilişkin talep yönlü bir değerlendirme. [The mismatch phenomenon within the framework of the role of education in the labour market: a demand-side assessment of the Turkish labour

- market]. *Üçüncü Sektör Sosyal Ekonomi Dergisi* 55(1). 313-336. <http://doi.org/10.15659/3.sektor-sosyal-ekonomi.20.02.1290>.
- Layard, R. and Psacharopoulos, G. (1974) The screening hypothesis and the returns to education source: *Journal of Political Economy*, 82(5) (Sep. - Oct.), pp. 985-998 URL: <https://www.jstor.org/stable/1829179>
- Marvasti, A. B. (2004). *Qualitative Research in Sociology*. Thousand Oaks: Sage.
- McGuinness, S. (2006). Overeducation in the labour market. *Journal of Economic Surveys*, 20, 387-418. <https://doi.org/10.1111/j.0950-0804.2006.00284>.
- McGuinness, S., Pouliakas, K., & Redmond, P. (2018) Skills mismatch: Concepts, measurement and policy approaches, *Journal of Economic Surveys*, 32(4), 985-1015. <https://doi.org/10.1111/joes.12254>.
- McNabb, R. (1987). *Labour Market Theories and Education*, In, G. Psacharopoulos, (Ed.), *Economics of Education: Research and Studies*, Oxford: Pergamon Press.
- Mendes De Oliviera, M., Santos, M. & Kiker, B. (2000). The role of human capital and technological change in overeducation. *Economics of Education Review*, 19, 199-206. [https://doi.org/10.1016/S0272-7757\(99\)00020-5](https://doi.org/10.1016/S0272-7757(99)00020-5).
- Neuman, W. L. (2014). *Toplumsal araştırma yöntemleri. nitel ve nicel yaklaşımlar. [Social research methods: qualitative and quantitative research]*, (O. Akkaya, Trs.). Ankara: Yayınodası.
- Patton, M. (2002). *Qualitative research and evaluation methods*. Sage: Thousand Oaks.
- Quintini, G. (2011), Over-qualified or under-skilled: a review of existing literature, *OECD Social, Employment and Migration Working Papers*, No. 121, OECD Publishing, Paris, <https://doi.org/10.1787/5kg58j9d7b6d-en>.
- Riley, J. G. (1976). Information, screening and human capital. *The American Economic Review*, 66(2), 254-260. <http://www.jstor.org/stable/1817230>
- Rumberger, R. (1987). The impact of surplus schooling on productivity and earnings. *Journal of Human Resources*, 22(1), 24-50. <https://doi.org/10.2307/145998>.
- Sicherman, N. (1991). Overeducation in the labor market. *Journal of Labor Economics*, 9(2), 101-122. <https://www.jstor.org/stable/2535236?seq=1/subjects>.
- Schultz, T. W. (1961). Investment in human capital. *The American economic review*, 51(1), 1-17.
- Smith, H. L. (1986). Overeducation and underemployment: An agnostic review. *Sociology of Education*, 59, 85-99. <https://doi.org/10.2307/2112434>.
- Sokolowski, R. (2000). *Introduction to Phenomenology*. Cambridge University Press: Cambridge, United Kingdom.
- Spence, M. (1973). Job market signaling. *Quarterly Journal of Economics*, 87, 355-374. <https://doi.org/10.2307/1882010>.
- Sweetland, S. R. (1996). Human capital theory: foundations of a field of inquiry. *Review of Educational Research*, 66(3), 341-359. <https://doi.org/10.3102/00346543066003341>.
- Tsang, M. C., Rumberger, W. R., & Levin, H. M. (1991). The impact of surplus schooling on worker productivity. *Industrial Relations*, 30(2), 209-228. <https://doi.org/10.1111/j.1468-232X.1991.tb00786.x>.
- United Nations Economic Commission for Europe. (2015). *Handbook on Measuring Quality of Employment A Statistical Framework New York and Geneva:United Nations*.https://www.unece.org/fileadmin/DAM/stats/publications/2015/ECE_CES_40.pdf.
- Uyanık, Y. (1999). Dualist (İkili) işgücü piyasası teorisi. *[Dualist labour market theory]*. *Gazi Üniversitesi İktisadi ve İdari Bilimler Dergisi*, 1(3.) 1-8. <https://dergipark.org.tr/tr/pub/gaziuiibfd/issue/28357/301517>.
- Ünal, L. I. (1996). *Eğitim ve yetiştirme ekonomisi. [Economics of education and training]*. Ankara: EPAR Yayınları.
- Whitehead, A.K. (1981). Screening and education: a theoretical and empirical survey. *British Review of Economic Issues*, 3 (8). 44-62.
- Woodhall, M. (1995). Human capital concepts. *International Encyclopedia of Economics of Education*. Second Editon. In M.Carnoy (Ed.), (pp.24-28) Oxford: Elsevier Science Ltd.

Rethinking Education in the Digital Age: Readiness for the Professions of the Future

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Duygu Şallı*

Abstract

Education is a complex system that is affected by social, cultural and economic factors and needs to be integrated with different actors. For this reason, the current state of education in the digital age and its possible future perspective should be evaluated from more than one context. As the context of schooling changes when digital technologies are integrated into the education system, the future position of professions as well as programs and practices are affected by this change. The aim of this research is to reveal the views of faculty members on the reflections of the digital age on education and what needs to be done to adapt to the professions of the future. In this study, phenomenology method, one of the qualitative research methods, was used. The sample of the research consists of 10 lecturers. The data obtained as a result of the interviews were analyzed with descriptive analysis technique and content analysis technique. According to the findings of the research, the common skills that students and teachers need to acquire in order to adapt to the professions of the future are determined as digital literacy, digital citizenship and teamwork.

Keywords: Digital age, education, future of professions, artificial intelligence, lecturer.

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Dijital Çağda Eğitimi Yeniden Düşünmek: Geleceğin Mesleklerine Hazır Oluş

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Duygu Şallı*

Öz

Eğitim sosyal, kültürel ve ekonomik faktörlerden etkilenen, farklı aktörlerle bütünleştirilmesi gereken karmaşık bir sistemdir. Bu nedenle dijital çağda eğitimin mevcut durumu ve olası gelecek perspektifi birden fazla açıdan değerlendirilmelidir. Programlar ve uygulamalar bu değişimden etkilenmektedir. Bu araştırmanın amacı dijital çağın eğitime yansımaları ve geleceğin mesleklerine uyum için yapılması gerekenler konusunda öğretim üyelerinin görüşlerini ortaya koymaktır. Bu çalışmada nitel araştırma yöntemlerinden biri olan fenomenoloji deseni kullanılmıştır. Araştırmanın örneklemini 10 öğretim görevlisi oluşturmaktadır. Görüşmeler sonucunda elde edilen veriler betimsel analiz tekniği ve içerik analizi tekniği ile analiz edilmiştir. Araştırmadan elde edilen bulgulara göre öğrencilerin ve öğretmenlerin geleceğin mesleklerine uyum sağlamak için edinmeleri gereken ortak beceriler dijital okuryazarlık, dijital vatandaşlık ve takım çalışması olarak belirlenmiştir.

Anahtar Sözcükler: Dijital çağ, eğitim, mesleklerin geleceği, yapay zeka, öğretim görevlisi.

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Introduction

Today, it is known that education is constantly changing with rapidly evolving technology, cultural dynamics, and social needs. The direction of this change has gained a new dimension, combined with the opportunities brought by the digital age, and has turned into a structure that constantly interacts with one another (Vargas & Romani, 2020). As with every changing structure, educational institutions must ensure a certain level of cultural structuring in order for the digitalized education structure to be effectively included in the education process (Braun, März, Mertens & Nisse, 2020). Today, this change gains meaning with different concepts. For example, the concept of “global competence” is considered a dominant component of futuristic and applicable education. For today's education systems, "global competence" has become a reality that cannot be ignored (Khan, 2022). This situation has brought to the agenda the necessity of creating the education structure of the future within the framework of global competence. Preparing students to fully participate in the world of tomorrow requires the development of global competencies, defined as the capacity to understand and act on issues of global importance. To explain the concept of global competence, it is necessary to focus on students' capacities and competencies beyond their academic education. In this sense, the ideal is for every student to be curious about the global problems of the world, to create a productive information process by nurturing this curiosity, to adapt to different perspectives, and to interact with diverse cultures (Mansilla & Jackson, 2013).

In order for the concept of global competence to be effectively implemented within the education system, individuals must first be equipped with the skills necessary to meet the demands of the current era and the professions of the future. Thus, it will be possible for students to position their careers in a qualified manner in the long term (Sakulprasertsri, 2017). However, we should not forget the possibility of a dysfunctional group emerging because they do not have the skills to meet the needs of the 21st century and cannot maintain their psychological resilience.

For this reason, Harari (2018) suggests that with the emergence of new professions, a long and concerted effort must be made to train individuals suitable for these professions. In this process, there are numerous responsibilities that need to be addressed at the individual, institutional, and societal levels. Organizations should provide ongoing education programs for the development of their employees and establish a supportive work environment. In this sense, lifelong learning is of critical importance in terms of ensuring flexibility and maintaining healthy working conditions in the workplace, as well as protecting the psychological and physical health of employees. For this, the basic motivational conditions of employees must first be met (Popovska, Topuzovska, Popovski, 2012). It is evident that in order to address the challenges of the information age at both conceptual and methodological levels in future management, it is necessary to recognize that learning is the most potent tool for change (Mallik & Mallik, 2019).

The starting point for evaluating education in the digital age in terms of the professions of the future should undoubtedly be 21st century skills. Binkley et al. (2011) categorized these skills as ways of thinking in the 21st century, ways of working in the 21st century, and ways of living in the 21st century, and classified these categories as creativity, innovation, critical thinking, problem solving, decision making, learning to learn, metacognition, communication, and collaboration, it has become clear with the concepts of information and communication literacy, citizenship, life and career skills, personal and social responsibility skills, cultural awareness and competence. In this context, it is thought that it is necessary to focus on 21st century skills in order to understand what has changed in the education process with the digital age and to revise digital education accordingly. It is thought that this research, which provides data about the state of education and the future of professions in the digital age with the framework created from these skills, will contribute to the literature. In line with this information, the aim of the research is to reveal the opinions of faculty members about the reflections of the digital age on education and what needs to be done for the professions of the future. In line with this information, "What are teachers views on education in the digital age and the professions of the future?" constitutes the problem statement of the research. Within the framework of this problem, answers were sought to the following sub-problems:

- What skills do students need to obtain for the professions of the future?
- What skills do teachers need to obtain to prepare students for the professions of the future?
- What are the to prepare of educational institutions in preparing students for the professions of the future?
- What are the possible advantages of using artificial intelligence in education and the possible concerns felt about this issue?
- What are the solution suggestions for the use of artificial intelligence in education?
- What is the readiness of our educational institutions for the professions of the future?

Method

Research Design

This research includes a detailed evaluation of the professions of the future, taking consideration the dimensions of the educational institution, teacher and student, based on the reflection of the digital age on educational institutions. In the research conducted for this purpose, the phenomenology design, one of the qualitative research methods, was used. The phenomenology design is based on phenomena that we are aware of but do not have detailed information (Yıldırım & Şimşek, 2016). In this type of research, people's experiences with the phenomena are examined in depth (Patton, 2014).

Working group

The data of the research was obtained from lecturers working at different universities in the 2022-2023 academic year. Purposive sampling method was used to determine the study group. Purposeful sampling allows the in-depth study of situations that are thought to have rich information (Tarhan, 2015). In order to ensure the diversity of the study group, 10 lecturers selected from different universities through easily accessible case sampling were included in the research. Demographic information about the participants is shown in Table 1.

Table 1. Demographic information of participating lecturers

Participating	University	Gender
1	Okan University	Male
2	Marmara University	Woman
3	İstanbul Galata University	Male
4	İstanbul Teknik University	Woman
5	Mimar Sinan University	Male
6	Bahçeşehir University	Woman
7	Marmara University	Male
8	Marmara University	Woman
9	Yeditepe University	Male
10	Marmara University	Woman

As seen in Table 1, the lecturers participating in the research work at Okan University, Marmara University, Istanbul Galata University, Istanbul Technical University, Bahçeşehir University, Mimar Sinan Fine Arts University and Yeditepe University. As seen in Table 1, 6 of the lecturers participating in the research are women and 4 are men.

Data Collection Tools

An interview form consisting of open-ended and semi-structured interview questions was prepared to obtain the participants' opinions about the research. The preparation of these questions, which constitute the interview form, was carried out by examining in detail the literature on education in the digital age, professions of the future and the application of artificial intelligence in education. While developing the data collection tool, the opinions of a faculty member who specialized in qualitative research and faculty members teach courses such as innovation, entrepreneurship, and future management were taken into consideration. In line with the information obtained from the literature and

the opinions of faculty members teaching courses such as future management, innovation and entrepreneurship, 6 main open-ended questions and additional questions representing these questions were prepared. An expert in the field of educational sciences is Dr. has the title, the other one is Dr. a pilot application was carried out with two lecturers with the title of Lecturer.

Collection of Data

Research data was collected using a semi-structured interview form (Creswell, 2015), which is the main data collection method in qualitative research. Interviews were held with 10 lecturers who volunteered to participate in the research. The interviews were conducted face to face with 7 lecturers, using audio and video call programs over the internet with 3 lecturers. The duration of the interviews varies between 65 minutes and 80 minutes. The interviews were recorded with the permission of the participants and notes were taken by the researcher.

Validity and Reliability Study

In qualitative research credibility, transferability, dependability and confirmability methods are preferred to achieve validity and reliability (Yıldırım & Şimşek, 2016). The studies carried out to ensure validity and reliability in this research are presented in detail below

Credibility

The data obtained from the research were first examined by the researcher and expressed in codes, then coding was done on the same data by a different researcher who has studies on qualitative research. The codes obtained were compared and after consensus was reached, the data analysis was finalized and the consistency of the research was ensured. A pilot application was conducted before collecting the data of the study. For this application, one person with the title of doctor and one with the title of doctor lecturer were interviewed.

Transferability

The statements of faculty members regarding the codes obtained as a result of data analysis are presented in the form of direct quotations, clearly stated as P1, P2, and with frequencies.

Dependability

While developing the data collection tool, the opinions of faculty members teaching courses such as future management, innovation and entrepreneurship were taken. In addition, participant confirmations were obtained regarding the answers given by the participants.

Confirmability

All data obtained from the beginning to the end of the research are stored for review when necessary.

Analysis of Data

The data of the research were analyzed using inductive content analysis techniques. In inductive content analysis, similar concepts in the data set are brought together and analyzed (Creswell, 2015). In this research, codes were determined based on the opinions of the faculty members who made up the participant group. With video recording in meetings held via Zoom; the recordings obtained with a voice recorder during the face-to-face interviews were transferred to the computer environment, the data obtained were read and clearly described with quotations from the participants' opinions under the themes previously created in accordance with the research questions.

Results

In this section, the findings that emerged by analyzing the opinions of faculty members about the educational skills of the future and the future of professions, based on the reflections of the digital age on education, are included.

Themes and codes regarding faculty members opinions about the skills that students should acquire for the professions of the future are given in Table 2.

Table 2. Faculty member opinions on the skills students need to obtain for the professions of the future

Theme	Code	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	F
Student	Digital literacy	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
	Team work	✓	✓	✓	✓		✓	✓		✓	✓	8
	Digital citizenship	✓	✓	✓	✓				✓	✓	✓	7
	Higher order thinking	✓	✓	✓	✓	✓	✓		✓			7
	Economic awareness	✓	✓		✓		✓	✓			✓	6
	Social awareness	✓			✓			✓	✓	✓		5
	Psychological resilience	✓					✓	✓	✓	✓		5
	Cultural awareness			✓	✓		✓		✓	✓		5
	Time management	✓	✓	✓	✓			✓	✓			5
	Health awareness			✓	✓			✓			✓	4

As seen in Table 2, regarding the theme of skills that students should acquire for the professions of the future; 10 codes were determined. The determined codes are, respectively, digital literacy, team work, digital citizenship, higher order thinking skills, economic awareness, social awareness, psychological resilience, cultural awareness, time management, health awareness.

P 8: Analytical thinking, critical thinking and problem solving are among the most basic skills. In addition to these, of course, the use of every device should be aware of ethical rules, that is, it should have digital literacy, first of all.

Themes and codes regarding faculty members opinions about the skills that teachers should acquire in order to prepare students for the professions of the future are given in Table 3.

Table 3. Faculty member opinions on the skills teachers need to obtain in order to prepare students for the professions of the future

Theme	Code	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	F
Teacher	Digital literacy	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
	Lifelong learning	✓	✓	✓	✓			✓	✓	✓	✓	8
	Team work	✓	✓	✓			✓	✓	✓		✓	7
	Leadership	✓	✓	✓			✓		✓	✓	✓	7
	Digital citizenship		✓	✓	✓		✓	✓	✓			6
	Work-life balance	✓	✓		✓			✓	✓	✓	✓	6
	Analytical thinking			✓	✓	✓		✓	✓	✓		6
	Adaption	✓	✓	✓		✓		✓		✓		6
	Self-sufficiency				✓	✓			✓	✓	✓	5
	Flexibility	✓				✓		✓			✓	4

As seen in Table 3, regarding the theme of skills that teachers need to acquire in order to prepare students for the professions of the future; 10 codes were determined. The determined codes are, respectively, digital literacy, lifelong learning, team work, leadership, digital citizenship, work-life balance, analytical thinking, adaptation, self-ufficiency, flexibility.

P 7: First of all, whatever we want to teach the students, we need to check whether the teacher has these characteristics, because who is teaching the students in this process? What will happen if the teachers do not have these skills? The target we set for the students will be a meaningless.

Themes and codes regarding faculty members opinions regarding the to prepare of educational institutions in preparing students for the professions of the future are given in Table 4.

As seen in Table 4, regarding the theme of to prepare of educational institutions to prepare students for the professions of the future; 17 codes were identified. The determined codes are technological infrastructure, positive organizational culture, self-management, adaptation to change, creativity and technology integration, shared vision, interdisciplinary culture, awareness training, digital responsibility awareness, intellectual capital, current program sets, proactivity, transparency, sustainable vision, communities of practice, early start to digital education and merit.

Table 4. Faculty member opinions on the to prepare of educational institutions to prepare students for the professions of the future

Theme	Code	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	F	
Organisation	Infrastructure		✓	✓		✓	✓	✓	✓	✓	✓	8	
	Positive organization	✓	✓	✓		✓	✓	✓		✓	✓	7	
	Self management	✓	✓	✓		✓	✓		✓	✓		7	
	Adaptation to change	✓	✓	✓	✓	✓				✓	✓	7	
	Creativity- technology	✓	✓	✓			✓	✓		✓	✓	7	
	Shared vision	✓	✓		✓			✓		✓	✓	6	
	Interdisciplinary	✓		✓	✓	✓	✓				✓	6	
	Awareness raising	✓		✓	✓	✓		✓		✓		6	
	Digital responsibility		✓	✓	✓	✓			✓			5	
	Intellectual capital	✓		✓			✓			✓	✓	5	
	Current program	✓	✓	✓	✓				✓			5	
	Proactivity			✓		✓				✓	✓	4	
	Transparency	✓	✓			✓					✓	4	
	Sustainable vision	✓	✓								✓	3	
	Communities of practice				✓				✓	✓			3
	Early digital education	✓									✓		2
	Merit	✓	✓										2

P3: Educational institutions should have sufficient technological infrastructure to provide students with training on technology use and digital citizenship.

Table 5. Faculty member opinions on concerns created by the use of artificial intelligence in education

Theme	Code	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	F
Anxiety	Miscommunication	✓	✓	✓	✓			✓	✓	✓	✓	8
	Uncertainties	✓	✓	✓	✓					✓	✓	6
	Ineffective human resources	✓	✓	✓			✓	✓	✓			6
	Mass unemployment	✓	✓				✓	✓		✓		5
	Technology addiction	✓	✓	✓			✓	✓				5
	Financial source				✓	✓	✓	✓				4
	Ethical violation	✓	✓	✓			✓					4
	Organizational blindness	✓				✓	✓				✓	4
	Resistance to change	✓	✓	✓							✓	4
	Inequality of opportunity	✓		✓								

As seen in Table 5, regarding the theme of possible concerns in the use of artificial intelligence in education; 10 codes were determined. Specified codes; miscommunication, uncertainties, ineffective human resources, mass unemployment, technology addiction, financial resources, ethical violation, organizational blindness, resistance to change, inequality of opportunity.

P6: When students receive support from artificial intelligence applications in every subject, their creative thinking, critical approach and analytical thinking skills may decline due to technology addiction.

Themes and codes regarding faculty members opinions about the advantages of using artificial intelligence in education are given in Table 6.

Table 6. Faculty member opinions about the advantages of using artificial intelligence in education

Theme	Code	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	F
Advantage	Saving time	✓	✓	✓			✓	✓	✓	✓	✓	8
	Personal training		✓	✓		✓	✓	✓	✓	✓	✓	8
	Reduced workload	✓	✓	✓			✓	✓	✓	✓	✓	8
	Career development	✓	✓	✓		✓		✓	✓	✓	✓	8
	Reduced bureaucracy	✓	✓	✓	✓		✓	✓		✓	✓	7
	Interdisciplinary learning		✓	✓	✓	✓			✓	✓	✓	7
	Measurement evaluation		✓	✓	✓	✓		✓	✓	✓	✓	7
	Applied learning	✓	✓			✓	✓		✓	✓		6
	Human capital		✓	✓	✓	✓				✓	✓	6
	Control	✓	✓					✓	✓			4
	Digital productivity	✓								✓	✓	✓

As seen in Table 6, regarding the possible advantages of using artificial intelligence in education; 11 codes were identified. Specified codes; these are saving time, personal training, reduction in people's workload, career development opportunities, reduction in bureaucratic burden, interdisciplinary learning, measurement-evaluation, applied learning, human capital increase and control and digital productivity.

P 9: Artificial intelligence can be used to discover, generate, analyze and apply new learning models and materials

Themes and codes regarding faculty members opinions regarding solution suggestions for improving the use of artificial intelligence in education are given in Table 7.

Table 7. Faculty member opinions on solution suggestions for improving the use of artificial intelligence in education

Theme	Code	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	F
Solution	Financial source	✓	✓		✓		✓	✓	✓	✓	✓	8
	Special software	✓	✓		✓	✓				✓	✓	6
	Current research		✓	✓	✓		✓	✓			✓	6
	Human trait	✓	✓				✓		✓	✓		5
	Interdisciplinary groups	✓			✓			✓	✓		✓	5
	Human resource			✓	✓		✓	✓		✓		5
	Augmented intelligence	✓	✓		✓		✓		✓			5
	Control			✓	✓	✓				✓		4

As seen in Table 7, regarding the theme of solution suggestions for improving the use of artificial intelligence in education; 8 codes were determined. Specified codes; increasing financial resources, developing special software, current research, human trait, interdisciplinary learning/working groups, strengthening human resources, augmented intelligence, and strengthening the control mechanism.

P 10: Financial resources are also needed for applications such as customized courses, interactive lessons, gamified classes for skill acquisition, and smart classes.

Themes and codes regarding faculty members opinions (metaphors) regarding the readiness of our educational institutions for the professions of the future are given in Table 8.

As seen in Table 8; regarding the metaphor theme of the readiness of educational institutions for the professions of the future; 10 codes were determined. Specified codes; calculator, hourglass, half-full glass, runner, chicken-and-egg dilemma, bag of information, foggy sky, iceberg, footprint, ocean. The opinions of all participants in the research are included in the table.

Table 8. Faculty member opinions on the readiness of our educational institutions for the professions of the future (metaphor)

Theme	P	Code	Category
Metaphor	1	Calculator	In our education system, certain aspects are system-oriented, yet there's a lack of transition to implementation. In other words, transaction results may appear on the screen, but there's a lack of follow-up, resulting in these outcomes remaining stagnant without being translated into action. Consequently, we find ourselves merely presenting the situation without advancing beyond that stage.
	2	Hourglass	Just like grains of sand slowly pass through a narrow cylinder and accumulate, educational institutions, too, require time to prepare for the professions of the future.
	3	Half full glass	Some schools and educational institutions have created special programs to teach digital skills and are working to equip students with digital skills, but the other half of the glass is still empty
	4	Runner	The race is long and continuous. That's why educational institutions are actually training marathon runners to be ready for the professions of the future, but if not managed well, the runner may be left stranded.
	5	Chicken and egg dilemma	I think it is a process that has turned into a dilemma because the education system has difficulty in keeping up with the digital technologies introduced by educators.
	6	Bag of information	I would like to use the metaphors of knowledge worker and knowledge producer, but we only carry knowledge and it becomes a burden. For this reason, the information crate
	7	Foggy sky	The professions of the future are foggy because they are full of uncertainties, but if these uncertainties are overcome, the sky represents our freedom.
	8	Iceberg	We remain at the level of theoretical awareness about the future, which leaves us at the tip of the iceberg.
	9	Footprint	There are a lot of footprints we leave in the digital environment. This footprint is passive and consists of the traces we leave unconsciously.
	10	Ocean	There is so much to learn, so much is uncertain and full of risks.

Discussion, Conclusion and Recommendations

Contemporary education should not only provide students with knowledge on various subjects and disciplines, but also equip them with the necessary skills and digital competencies to thrive in the digital world (Braun et al., 2020). The findings from the research support this perspective. When examining the skills that students and teachers need to acquire to be prepared for future professions, digital literacy, digital citizenship, and teamwork emerged as common themes. The results indicate that future professions are closely aligned with the concepts of digitalization. According to Braun et al. (2020), it is extremely important to consider students' learning tendencies alongside technological opportunities, as students are the primary beneficiaries of digital education.

On the other hand, in the rapid changes experienced, it is vital that educators, like students, adapt to educational transformations, especially technology-related (Labbas & El Shaban, 2013). According to Selwyn (2011), the use of digital technologies in schools should be seen as a process that aligns with the teaching profession, suggesting that the role of being a teacher should evolve to meet the demands of digital technology.

According to the research findings, in addition to skills such as digital literacy, digital citizenship, and teamwork, students need to acquire other skills for future professions. These include high-level thinking skills, economic awareness, social awareness, health awareness, cultural awareness, time management, and psychological resilience. In the research conducted by Abrosimova (2020), issues with students' skills such as motivation and critical thinking were identified. This indicates that the conditions are not entirely conducive to the transition to digital education. Based on this information and in line with research findings, it can be concluded that students should undergo training to enhance their higher-order thinking skills and critical thinking abilities.

Similar to the concept of lifelong learning highlighted in the research, Polz (2020) discussed the professionalization of teachers, emphasizing lifelong learning skills in his study that introduced the professionalization process in teaching. According to Allabauer (2011), learning and education encompass more than acquiring competence, and lifelong learning primarily necessitates skills such as learning abilities and innovation (as cited in Polz, 2020).

According to Fadli, Astuti & Rukiyati (2020), there is a significant need for teacher resilience to effectively adapt to technological advancements. These findings from Fadli and his colleagues complement the data obtained from the research. While the response of teachers to evolving technology necessitates the ability to adapt to innovations, the fact that teachers who respond slowly to technological advancements may eventually abandon the use of technology due to stress suggests a lack of self-efficacy. Based on this information and the research findings, it can be concluded that teachers should possess the capability to adapt to emerging technologies in the digital age and have self-efficacy in this regard.

According to another finding from the research, certain codes were identified regarding what educational institutions should undertake to prepare students for future professions. These include adaptation to change, shared vision, digital responsibility awareness, intellectual capital, transparency, technological infrastructure, positive organizational culture, creativity, and technology integration within current program sets. Sustaining and enhancing the institutional framework in education is a crucial task for public policies. However, it is important to recognize that public authorities, along with numerous other stakeholders, bear the responsibility of structuring education to offer high-quality and equitable learning opportunities, while also being cost-effective and conducive to innovation (OECD, 2021).

This result coincides with the 'proactive' code obtained in the research on what institutions should do for the professions of the future. According to AlNajdi (2014), the way to combine traditional learning in institutions with new technologies is through the hybrid learning model, which facilitates access to information resources that best reflect teacher and student interaction through independent learning. At this point, in order to implement the necessary changes regarding digital education, a governance structure must be established to achieve sustainable and inclusive results.

According to results obtained from the research regarding possible concerns about the use of artificial intelligence in education, the following codes were identified: uncertainty, ineffective human resources, mass unemployment, lack of communication/emotion, ethical violations, inequality of opportunity, need for financial resources, resistance to change, organizational blindness, and technology addiction. A research conducted by Tao, Diaz, and Guerra (2019) found that artificial intelligence is insufficient in terms of motivation and emotions, which greatly affect people's decision-making processes. Other results from the same study also highlight various negative aspects of using artificial intelligence. Specifically, the use of artificial intelligence in educational processes leads to a lack of leadership, weakens critical thinking skills, and causes students to become passive in the classroom.

According to the results of the research conducted by Bhbosale, Pujari & Multani (2020), artificial intelligence technologies provide many advantages. According to this; similar to the research results, since artificial intelligence can be reprogrammed to work for a long time without getting bored or tired, the human burden can be reduced, thus benefiting from people in different areas, and also saving time. Similarly, in a study conducted by Arslan (2020), criteria such as gaining a new dimension in the measurement and evaluation system, providing individualized learning opportunities, and using artificial intelligence to meet the needs of students are considered important for developing artificial intelligence in education.

Looking at the results regarding the potential advantages and concerns about the use of artificial intelligence in education, it is evident that participants perceive artificial intelligence in two distinct ways:

1. Viewing artificial intelligence as a computer program that poses a threat to humans and reduces or even eliminates interaction between people.
2. Perceiving it as a computer program that simplifies certain tasks for people, creates administrative efficiency for institutions, and provides a new perspective on students learning.

Artificial intelligence, while assisting humans in various aspects, also introduces elements that may pose threats. Therefore, it is crucial for artificial intelligence to be positioned for human benefit while simultaneously being free from risks and dangers. Consequently, the significance of conducting ongoing research on artificial intelligence, as highlighted in the research findings, becomes apparent. Similar to the findings of the research, Göçen & Aydemir (2020) provided several suggestions for the advancement of artificial intelligence. These suggestions include conducting infrastructure development, establishing control mechanisms, considering human psychology, and developing preventive and supportive software.

According to the research findings, academics have articulated various metaphors regarding the preparedness of our educational institutions for future professions. Analysis of these metaphors reveals that faculty members perceive educational institutions as not fully prepared for the demands of the future professions. In elucidating these metaphors, it was noted that they often emphasized the need for educational institutions to internalize artificial intelligence over time and highlighted that current studies on artificial intelligence are superficial.

When these results are examined, it is seen that faculty members are aware of the productive but challenging nature of the process, which is characterized by competition and includes significant uncertainties regarding the professions of the future, considering the constantly changing student profile. However, their inability to foresee whether they are ready to overcome this challenge implies various underlying reasons.

The financial evaluation of the perception of faculty members, as revealed in the research, that educational institutions are not adequately prepared for the demands of future professions is of great importance. The rapid, and uncontrollable pace of change brought about by globalization also increases the demand for financial resources. However, it is observed that institutions lack the capacity to meet this level of financial investment. Moreover, the failure to increase education budgets in parallel with technological developments further exacerbates the increasing need for financing.

When evaluated from an institutional perspective; although there is a conceptual awareness about the professions of the future in terms of educational institutions, it is thought that a mental structuring has not yet taken place. It is thought that the reason for this situation is due to the incompatibility of the skills put forward for the professions of the future and the content offered in educational institutions. This incompatibility between theory and practice requires educational institutions to undergo more radical structural and mental transformations in order to be ready for the professions of the future.

In line with the findings of the research, the following suggestions can be made:

- It is recommended that academic studies on the digital age and artificial intelligence be shared with all educators in educational institutions and collaborations are encouraged based on the results obtained.
- It is recommended that the skills expected to be acquired in future professions are included in training programs and evaluations are made regarding the quality of the application results.
- It is recommended that the outcomes of the skill sets integrated into training programs for future professions be regularly evaluated, and that revisions be made based on the results obtained.
- It is recommended to monitor the sustainability of practices deemed effective in future skills training programs.
- It is recommended to organize trainings that will facilitate teachers' adaptation to the digital age, to evaluate these trainings within the scope of adult education and lifelong learning, and to develop comprehensive policies in this field.

References

- Abrosimova, G. A. (2020). Digital literacy and digital skills in university study. *International Journal of Higher Education*, 9(8), 52-58.
- AlNajdi, S. M. (2014). Hybrid learning in higher education. In Society for Information Technology & Teacher Education International Conference (pp. 214-220). Jacksonville, Florida, United States.

- Arslan, K. (2020). Artificial intelligence and its applications in education. *Western Anatolian Journal of Educational Sciences*, 11(1), 71-88.
- Bhbosale, M. S., Pujari, V., & Multani, Z. (2020). Advantages and disadvantages of artificial intelligence. *Aayushi International Interdisciplinary Research Journal*, 77, 227-230.
- Binkley, M., Erstad, O., Herman, J., Raizen, S., Ripley, M., Miller-Ricci, M., & Rumble, M. (2011). Defining Twenty-First Century Skills. In P. Griffin, B. McGaw, & E. Care (Eds.), *Assessment and Teaching of 21st Century Skills* (pp. 17-67). DOI: 10.1007/978-94-007-2324-5_2.
- Braun, A., März, A., Mertens, F., & Nisser, A. (2020). Rethinking education in the digital age. *Brussels European Union*, 1-20. doi:10.2861/84330.
- Creswell, J. W. (2015). *Qualitative research methods*. (M. Büttin., S. B. Demir, Eds.), Ankara: Siyasal Publishing.
- Fadli, F., Astuti, D. S. I., & Rukiyati, R. (2020). Techno - Resilience for teachers: Concepts and action. *TEM Journal*, 9(2), 820-825.
- Göçen, A., & Aydemir, F. (2020). Artificial intelligence in education and schools. *Research on Education and Media*, 12(1), 13-21.
- Harari, N. (2018). *21 lessons for the 21st century*. Collective Book.
- Khan, S. (2022). *World school: Rethinking education*. (C. Akkaş, Ed.). (19th edition). İstanbul: Yapı Kredi Publications.
- Labbas, R. & El Shaban, A. (2013). Teacher development in the digital age. *Teaching English With Technology*, 13(3),53-64.
- Mallik, D. A. & Mallik, D. L. (2019). Education technology in digital age: Classroom learning for future and beyond. <https://www.researchgate.net/publication/330511927>.
- Mansilla, V.B. & Jackson, A. (2013). Educating for global competence: Learning redefined for an interconnected world, Jacobs, H. (Ed.), *Mastering Global Literacy, Contemporary Perspectives*. New York: Solution Tree. <https://pz.harvard.edu/sites/default/files/Educating%20for%20Global%20Competence%20Short%20HHJ.pdf>
- OECD (2021). *OECD Digital Education Outlook 2021: Pushing the frontiers with artificial intelligence, blockchain and robots*, Paris: OECD Publishing. doi:10.1787/589b283f-en.
- Patton, M. Q. (2014). *Qualitative research and evaluation methods*. (M. Tüm., S. B. Demir, Eds.). Ankara: Pegem Akademi.
- Polz, E. (2020). Being a teacher is a lifelong learning process. *Open Online Journal for Research and Education*, 14,1-8.
- Popovska, M. B., Topuzovska, M., & Popovski, V. (2012). Lifelong learning for best adaptation to the 21st century changes in the world of work. Retrieved from <https://www.researchgate.net/publication/269575385>.
- Sakulprasertsri, K. (2017). Flipped learning approach: Engaging 21st century learners in English classrooms. *Learn Journal*, 10 (2),132-143.
- Selwyn, N. (2011). Revisiting the promise of digital technology and schools. *Schools and schooling in the digital age a critical analysis* (pp.2-22). London: British Library Cataloging in Publication Data.
- Tao, H. B., Díaz Pérez, V. R., & Guerra, Y. M. (2019). Increased intelligence and education challenges and disadvantages for the teacher. *Arctic Journal*, 72 (12), 30-50.
- Tarhan, Ö. (2015). Social studies teacher candidates views on political literacy. *Academic Journal of Social Researc*, 9, 649-669.
- Vargas, P. R., Romani, C. C. (2020). Digital learning: Distraction or default for the future. *Digital Education Review*, 37,1-16. <http://greav.ub.edu/der/>.DOI: 10.1344/der.2020.37.%25p.
- Yıldırım, A., Şimşek, H. (2016). *Qualitative research methods in the social sciences*. Ankara: Seçkin Publishing.

Methodological Diversity and Trends in Intertextual Reading Research

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Abstract

This study aims to reveal the methodological diversity and trends in research on intertextual reading. Using a qualitative descriptive survey, 23 research articles published between 2014 and 2024 were analysed. The research focuses on the methodologies, sample types, data collection tools, prominent findings and recommendations of these articles. The results show that intertextual reading has become a universal area of academic interest by crossing cultural and interdisciplinary boundaries, especially in fields such as education, literature, psychology and linguistics. The study reveals that qualitative methods are predominantly used and that there is a tendency towards in-depth and contextual analyses of intertextual processes. However, quantitative and mixed methods were also used to test the findings in larger sample groups. The research reveals that university students are the primary focus of these studies, but significant attention has also been paid to secondary and primary levels. The findings suggest the global applicability of intertextual reading strategies, the development of critical and creative thinking skills, and students' in-depth understanding of texts from multiple perspectives.

Keywords: Intertextual reading, reading strategies, descriptive survey, methodological diversity.

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Metinlerarası Okuma Arařtırmalarında Yöntemsel Çeřitlilik ve Eğilimler

Makale Türü	Başvuru Tarihi	Kabul Tarihi
Arařtırma	4.10.2024	4.02.2025

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Hayati Akyol**

Öz

Bu çalışma, metinlerarası okuma üzerine yapılan arařtırmalardaki yöntemsel çeřitlilięi ve eğilimleri ortaya koymayı amaçlamaktadır. Nitel betimsel tarama kullanılarak, 2014-2024 yılları arasında yayımlanan 23 arařtırma makalesi analiz edilmiřtir. Arařtırma, bu makalelerin metodolojileri, örneklem türleri, veri toplama araçları, öne çıkan bulguları ve önerileri üzerine odaklanmıřtır. Sonuçlar, metinlerarası okumanın kültürel ve disiplinlerarası sınırları aşarak evrensel bir akademik ilgi alanı haline geldięini, özellikle eğitim, edebiyat, psikoloji ve dilbilim gibi alanlarda yoğunlařtıęını göstermektedir. Çalışmada, nitel yöntemlerin aęırlıklı olarak kullanıldıęı ve metinlerarası süreçlerin derinlemesine ve bağlamsal olarak incelenmesine yönelik bir eğilimin olduęu ortaya koyulmuřtur. Ancak, bulguların daha geniř örneklem gruplarında test edilmesi için nicel ve karma yöntemlerin de kullanıldıęı görülmektedir. Arařtırma, üniversite öğrencilerinin bu çalışmaların birincil odak noktası olduęunu, ancak ortaöğretim ve ilköğretim düzeylerine de önemli ölçüde dikkat edildięini ortaya koymaktadır. Çalışmanın sonuçları, dijital çağda metinlerarası okuma uygulamalarının daha geniř ve etkili bir şekilde kullanılabilmesi için disiplinlerarası arařtırmaların ve dijital teknolojilerin entegrasyonunun önemli olduęunu ortaya koymuřtur. Ayrıca, öğretim süreçlerine odaklanan çalışmaların nitelięinin geliştirilmesi ve ilkokul düzeyindeki öğrencilerle gerçekleřtirilecek arařtırmaların sayısının artırılması gerektięi görülmektedir.

Anahtar Sözcükler: Metinlerarası okuma, okuma stratejileri, betimsel tarama, yöntemsel çeřitlilik.

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Introduction

Educational research has gained a new dimension with its ongoing development in recent years, especially with digital transformation and pedagogical innovations. In this context, intertextual reading has gone beyond being merely a reading strategy and has begun to play a central role in education as a powerful tool that deepens students' sense-making processes, strengthens their critical thinking skills and enables them to evaluate literary works from a multi-layered perspective. This innovative approach in education offers students a rich learning experience by making connections between different texts and redefines the modern understanding of literacy. Intertextual reading stands out as an important pedagogical tool that encourages individuals to think more consciously, critically and creatively in a rapidly changing educational world.

Intertextuality theory analyses the relationships between texts and reveals the contribution of these interactions to the reader's meaning-making process (García-Sánchez & García-Martín, 2021). In this context, readers develop a more layered and in-depth understanding through the relationships they establish between texts. Intertextual reading is enriched by the use of individual and collective memory and diversifies reading strategies by identifying implicit and explicit signs between texts. Michael Sifeter's concept of 'text trace' emphasises the multi-layered structure of texts and the reader's reading experience (Sharrock, 2019). At this point, intertextual reading requires the reader to establish connections between texts by using critical and logical thinking skills.

Intertextual reading allows students to improve their comprehension performance by using multiple texts and multimodal materials. The term multiple texts refers to students analyzing more than one text on the same topic and making connections between these texts. These texts can include written materials from different sources as well as visual elements such as images, graphics, and tables, offering various perspectives, information, or explanations on the topic. By switching between these diverse texts and visual materials, students synthesize information and develop a broader understanding.

Intertextual reading also contributes to students' development of critical thinking and argumentation skills when they read documents with different perspectives. Tarchi and Mason (2020) found that the quality of students' argumentation was directly related to their critical thinking skills after reading documents with different perspectives. This finding suggests that intertextual reading strengthens students' analytical thinking and evaluation skills. In conclusion, intertextual reading offers a rich perspective in understanding and interpreting literary works. This approach enables the reader to establish connections between texts and deepen the comprehension process by using critical and logical thinking skills (Bråten et al. 2011).

Research on intertextual reading enriches the literature in this field by using various methods (Chandrasoma & Ananda, 2018; Stang Lund et al., 2019; Tarchi & Mason, 2020) and perspectives (Abahussain, Shah & Abdul-Rab, 2022; Gabadadze, 2022; Oryaşın, 2021). However, certain methodological challenges (Cromley, Kunze & Dane, 2021; Gabadadze, 2022) and limitations (Borges, 2015; Galvan-Alvarez & Galván, 2021) emerge in these studies.

The fact that research on intertextual reading is handled in various ways by different disciplines weakens the conceptual and practical coherence in this field and leads to complexity in the literature by increasing methodological diversity. This situation makes it difficult to integrate intertextual reading strategies into educational processes and prevents the development of a coherent educational approach. In this context, there is a need to identify general trends and research gaps in this field by evaluating existing studies in the field of intertextual reading. Therefore, the aim of this research is to determine the general trends and problems encountered by determining the reflections of the fact that intertextual reading strategies are handled in different ways in different disciplines and this situation makes it difficult to integrate them into educational processes. The questions of the research are as follows:

1. What are the imprint information, the country, journal and year of publication of the articles dealing with the concept of intertextual reading and other related concepts?
2. What are the methods (qualitative, quantitative, mixed), data collection tools, data analysis methods and sample types used in the articles?
3. What are the prominent themes in the findings of the articles?

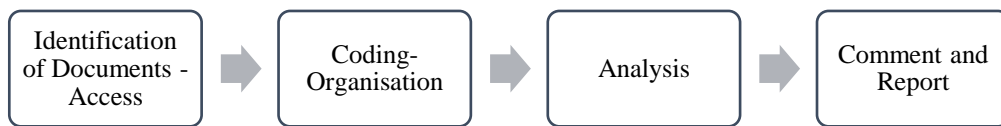
4. What are the prominent themes in the recommendations presented in the articles?
5. What is the outlook of the analysed articles in terms of general research trends?

Method

In this study, review and research articles in which the phenomenon of intertextual reading was discussed in the international literature between 2014-2024 were analysed by descriptive scanning method, one of the qualitative research methods. The articles were analysed with a systematic approach using document analysis technique. In survey research, researchers generally focus on how phenomena and events are distributed rather than their causes (Fraenkel & Wallen, 2006). The descriptive survey model is applied with a systematic strategy in order to increase the generalisability of the results; data on the date, method and results of the researches are evaluated in detail (King & He, 2005). General survey models are defined as survey arrangements carried out on a large population or a selected sample in order to make a general evaluation about this population (Karasar, 2006).

In this study, the steps of document analysis method defined by Okonta and Rossouw (2014) were applied (See Figure 1).

Figure 1. *Document Review Process*



Identification of Documents-Access

The articles examined within the scope of this study were determined by considering the criterion sampling method, one of the purposive sampling methods. The criterion sampling method aims to examine the situations that meet the predetermined criteria in detail (Yıldırım & Şimşek, 2016). The main purpose of this method is to select information-rich samples that can contribute to the research topic in depth (Marshall, 1996). As stated by Patton (2014), in purposive sampling, all situations that meet the criteria determined in order to reach the best data sources suitable for the purpose of the research are included in the research.

In this study, the first criterion sought in the articles included in the review was the presence of the expressions ‘multimodal reading’, ‘multidocument comprehension’, ‘reading with interactive texts’, ‘reading teaching’, ‘advanced reading comprehension’ and ‘teaching process’, which were considered together with the concept of ‘intertextuality’ or directly related to it in the preliminary review. The second criterion is that the studies included in the review should have been published in the last ten years (2014-2024). Analysing the research conducted in the last decade is critical for understanding current developments and trends in scientific knowledge, identifying gaps in the literature and assessing the validity of emerging theoretical frameworks. The third criterion is the inclusion of articles whose full texts can be accessed. Since the articles that cannot be accessed will have to be evaluated only on the basis of abstracts, this may lead to evaluations based on incomplete information and potentially incorrect inferences. For this reason, full-text access has been identified as an important criterion to ensure that the research is carried out with a holistic perspective and the accuracy of the results obtained.

The full texts of the articles were accessed through high potential databases such as Consensus AI, Google Scholar, Academia, ResearchGate, Scopus, Web of Science, ERIC, ProQuest, EBSCOhost and various university libraries. In the screening process, 23 articles identified as meeting the above-mentioned criteria were analysed in depth.

Coding-Organisation

The Article Review Form, which was designed by the researchers based on the Publication Classification Form developed by Gökteş et al. (2012), was used to analyse the articles. The form consists of 4 sections: article colophon, method, findings and recommendations. In the coding process,

the data in the articles were categorised systematically in accordance with the purpose of the study and the criteria determined. The key concepts and themes in the articles were determined and the relevant sections in the texts were carefully scanned in the light of these concepts. In the coding process, concepts such as ‘intertextual reading’, ‘multimodal reading’, ‘multidocument comprehension’, ‘reading with interactive texts’ were coded according to the extent to which they were addressed in the content of each article and how these concepts were used was revealed through thematic analysis. In addition, the findings and recommendations of each article were evaluated and coded in relation to these concepts.

Analysis

The data obtained from the analysed articles were analysed using content analysis technique. This method involves collecting similar data around certain concepts and themes and organising and interpreting these data in a systematic way. Content analysis provides a systematic, objective and quantitative approach to evaluate the variables in the text, thus increasing the reliability of the findings (Wimmer & Dominick, 2000). In this way, it is possible to analyse and interpret the data in depth and to make inferences in accordance with the general purpose of the research.

Comment and Report

The findings of this study were interpreted and reported in detail by the researchers. Based on the coding process and content analysis results, the researchers evaluated the themes and pedagogical approaches that emerged in the articles.

Consistency, Transferability and Verifiability

In this research, consistency, transferability and verifiability were ensured by systematic and meticulous application of methodological processes. With the criterion sampling method, information-rich examples suitable for the purpose of the research were selected and the coding process was carried out systematically in accordance with the determined criteria. Through content analysis, the data were organised and interpreted around certain concepts and themes, thus increasing the methodological reliability and reproducibility of the findings. In addition, an extensive literature review and articles accessed from various databases supported the applicability of the findings in different contexts. Transparent reporting of the methods and detailed evaluation of the findings ensure verifiability by other researchers. These aspects of the study were strengthened by determining the level of inter-coder agreement by comparing the codes reached by the researchers during the examination of the articles with the codes reached by a field expert. The percentage of inter-coder agreement was determined as 89.5% [(percentage of agreement=number of common codes/total number of codes) x 100] and it was determined that this rate was above 70%, which is stated as an acceptable consistency value in the literature (Miles & Huberman, 1994).

Data Analysis

The content analysis of 23 articles in this study reveals that the topic of intertextual reading has a wide geographical distribution at the international level and is addressed in different cultural contexts. The articles were published in various countries and disciplines, indicating that intertextual reading has become a universal area of interest. In terms of methodology, qualitative, quantitative and mixed methods were used in the articles, and this diversity allows intertextual reading studies to be analysed with different research methods and data collection tools. While the findings emphasise the prominent themes in the field of intertextual reading and the contributions of these studies to the field, the suggestions presented in the articles provide guidance for future research and practices.

Findings Related to the First Research Question

The findings reveal in which geographical and academic contexts intertextual reading studies are concentrated and how widespread they have become. In addition, it is seen that these studies are addressed in a wide range of disciplines and at the international level, thus the subject of intertextual reading has become a universal academic interest (See Table 1).

Table 1. *Imprint Information of the Articles*

No	Authors	The journal in which it was published	Country	Year
1	Cromley et al.	Learning and Instruction	USA	2021
2	Abahussain et al.	Theory and Practice in Language Studies	Saudi Arabia	2022
3	Chandrasoma & Ananda	Critical Inquiry in Language Studies	Australia	2017
4	Stang Lund et al.	Reading and Writing	Norway	2019
5	García-Sánchez & García-Martín	Frontiers in Psychology	Spain	2021
6	Tarchi & Mason	European Journal of Psychology of Education	Italy	2019
7	Oryaşın	International Journal of Education & Literacy Studies	Australia	2021
8	Gabadadze	Modern Issues of Medicine and Management	Georgia	2022
9	Deniz Akdal et al.	Eurasian Journal of Educational Research	Türkiye	2014
10	Metin Akyüz	Erzincan University Journal of Graduate School of Social Sciences	Türkiye	2015
11	Işıksalan	International Online Journal of Educational Sciences	Türkiye	2018
12	Kitiş	Journal of Art and Language	Türkiye	2017
13	Taniyan	Journal of Language and Literature Studies	Türkiye	2021
14	Yanardağ & Durmuş	Journal of Literary Criticism	Türkiye	2018
15	Vespoli	Maia	Switzerland	2023
16	Guadu	Plos One	Ethiopia	2024
17	Demir et al.	Learning and Individual Differences	USA, Norway	2024
18	Galvan -Alvarez & Galván	Critique: Studies in Contemporary Fiction	Spain	2021
19	Mackey	Strenæ. Recherches sur les livres et objets culturels de l'enfance	Canada	2023
20	Shaghoor & Hosseini Sirat	Journal of Philosophical Investigations	Iran	2022
21	Ulu Aslan	The Journal of International Social Research	Türkiye	2018
22	Borges	Pesquisas em Discurso Pedagógico	Brazil	2015
23	Özlem Baş et al.	Journal of Social Sciences of the Turkic World	Türkiye	2015

The 23 articles analysed were published in 13 different countries, which reveals that the topic of intertextual reading has received international attention and has been addressed in various cultural contexts. Most of the studies were published in Turkey (8 articles) and the USA (2 articles). These countries show that there is an intensive research activity in the field of intertextual reading. Spain (2 articles), Norway (2 articles) and Switzerland (1 article) also made significant contributions from the European continent. In addition, countries from different continents such as Australia, Saudi Arabia, Ethiopia, Canada, Iran and Brazil have also contributed to this field. This shows that the topic of intertextual reading is a global area of interest and is addressed from different cultural perspectives.

When evaluated in terms of journals, it is seen that the studies were published in journals in different disciplines. For example, there are education-oriented journals such as 'Learning and Instruction' (USA), 'European Journal of Psychology of Education' (Italy) as well as literature-oriented journals such as 'Critique: Studies in Contemporary Fiction' (Spain). This shows that intertextual reading studies adopt an interdisciplinary approach and contribute to different academic fields.

Findings Related to the Second Research Question

The diversity of methodological approaches used in the analysed articles (See Table 2), data collection tools (See Table 3), data analysis methods (See Table 4) and sample types (See Table 5) were revealed.

Table 2. *Methods Used in the Articles (Qualitative / Quantitative / Mixed)*

Method Type	Frequency	% Percent
Qualitative	14	60,9
Quantitative	5	21,7
Mixed	4	17,4
Total	23	100

The analysis of 23 articles reveals the distribution of the methods used in intertextual reading studies. According to Table 2, qualitative methods were preferred in approximately 61% of the articles (14 articles), this finding shows the predominance of qualitative studies that allow in-depth and contextual examination of intertextual reading. Quantitative methods were used in approximately 22% of the studies (5 articles), indicating that such studies contribute to supporting intertextual reading skills with numerical data. Mixed methods were used in 17% of the studies (4 articles), and a more comprehensive and holistic analysis was made by using qualitative and quantitative approaches together. This distribution reveals that methodological diversity plays an important role in intertextual reading studies and various methods are used to answer different research questions.

Table 3. *Data Collection Tools Used in the Articles*

Data Collection Tools	Frequency	% Percent
Semi-structured interviews	10	43,5
Survey	5	21,7
Document Analyses	4	17,4
Observation	3	13,0
Other	1	4,34
Total	23	100

As seen in Table 3, the most commonly used data collection tool was semi-structured interviews (10 articles) with about 44 per cent, this finding shows that researchers tend to collect in-depth and qualitative data from participants. Questionnaires were used about 22% (5 articles each) and document analysis 17% (4 articles), both to obtain quantitative data from large groups of participants and to analyse existing written materials. Observation method was used in about 13% (3 articles) and allowed the behaviours and interactions of the participants in their natural environments to be examined. Other data collection tools were used in 4% (1 article), which shows the importance of diversity in data collection processes and the adoption of different approaches. This distribution reveals that research in the field of intertextual reading is supported by rich and diverse data collection strategies.

Table 4. *Form of Data Analysis Used in the Articles*

Data Analysis Format	Frequency	% Percent
Descriptive Analysis	10	43,5
Content Analysis	5	21,7
Path Analysis	3	13,0
Mediation Analysis	3	13,0
Other	2	8,7
Total	23	100

As can be seen in Table 4, the most commonly used form of data analysis is descriptive analysis with a rate of 44% (10 articles), this finding shows that researchers prefer to make sense of the data by describing and summarising them. Content analysis was used by about 22% (5 articles), and this method was preferred to examine themes and patterns in intertextual reading in depth. Path analysis and mediation analysis were used approximately 13% (3 articles) each, and these analyses focus on

examining the relationships and mediating effects between variables. Other analyses were used approximately 9% (2 articles) and this distribution reveals that the data analysis methods used in intertextual reading studies cover a wide range and various analytical approaches were adopted for in-depth examination of the research findings.

Table 5. *Sample studied in the articles*

Sample	Frequency	% Percent
University students	12	52,2
High school students	6	26,1
Primary school students	5	21,7
Total	23	100

As seen in Table 5, the most frequently studied sample group is university students, with 52% (12 articles). This indicates that the intertextual reading skills of individuals at the university level are extensively examined in research. This can be associated with the fact that most studies on classical literature are conducted at universities. High school students were studied at a rate of 26% (6 articles) and primary school students at 22% (5 articles), showing that intertextual reading studies are addressed at different levels of the education system.

Findings Related to the Third Research Question

The information in the findings sections of the analysed articles reveals a few basic themes and tendencies that stand out in intertextual reading studies. These findings can be summarised under general headings as follows:

Intertextual Transitions and Learning Performance-Skill Development

The frequency with which students make transitions between texts has been identified as an important factor affecting their learning performance. Especially high performing students use these transitions more successfully, but it is stated that these transitions sometimes cause confusion in students (Articles 1, 4, 5 and 17). Intertextual reading processes play an important role in developing students' critical thinking skills (Articles 2, 3, 6 and 11). Intertextual reading approaches significantly improved students' creative writing skills, especially in terms of originality of ideas and vocabulary richness (Articles 10 and 23).

Intertextual reading and personal cultural experience

Students developed deeper meanings by relating the texts to their personal cultural experiences. This shows that intertextual reading contributes to the formation of individual and social identities (Articles 2, 3, 13 and 16).

Literature and intertextuality

Many studies have examined how classical literary works are reinterpreted in modern contexts and how intertextual relationships are established in the process. All other connections, including mythological themes and symbols used in the works, have led to findings that reflect cultural bridges between classical and modern works (Articles 7, 13, 14 and 18).

Intertextual references, explicit and implicit intertextual relationships and comprehension

Findings highlight that students are more likely to recognise explicit intertextual relationships in texts, while implicit and complex relationships are less easily understood (Articles 8, 10, 12 and 23).

Intertextuality and teaching methods

The findings show that intertextual reading proved to be an effective method in developing students' literacy skills. The use of this method enabled students to recognise the relationships between texts and to use these relationships in their written production (Articles 9, 11, 22).

On the basis of the findings obtained, it was possible to identify some main trends that were concentrated in the results of the studies analysed (see Figure 2).

Figure 2. Trends that stand out in the findings

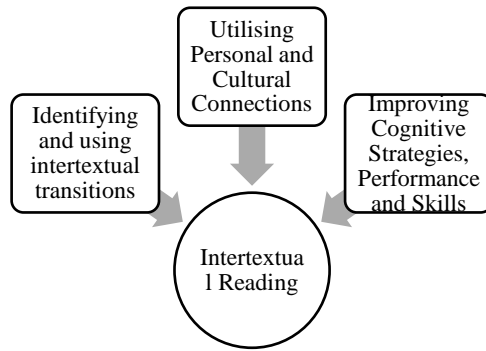


Figure 2 shows three main trends that stand out in the findings of intertextual reading research. Firstly, under the title of ‘Detecting and Using Intertextual Transitions’, readers’ efforts to reach a deeper meaning by making connections between texts are emphasised. Secondly, the ‘Using Personal and Cultural Connections’ tendency shows that readers enrich their meaning by relating texts to their personal and cultural experiences. Finally, ‘Enhancing Cognitive Strategies, Performance and Skills’ refers to the process of developing readers’ cognitive skills such as critical thinking, problem solving and creative writing through intertextual reading. These three tendencies show that intertextual reading is a multifaceted cognitive and cultural activity, enabling readers to interact more deeply with texts and their own inner worlds.

Findings Related to the Fourth Research Question

The analysis of the recommendations section of the articles reveals common suggestions on how intertextual reading strategies can be used more effectively in education and literary analysis. In general, it is emphasised that intertextual reading plays an important role in developing skills such as critical thinking, creative writing, cognitive strategy development and cultural awareness. In particular, comparative analysis of classical works and multiple texts is presented as an effective method for developing students’ higher level reading and comprehension skills. Other benefits recommendations in the research can be listed summarised as follows: (See Table 6).

Table 6. Other Common Themes and Explanations in the Recommendations

Theme	Description	Articles (No.)
Intertextual Reading and Critical Thinking	It is recommended to use intertextual reading strategies to develop critical thinking skills.	2, 3, 6, 11, 22
Creative Writing and Cognitive Strategies	It is recommended to apply intertextual reading methods for creative writing and cognitive strategy development.	5, 9, 17
Use of Classical Works in Education	It is recommended that classical works be introduced at an early age and taught in an intertextual context.	7, 10, 13
Multiple Text and Conflicting Sources	The use of multiple texts is recommended to develop students’ ability to analyse contradictory sources.	1, 4, 12, 17, 23
Prior Knowledge and Intertextual Understanding	It is recommended to investigate how prior knowledge affects intertextual comprehension and the strategies to be used in this process.	17, 18
Literature and Cultural Memory	It is suggested to emphasise intertextual relations that bridge literature and cultural memory.	14, 15, 18, 23
Teachers’ Intertextual Awareness	It is suggested that teachers should use activities that increase intertextuality awareness in their lessons.	5, 21, 22
Critiques on Identity and Social Structures	The use of intertextual reading in the search for identity and the struggle against authoritarian structures is recommended.	16, 20

Findings Related to the Fifth Research Question

Intertextual reading studies conducted in the last decade show that this field has been analysed with increasing interest and addressed in various cultural, geographical and interdisciplinary contexts. These studies reveal that the subject of intertextual reading has become an area of universal academic interest and that research in this field is concentrated in different disciplines such as education, literature, psychology and linguistics.

In terms of methodology, the predominance of qualitative studies shows that there is a tendency towards in-depth and contextual analyses of intertextual reading processes. However, the use of quantitative and mixed methods also reveals that researchers are trying to test intertextual reading skills in larger sample groups and to support their findings with numerical data. This diversity shows that the topic of intertextual reading has been addressed in a multidimensional way and various methods have been adopted to answer different research questions.

In the analysis of the sample groups, it is seen that university students are at the forefront, while high school and primary school students are in the second place. This indicates that intertextual reading skills have been researched especially at the higher education level, but they have also been significantly addressed at other levels of the education system.

These findings suggest that research in the field of intertextual reading in the last decade has used a wide methodological spectrum to understand how this topic is addressed in various contexts and how these processes affect individuals' cognitive, critical and creative thinking skills.

Discussion, Conclusion and Recommendations

The last decade of research on intertextual reading clearly demonstrates that this field has been studied with increasing interest and has been addressed in various cultural, geographical and interdisciplinary contexts. The findings from these studies show that the topic of intertextual reading has become an area of universal academic interest and that research in this field is particularly concentrated in different disciplines such as education, literature, psychology and linguistics (Abahussain et al., 2022; Chandrasoma & Ananda, 2018; Cromley et al., 2021; García-Sánchez & García-Martín, 2021; Sharrock, 2019; Stang et al., 2019). This trend shows that intertextual reading is recognised not only as a reading strategy but also as a multidimensional research field that supports individuals' cognitive development.

From a methodological point of view, the predominance of qualitative research shows that there is a tendency to examine intertextual reading processes in depth and contextually (Kitiş, 2017; Tarchi & Mason, 2020; Weippert, 2018). While the widespread use of qualitative methods in this field reflects an effort to understand the effects of intertextual relations on students in more depth, the use of quantitative and mixed methods also shows the need to test intertextual reading skills in larger sample groups and to support these findings with numerical data (Cromley et al., 2021; Tarchi & Mason, 2020). This methodological diversity reflects the multidimensional nature of intertextual reading and emphasises the need to adopt various methods to answer different research questions.

Studies conducted by researchers from various countries show that the issue of intertextual reading is addressed from an international perspective and analysed in different cultural contexts. These studies reveal that intertextual reading is not limited to a specific geography or culture, but is accepted as a universal reading strategy (Abahussain et al., 2022; Baş et al., 2015; Chandrasoma & Ananda, 2018; Cromley et al., 2021; García-Sánchez & García-Martín, 2021; Sharrock, 2019; Stang et al., 2019). This finding provides important clues about how intertextual reading can be effectively applied in different cultures in line with global educational goals.

The analysis of the sample groups shows that intertextual reading research is particularly concentrated at the higher education level, but it is also considered as an important research area at other levels of the education system (Efendi, 2012; Kitiş, 2017). These findings show that research in the field of intertextual reading is widely applicable not only at the university level, but also at the high school and primary school level. The fact that intertextual reading strategies are effective in developing students' creative writing, reading and comprehension skills is supported by recent research on reading

instruction (Graham et al., 2017; Han, 2023; Shao, 2019). Therefore, it is seen that the phenomenon of intertextual reading should be addressed in studies to be carried out with primary school level students.

The emphasis on the use, competence and effectiveness of educational technologies in educational environments has also been an important research focus. Digital transformation in higher education has been driven by sustainable management practices and technological advances, and there has been a growing body of research on this topic (Abad-Segura et al., 2020; Yıldız et al., 2020). These developments also emphasise the importance of integrating intertextual reading strategies with digital educational technologies. The increasing importance of educational technologies coincides with the fact that research in the field of intertextual reading has started to adopt more innovative and digitally integrated approaches. This situation offers important insights into how intertextual reading can be supported by educational technologies.

In conclusion, this study aimed to deepen the body of knowledge in this field by examining the methodological diversity and trends of research on intertextual reading. It is understood that intertextual reading is universally recognised as an educational tool and that this strategy plays an important role in developing students' critical thinking, creative writing and interpretation skills (Abahussain et al., 2022; Chandrasoma & Ananda, 2018; García-Sánchez & García-Martín, 2021). The wide geographical and cultural range of the research supports the universal applicability of this strategy and confirms that intertextual reading studies are approached from a global perspective. These findings show that intertextual reading is not only a field of academic interest, but also a powerful tool that can be used in education. The integration of educational technologies into this process offers new opportunities for intertextual reading strategies to reach wider audiences and to be applied more effectively in the digital age.

Since it is emphasized in the research that the phenomenon of intertextual reading should be addressed from an early age, new research to be conducted in this field in Turkey can be designed especially for primary and secondary school students. New research can focus on the development and products of students at these levels.

Training programmes can be organised to increase teachers' knowledge and skills on intertextual reading and digital tools and resources can be developed.

The phenomenon of intertextual reading can be integrated into the curriculum in an appropriate manner. Additionally, it can be suggested that this integration is planned to align with the policies of the Ministry of National Education and the K12 Skills Framework.

References

- Abad-Segura, E., González-Zamar, M., Infante-Moro, J., & García, G. (2020). Sustainable Management of Digital Transformation in Higher Education: Global Research Trends. *Sustainability*, 12, 2107. <https://doi.org/10.3390/su12052107>.
- Abahussain, M. O., Shah, U., & Abdul-Rab, S. D. (2022). Intertextual reading: Analyzing EFL context via critical thinking. *Theory and Practice in Language Studies*, 12(5), 964-973.
- Akdal, D., & Şahin, A. (2014). The effects of intertextual reading approach on the development of creative writing skills. *Eurasian Journal of Educational Research*, 54, 171-186.
- Akyüz, M. (2015). Haldun taner tiyatrosunda metinlerarası okuma [Intertextual reading in haldun taner drama]. *Erzincan Üniversitesi Sosyal Bilimler Enstitüsü Dergisi [Erzincan University Journal of Graduate School of Social Sciences]*, 9(2), 291-298.
- Aslan, E. U. (2018). Metinlerarası bir okuma: Pinokyo'yu Kral Übü'nün dünyasına bırakmak [An intertextual reading: leaving pinocchio in king ubu's world]. *Uluslararası Sosyal Araştırmalar Dergisi [The Journal of International Social Research]*, 11(57).
- Baş, Ö., Tuncay, A., & Şahin, A. E. (2015). Asya-Avrupa kökenli masalların ilköğretimde yapısal bir metinlerarasılık perspektifinde kullanılması [The Use of Asia-Europe Originated Stories in Elementary Education from the Perspective of Intertextuality]. *Türk Dünyası Sosyal Bilimler Dergisi, [Journal of Social Sciences of the Turkic World]* (73), 39-62.

- Borges, T. R. S. (2015). Raising Awareness of Intertextuality in Order to Develop Esl Reading Anda Writing Skills: An Account of the Successful Lesson Plan. *Pesquisas em Discurso Pedagógico*, 2015(1), no.24826.
- Chandrasoma, R., & Ananda, L. (2018). Intertextualizing interactive texts for critical thinking: A South Korean EFL experience. *Critical Inquiry in Language Studies*, 15(2), 115-140.
- Cromley, J. G., Kunze, A. J., & Dane, A. P. (2021). Multi-text multi-modal reading processes and comprehension. *Learning and Instruction*, 71, 101413.
- Demir, B., Haverkamp, Y. E., Braasch, J. L., & Bråten, I. (2024). Investigating the role of prior knowledge in comprehending intratextual and intertextual relationships when reading multiple texts. *Learning and Individual Differences*, 111, 102442.
- Efendi, A. (2012). The implementation of intertextuality approach to develop students'critical thinking in understanding literature. *Leksika: Jurnal Bahasa, Sastra dan Pengajarannya*, 6(1).
- Fraenkel, J. R. & Wallen, N. E. (2006). *How to design and evaluate research in education*. Boston: Mcgraw-Hill Publication.
- Gabadadze, N. (2022). Specifics of reading intertext. *Modern Issues of Medicine and Management*, 23(1), 113-117.
- Galvan-Alvarez, E., & Galván, F. (2021). Coetzee's *Foe* and Borges: an Intertextual Reading. *Critique: Studies in Contemporary Fiction*, 62(3), 319-333.
- García-Sánchez, J. N., & García-Martín, J. (2021). Cognitive strategies and textual genres in the teaching and evaluation of advanced reading comprehension (ARC). *Frontiers in Psychology*, 12, 723281.
- Göktaş, Y., Küçük, S., Aydemir, M., Telli, E., Arpacık, O., Yıldırım, G. ve diğerleri (2012). Educational technology research trends in turkey: a content analysis of the 2000-2009 decade. *Educational Sciences: Theory and Practice*, 12(1), 191-199.
- Graham, S., Liu, X., Bartlett, B., Ng, C., Harris, K., Aitken, A., Barkel, A., Kavanaugh, C., & Talukdar, J. (2017). Reading for Writing: A Meta-Analysis of the Impact of Reading Interventions on Writing. *Review of Educational Research*, 88, 243- 284. <https://doi.org/10.3102/0034654317746927>.
- Guadu, A. (2024). An intertextual reading of the novel *Defend the Name*. *Plos one*, 19(6), 1-20.
- Han, X. (2023). A Discourse Analysis Based Applied Research on" Reading to Write" in Junior English Writing. *Journal of Education and Educational Research*, 2(3), 92-95.
- Işıksalan, S. N. (2021). Effects of intertextual reading on creative reading skills. *International Online Journal of Educational Sciences*, 10(4), 273-288.
- Karasar, N.(2006). *Bilimsel araştırma yöntemi [Scientific research method]*. Ankara: Nobel Publishing Distribution.
- King, W. R. & He, J. (2005). Understanding the role and methods of meta-analysis in IS research. *Communications of the Association for Information Systems*, 16,665-686.
- Kitiş, E. (2017). Türkçe ders kitaplarında metinlerarası okumaya yönelik bir inceleme [a study on intertextual reading in turkish textbooks]. *İdil Sanat ve Dil Dergisi, [Idil Art And Language Journal]*. 6(39), 2999-3009.
- Mackey, M. (2023). Small Characters, Big Worlds, and Intertextual Reading. Shirley Hughes' Lucy and Tom Series. Strenæ. *Recherches sur les livres et objets culturels de l'enfance*, (22).
- Marshall, M. N. (1996). Sampling For Qualitative Research. *Family Practice*, 13(6), 522-526.
- Miles, M. (1994). *Qualitative data analysis: An expanded sourcebook*. Sage.
- Okonta, P.I., Rossouw, T. Misconduct in research: a descriptive survey of attitudes, perceptions and associated factors in a developing country. *BMC Med Ethics* 15, 25 (2014). <https://doi.org/10.1186/1472-6939-15-25>
- Oryaşın, M. (2021). Children's Meeting with Classics in the "Eternity Library": An Example of Intertextual Reading. *International Journal of Education and Literacy Studies*, 9(3), 43-51.
- Patton, M. Q. (2014). Nitel araştırma ve değerlendirme yöntemleri [Qualitative research and evaluation methods/ . (M. Bütün & S. Beşir Demir, Trans. Ed.). Ankara: Pegem.
- Shaghoor, Y., & Hosseini Sirat, M. (2022). Intertextual reading of Bakhtin dialogism based on Hegel dialectic. *Journal of Philosophical Investigations*, 16(38), 362-388.

- Shao, S. (2019). Teaching Writing on a Reading-Based Task—A Comparative Study. *International Journal of Information and Education Technology*, 9(3), 218-221.
- Sharrock, A. (2019). *Intratextuality*. In Oxford Research Encyclopedia of Classics.
- Stang Lund, E., Bråten, I., Brandmo, C., Brante, E. W., & Strømsø, H. I. (2019). Direct and indirect effects of textual and individual factors on source-content integration when reading about a socio-scientific issue. *Reading and Writing*, 32, 335-356.
- Taniyan, R. Ö. (2021). Metinlerarası Bir Okuma: Karağağlar Altında Arzu [An Intertextual Reading of Desire Under the Elms]. *Dil ve Edebiyat Araştırmaları [Journal of Language and Literature Studies]*, (24), 151-167.
- Tarchi, C., & Mason, L. (2020). Effects of critical thinking on multiple-document comprehension. *European Journal of Psychology of Education*, 35(2), 289-313.
- Vespoli, L. (2023). War at Night. Some Intertextual Readings in Valerius Flaccus' Cyzicus Episode. *Maia* 75/2-3, 520-529.
- Weippert, T., Domke, L., & Apol, L. (2018). Creating a Third Space through Intertextuality: Using Children's Literature to Develop Prospective Teachers' Critical Literacy. *Journal of language and literacy education*, 14.
- Wimmer, D.D. ve Dominick, J.R. (2000). *Mass Media Research: An Introduction*. Belmont: Wadsworth Publishing Company.
- Yanardağ, M. F., & Durmuş, M. Ö. (2018). Kültürel bellekteki yansımalarıyla Ali Akbaş'ın çiçekler ve kuşlar adlı şiirini metinlerarası bağlamda bir okuma denemesi [A reading essay of ali akbaş's poem çiçekler ve kuşlar in the contextuality with reflections of cultural memory]. *Edebi Eleştiri Dergisi [Journal of Literary Criticism]*, 2(1), 95-105.
- Yıldırım, A., & Şimşek, H. (2016). Sosyal bilimlerde nitel araştırma yöntemleri (10. bs.). [qualitative research methods in social sciences (10th ed.)]. Ankara: Seçkin Publishing.
- Yıldız, E., Çengel, M., & Alkan, A. (2020). Current trends in education technologies research worldwide: Meta-analysis of studies between 2015-2020. *Journal on Educational Technology*, 12, 192-206. <https://doi.org/10.18844/WJET.V12I3.5000>.

Bibliometric Analysis of Studies on Sustainability in Education

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Abstract

This research aimed to analyze the bibliometric properties of literature on sustainability within the educational sphere. Utilizing a descriptive survey approach alongside bibliometric analysis, the study evaluated this area's scholarly outputs and foundational dynamics. Data sourced from the Web of Science (WoS) database facilitated the examination of 1,587 articles on sustainability in education. Employing descriptive statistical methods, the study mapped out the thematic landscape of sustainability in education. It encompassed distribution assessments of scholarly works by geographical location, identified leading scholars, pivotal publications, and key journals, and conducted co-authorship evaluations to delineate the scholarly network. Moreover, analyses of trending topics and strategic diagrams, coupled with word cloud visualizations, were executed. The research unveiled those scholarly discussions on sustainability in education commenced in 1995, expanding over the ensuing three decades to encompass 1,587 articles authored by 4,169 contributors across 492 distinct outlets. The United States emerged as the foremost contributor to this body of research. Drawing on these insights, the study offered directions for future inquiries and practical applications in the field.

Keywords: Education, sustainability in education, bibliometric.

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Eğitimde Sürdürülebilirlik Üzerine Yapılan Çalışmaların Bibliyometrik Analizi

Makale Türü	Başvuru Tarihi	Kabul Tarihi
Araştırma	9.06.2024	28.07.2024

Mehmet Emin Usta* Ümit Doğan** Seyfettin Abdurrezzak***

Öz

Araştırmanın amacı eğitimde sürdürülebilirlik kavramı hakkında yayımlanan çalışmaların bibliyometrik özellikleri açısından incelenmesidir. Araştırma betimsel tarama modelinde gerçekleştirilmiştir. Çalışmada yayın çıktıları ve alanın temel yapısını incelemek için bibliyometrik yöntem kullanılmıştır. Web of Science (WoS) veri tabanında uzaktan eğitim ile ilgili veriler elde edilen veriler neticesinde 1587 çalışma analize tabi tutulmuştur. Araştırma kapsamında eğitimde sürdürülebilirlik kavramının tanımlayıcı yapısı için betimsel istatistiklerden, yayınların ülkelere göre dağılımını gösteren analizlerden, etkili yazarlar, makaleler ve dergilere ait betimsel istatistiklerden, uzaktan eğitim kavramı ile ilgili alanyazının sosyal yapısını ortaya koymaya yönelik ortak yazar analizlerinden, kavramsal yapıyı ortaya koymak amacıyla trend konu analizlerinden, stratejik diyagram ve kelime bulutu analizlerinden yararlanılmıştır. Araştırma sonucunda eğitimde sürdürülebilirlik ile ilgili ilk yayımların 1995 yılında literatüre girdiği, 1995-2023 yılları arasındaki otuz yıllık sürede “eğitimde sürdürülebilirlik” çalışmalarının 4169 yazar tarafından 1587 makalede ve 492 farklı kaynaktan yayınlandığı bulgulanmıştır. Araştırma sonucunda eğitimde sürdürülebilirlik konusunda Amerika Birleşik Devletleri'nin en çok yayın yapan ülke olduğu sonucuna ulaşılmıştır. Araştırma kapsamında elde edilen veriler ışığında öneriler sunulmuştur.

Anahtar Sözcükler: Eğitim, eğitimde sürdürülebilirlik, bibliyometri.

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Introduction

In our contemporary era, the array of environmental, economic, societal, and cultural challenges we face increasingly underscores the criticality of the sustainability paradigm. Sustainability aims to satisfy the requirements of both current and upcoming generations by preserving natural assets, promoting economic growth, advancing social equity, and upholding cultural heterogeneity. Within this scope, the adoption and implementation of the sustainability ethos within educational realms hold marked importance (Ben-Eliyahu, 2015; Liasidou, 2015).

Sustainability pertains to the capacity of an endeavour, procedure, or framework to persist over time without exhausting available resources or compromising the well-being of future generations. This encompasses the judicious management of natural resources, engaging in economic endeavours that are benign to the environment, promoting social parity and justice, retaining cultural multiplicity, and upholding human dignity (Murray, 2012; Venkataraman, 2009).

Education is a fundamental pillar for sustainable growth, empowering individuals to expand their intellect, competencies, and ethical values. Sustainability involves instructing learners on environmental consciousness, fiscal accountability, social fairness, and cultural inclusivity within the educational sphere. Educational institutions must embrace methodologies grounded in the principles of environmental, economic, societal, and cultural sustainability, thereby empowering students to assimilate these tenets into their daily lives (Michelsen and Fischer, 2017). Education focused on sustainability ensures students gain scholarly insights and cultivate awareness and responsibility towards sustainability challenges. Such education provides opportunities for students to engage in eco-friendly behaviours, conserve natural resources, evolve sustainable consumption and production modalities, enhance their understanding of social justice and equity, and celebrate cultural variety. Moreover, sustainable education plays a pivotal role in refining students' analytical thinking, bolstering their capacity for problem-solving, and enhancing their communicative efficacy (Hopkins and McKeown, 2002; Kopnina, 2020; Nevin, 2008; Vare and Scott, 2008).

Sustainable education embodies an integrative approach spanning environmental, social, and economic spectrums. This method concentrates on ecological concerns and grapples with vital issues like social justice and economic progression. The multifaceted nature of sustainable education fosters cooperative endeavours aimed at safeguarding the future well-being of humanity and the planet. In this narrative, scholarly discourse delineates the principal facets of sustainable education, highlighting its expansive and interrelated dimensions (Koehn and Uitto, 2014; McFarlane and Ogazon, 2011; Michelsen and Fischer, 2017; Seghezze, 2009; Warren, Archambault, and Foley, 2014):

Environmental Aspect: The environmental aspect of sustainable education emphasizes the preservation of the ecosystem and the responsible management of resources. It aims to enlighten individuals about their influence on the environment and motivates them to mitigate these impacts. Principal goals involve nurturing awareness of the environment, advocating for the prudent use of resources, safeguarding biological diversity, and addressing climate change challenges.

Social Aspect: The social aspect of sustainable education examines the dynamics between individuals and within communities. It covers topics such as social equity, fairness, human rights, cultural heterogeneity, and communal responsibility. Its purpose is to guide individuals toward fostering equitable and inclusive communities. In this domain, sustainable education aims to heighten sensitivity to societal issues, cultivate empathy and collaboration, champion social fairness, and encourage proactive engagement in civic life.

Economic Aspect: The economic aspect of sustainable education delves into economic growth and affluence sustainability. It scrutinises how economic activities consume resources, influence disparities in wealth, and affect the well-being of societies. Key ambitions include promoting the fair allocation of resources, advocating for sustainable production and consumption practices, aiding the shift towards an eco-friendly economy, and harmonising the environmental and societal repercussions of economic activities.

Cultural Aspect: The cultural aspect of sustainable education focuses on maintaining and transmitting cultural heritage and identities. It highlights the importance of cultural variety and advocates for integrating diverse cultural viewpoints. The objective is to enable individuals to appreciate and understand various cultural backgrounds, honour cultural diversity, and benefit from intercultural exchanges. Sustainable education in this sphere involves enhancing awareness of cultural diversity, encouraging cultural dialogue, and efforts towards the conservation of cultural legacies.

Political Aspect: The political aspect of sustainable education underlines the importance of engaging in political processes and upholding democratic principles. It concerns itself with reinforcing democratic structures, advocating for equitable and transparent governance, and safeguarding the political rights of citizens. This dimension aims to foster political consciousness, reinforce dedication to democratic ideals, and inspire active participation in political affairs. In this framework, sustainable education encompasses education in democratic citizenship, education on human rights, and education for peace. **Global Perspective:** The global aspect of sustainable education advocates for cross-border collaboration to tackle worldwide challenges. This aspect involves addressing global environmental crises, developmental dilemmas, breaches of human rights, and intercultural disputes. The aim is to cultivate a sense of global citizenship, enhance awareness of international issues, and foster a global sense of responsibility. In this realm, sustainable education encompasses teachings on global citizenship, broadening comprehension of international predicaments, and fostering avenues for global collaboration.

Technological Insight: The technological facet of sustainable education delves into the application of technology through a sustainability lens. It covers areas such as sustainable energy sources, efficiency in energy use, environmental surveillance, eco-friendly technologies, and responsible digital engagement. The objective is to enlighten individuals on leveraging technology for sustainable progress while evaluating technological advancements' ecological and societal repercussions. Sustainable education in this domain promotes the integration of ICT in learning, the development of digital literacy, and the democratization of technology access.

Ecological Awareness: The ecological component of sustainable education champions living in sync with our natural surroundings. It emphasises understanding ecosystem dynamics, preserving biological diversity, maintaining ecological equilibrium, and valuing ecosystem services. The goal is to cultivate respect for nature, advocate for the prudent use of natural resources, and endorse ecologically balanced lifestyles. This approach to sustainable education focuses on heightening environmental consciousness, undertaking assessments of environmental impacts, and encouraging practices that align with natural principles.

Global Justice Insight: The dimension of global justice within sustainable education examines the pathways to achieving fairness and equality across the globe. It addresses equitable resource distribution worldwide, upholding the development rights of all communities, safeguarding human rights, and pursuing global economic and social equity. The ambition is to enlighten individuals about international injustices, champion global equity, and stimulate worldwide actions towards justice and equality. Sustainable education here involves teachings on global citizenship, deepening the understanding of international issues, and generating momentum for global advocacy and action.

Political Ecology Perspective: The political ecology angle of sustainable education explores the coexistence of human societies and the natural world. It stresses the importance of considering political, economic, and social dynamics in environmental decision-making. The intention is to render human-nature relationships more sustainable, address environmental challenges within a broader societal and political framework, and involve individuals in shaping environmental policies. In this context, sustainable education focuses on fostering political engagement, fighting for environmental justice, and crafting sustainable governance models.

The imperatives of sustainability and sustainable education are pivotal global necessities in our era. Incorporating sustainability principles within educational frameworks marks an essential move toward ensuring a habitable planet for future progenies. In light of this, there is a pressing need to propagate sustainable education practices and equip students with the knowledge, competencies, and ethos pertinent to sustainability. This study has been initiated to acknowledge the significance of

assessing sustainability-related outputs in education and the foundational architecture of this domain. It delves into the connections comprehensively, drawing on an extensive array of documents from global scholarly sources. The study aims to answer the following inquiries the following questions:

1. What is the descriptive structure of sustainability in education literature?
2. Who are the most influential authors, journals, and articles in sustainability in education literature?
3. What is the social structure of sustainability in education literature?
4. What is the conceptual structure of sustainability in education literature?

Method

In this study, bibliometric techniques were utilized to analyze the scholarly outputs concerning sustainability in education, alongside the core conceptual framework of the field. Bibliometrics, a statistical method, facilitates the assessment of research performance through the analysis of publications and citations, thereby uncovering the intellectual, social, and conceptual frameworks within a particular research domain (Aria & Cuccurullo, 2017; Cobo, López-Herrera, Herrera-Viedma & Herrera, 2011). Contrary to conventional literature reviews that delve into detailed analysis, bibliometric analysis provides a broad overview, enabling a comprehensive view of the collective trends and overarching themes in the research landscape (Zupic & Čater, 2015).

Data Sources

In this study, the "Preferred Reporting Items for Systematic Reviews and Meta-Analyses" (Moher et al., 2009) guided the identification of resources related to sustainability in education. The initial step involved deciding on the database where resources on this topic would be searched. The Web of Science (WoS) is one of the world's oldest and most widely used databases. Updated daily, WoS hosts over 171 million sources, including articles, proceedings, abstracts, biographies, and more (Birkle, Pendlebury, Schnell & Adams, 2020). Due to WoS being the most frequently used database for bibliometric studies and containing the most influential journals and publications in the field, it was decided to conduct the searches in this database (Hu, Wang Ni, & Liu, 2020). In the WoS database, specific search strategies were developed to create a comprehensive database related to sustainability in education. Initially, more than ten studies on sustainability in education from Google Scholar and the WoS database were reviewed to determine keywords. While identifying these keywords, the plus (+) keywords feature in WoS was also utilized. In the second stage, trials were conducted to create the most suitable keyword index in the WoS database using the identified keywords. In the end, a search conducted on February 5, 2024, without any restrictions using the determined keyword index, resulted in a total of 2035 documents. The Web of Science (WoS) database offers filtering options during or after the search based on researchers' preferences. Initially, no filtering was applied to the accessed 2035 documents. However, filtering options were utilized to identify sources directly related to sustainability in education. Applying filters for "Article" as the document type, "SCI-EXPANDED, SSCI, ESCI" as the indexes, and "English" as the publication language resulted in a total of 1682 documents. The titles and abstracts of the studies accessed by two of the researchers were individually reviewed, and 95 documents that were not relevant were excluded. Finally, a plain text file containing data from 1587 articles published between 1995 and 2023, which were included in the study, was downloaded from the WoS database and uploaded to bibliometric analysis programs.

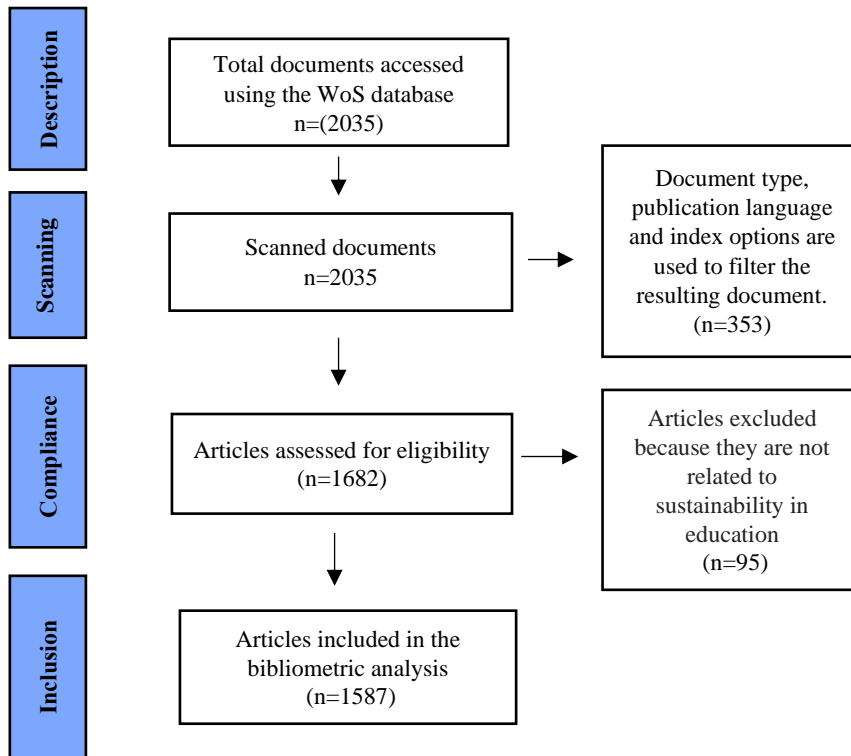


Figure 1. *PRISMA Flow Diagram of the Article Inclusion Process for the Study*

Data Analysis

This study applied bibliometric techniques to scrutinize the corpus of literature on sustainability within education. For the analytical process, both the open-source R package bibliometrix and the VOSviewer software were used. The bibliometrix tool, introduced by Aria & Cuccurullo (2017), is designed for performance evaluation and scientific mapping. Additionally, the Biblioshiny application, offering a user-friendly graphical interface for bibliometric, was employed in the analysis. This R package is compatible with datasets from the Web of Science (WoS), and for this study, metadata from 1587 articles retrieved from the WoS database was processed in plain text format through bibliometric.

The analysis was structured around specific research questions. Techniques such as descriptive statistics and the creation of visualization maps were used to depict the literature's geographic distribution regarding sustainability in education. Analysis of citations and additional descriptive metrics were pivotal in pinpointing key authors, influential publications, and leading journals within this academic sphere. Through the lens of co-citation, co-authorship, and co-word analysis, the study unveiled the intellectual, communal, and conceptual frameworks characterising the sustainability in education literature.

Co-citation analysis delves into the clustering of publications that constitute the intellectual bedrock of the field, frequently cited together in various studies. This analysis can focus on different units, such as studies, journals, or authors. Co-authorship analysis explores the collaborative networks among researchers, identifying connections between authors, countries, and institutions to map out the collaborative landscape. Finally, co-word analysis aims to discern prevailing research themes and establish a conceptual framework, illustrating the interrelations among these themes based on the terminology employed in titles, abstracts, or keywords.

Findings

The research findings are presented under the headings of general findings, the descriptive structure of sustainability in education literature, influential authors, articles, and journals, the

intellectual structure of sustainability in education literature, and current focus topics within sustainability in education literature.

Overview of Literature on Sustainability in Education

The general findings from the bibliometric analysis conducted on sustainability in education between 1995-2023 are shown in Table 1.

Table 1

General Information on Literature Related to Sustainability in Education

Total number of journals published	492
Total number of articles published	1587
Total number of authors published	4169
Number of single-author studies	307
Average citations per article	6,04

An examination of Table 1 reveals that the first publications featuring the concept of sustainability in education entered the literature in 1995. Over the thirty years from 1995 to 2023, studies on sustainability in education have been published by 4169 authors in 1587 articles across 492 different sources. The average citation rate of 6.04 per article confirms the high quality of articles produced in this field.

The distribution of research conducted between 1995-2023 on the general descriptive structure of sustainability in education literature across the years is shown in Figure 2.

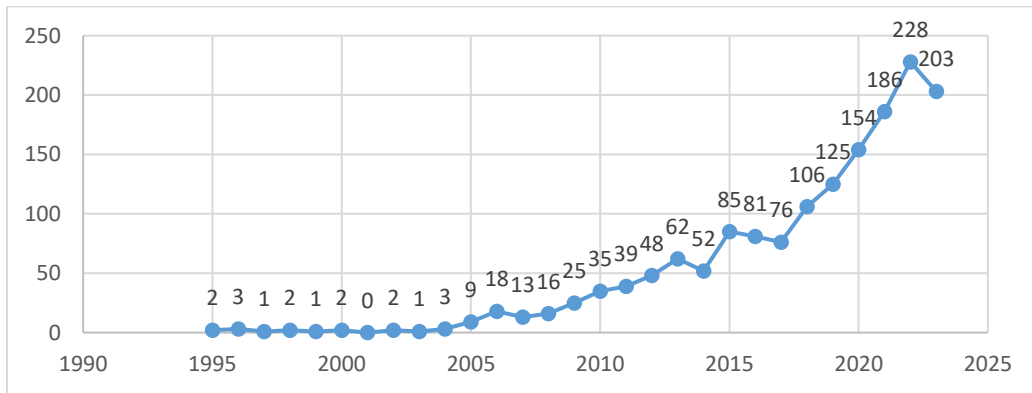


Figure 2. *Distribution of Publications Over the Years*

Analysing the dissemination of the 1,587 studies released from 1995 to 2023, it is observed that publications were sparse up to the 2000s. However, a marked escalation in research activity on sustainability within the educational sector began in 2010, evidenced by a significant uptick in publications. Despite periodic variances in annual publication rates, the trend underscores a sustained scholarly interest in this domain, peaking in 2022 with a record 228 articles. The spatial distribution of these articles related to sustainability in education across the specified period is depicted in Figure 3.

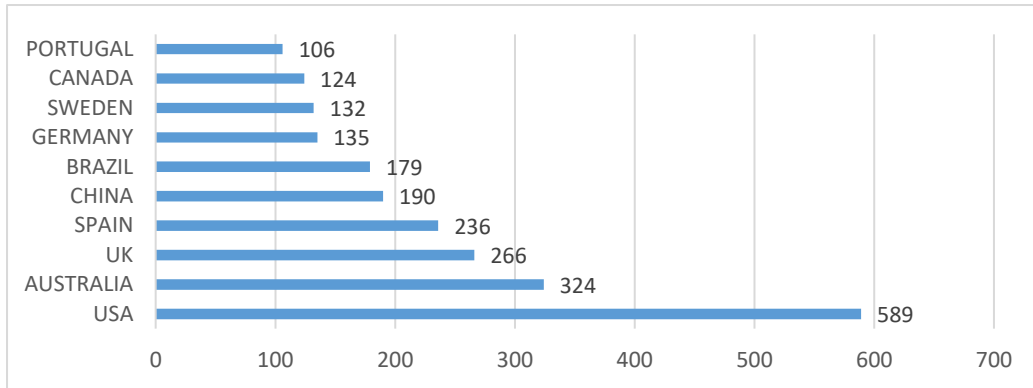


Figure 3. *Scientific Production by Countries*

Figure 3 illustrates the geographic spread of scholarly articles on sustainability in education, tracking the origin of this thematic focus in academic literature back to 1995. This overview considers the nations of the researchers cited within these articles. Leading the charge in terms of volume of contributions to sustainability in education are the United States, Australia, the United Kingdom, Spain, and China, with the United States standing out for its markedly superior publication output relative to the others.

An analysis of co-authorship across nations was conducted to map out the collaborative networks underpinning the sustainability in education discourse, serving as the primary lens for understanding the field's communal architecture. The insights drawn from this international co-authorship examination are presented in Figure 4.

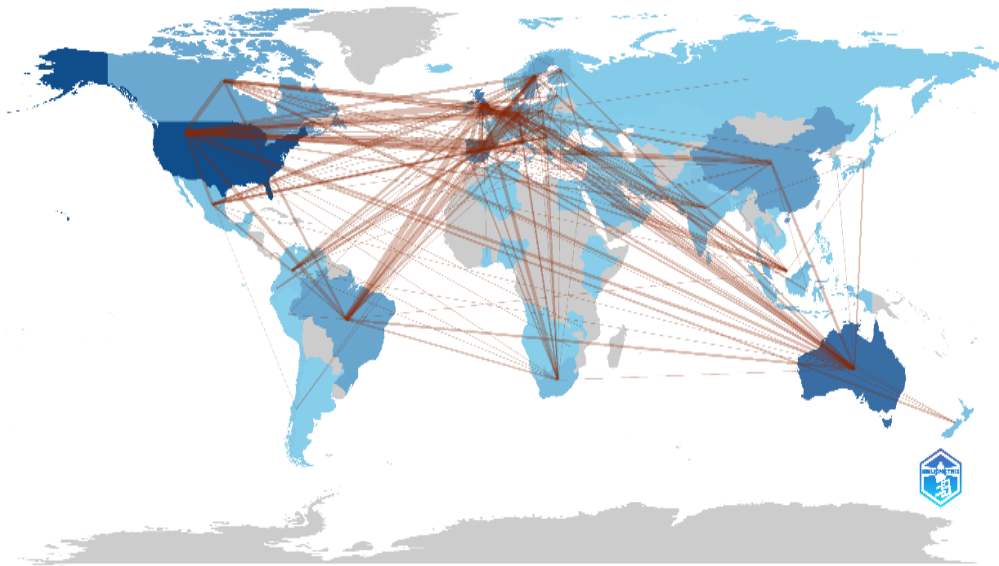


Figure 4. *Co-authorship Analysis (International)*

Analysis of the collaboration network depicted in Figure 4 reveals the United States as a pivotal contributor to sustainability in education research, exhibiting extensive collaborative ties with various nations. Additionally, countries like Australia, the United Kingdom, and Spain emerge as notable for their volume of research outputs and the breadth of their international collaborations compared to other countries.

The citation distribution across geographic regions for studies on sustainability in education spanning the years 1995 to 2023 is illustrated in Figure 5.

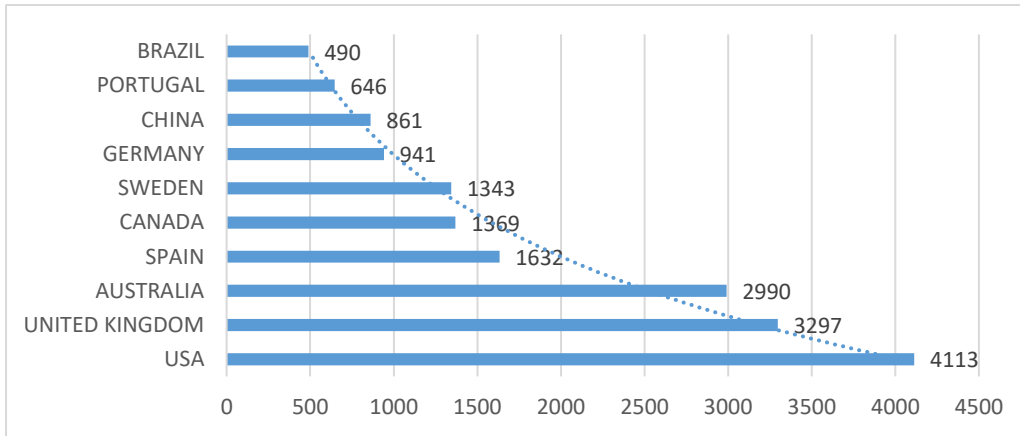


Figure 5. Geographic Distribution of Citations

An examination of Figure 5 reveals that research on sustainability in education is most frequently cited in the United States, with 4113 citations, followed by the United Kingdom, with 3297 citations, and Australia, with 2990 citations.

Influential Authors, Articles, and Journals in Sustainability in Education Literature

The articles included in the bibliometric analysis based on WoS data were examined regarding authors, publications, and citation counts. Figure 6 shows the most productive authors in the sustainability in education literature.

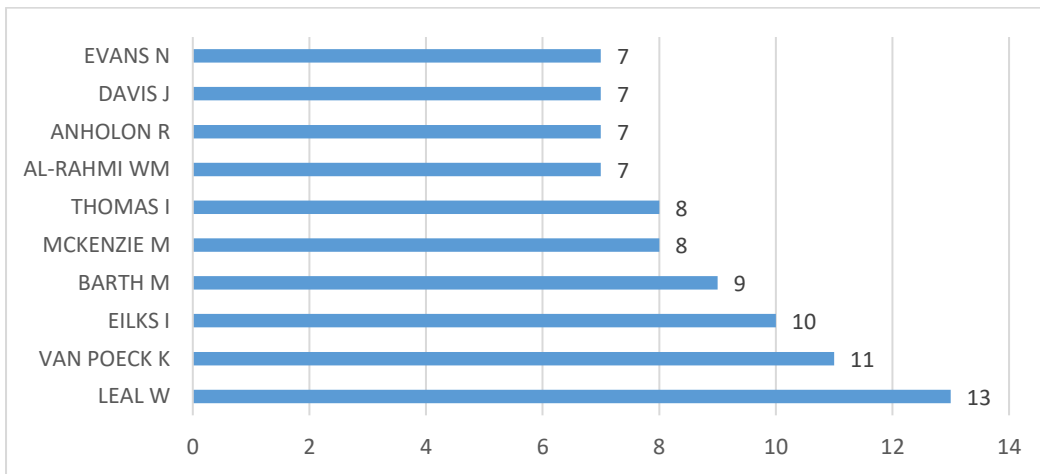


Figure 6. Authors

Figure 6 reveals that the authors with the highest contributions to sustainability in education literature, ranked by productivity, are Leal W., Van Poeck K., and Eilks I., respectively.

Investigations aimed at pinpointing seminal works within the sustainability in education body of literature have highlighted the articles with the most significant impact, as determined by local citation counts from 1998 to the current period, and these findings are catalogued in Table 3.

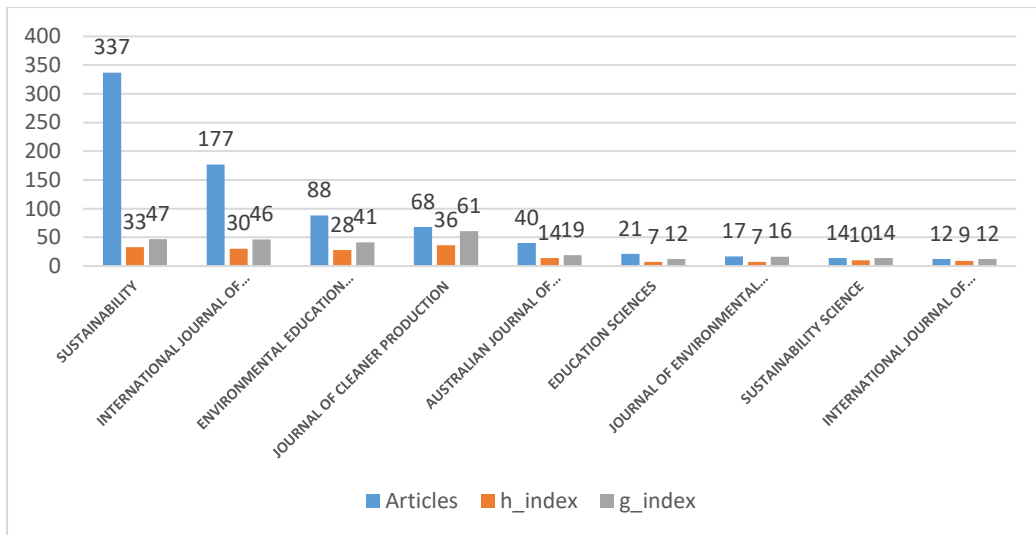
A review of Table 3 indicates that the article by Lozano, Lukman, Lozano, Huisingh, and Lambrechts (2013) stands out as the most pivotal in the sustainability in education, centring on a study concerning the sustainability within higher education.

Table 3. Articles with the Most Local Citations

Articles	Local Citation	Global Citation
Lozano, R., Lukman, R., Lozano, F. J., Huisingh, D., & Lambrechts, W. (2013). Declarations for sustainability in higher education: becoming better leaders, through addressing the university system. <i>Journal of Cleaner Production</i> , 48, 10-19.	97	568
Sterling, S., & Thomas, I. (2006). Education for sustainability: the role of capabilities in guiding university curricula. <i>International Journal of Innovation and Sustainable Development</i> , 1(4), 349-370.	38	135
Stephens, J. C., & Graham, A. C. (2010). Toward an empirical research agenda for sustainability in higher education: exploring the transition management framework. <i>Journal of Cleaner Production</i> , 18(7), 611-618.	34	156
Aleixo, A. M., Leal, S., & Azeiteiro, U. M. (2018). Conceptualization of sustainable higher education institutions, roles, barriers, and challenges for sustainability: An exploratory study in Portugal. <i>Journal of Cleaner Production</i> , 172, 1664-1673.	32	197
Brundiers, K., Barth, M., Cebrián, G., Cohen, M., Diaz, L., Doucette-Remington, S., ... & Zint, M. (2021). Key competencies in sustainability in higher education—toward an agreed-upon reference framework. <i>Sustainability Science</i> , 16, 13-29.	32	177

Efforts to determine the leading journals within the sustainability in education scholarly landscape have resulted in identifying the most influential publications on this subject, spanning from 1998 to the current time, as detailed in Table 4.

Table 4. Journals



An examination of Table 4 reveals that the journal publishing the most articles on sustainability in education is "Sustainability," while the journal with the highest h-index is "Journal of Cleaner Production." It is evident that the Sustainability journal, in particular, publishes research in the field of sustainability, thereby significantly contributing to the development of sustainability in education.

Conceptual Structure of Literature on Sustainability in Education from 1995-2023

Strategic diagrams are employed to illustrate trends associated with keywords in the realm of bibliometric studies. Such diagrams are segmented into four quadrants, each symbolizing distinct thematic categories. Centrality is plotted along the x-axis, while density appears on the y-axis. Motor themes, pivotal for the foundational structure of a research domain and exhibiting substantial development, are located in the top right quadrant. The top left quadrant houses isolated themes, the lower left quadrant encompasses fading themes, and the lower right quadrant identifies the core themes within the field. A thematic map covering research from 1995 to 2023 related to sustainability in education is depicted in Figure 7.

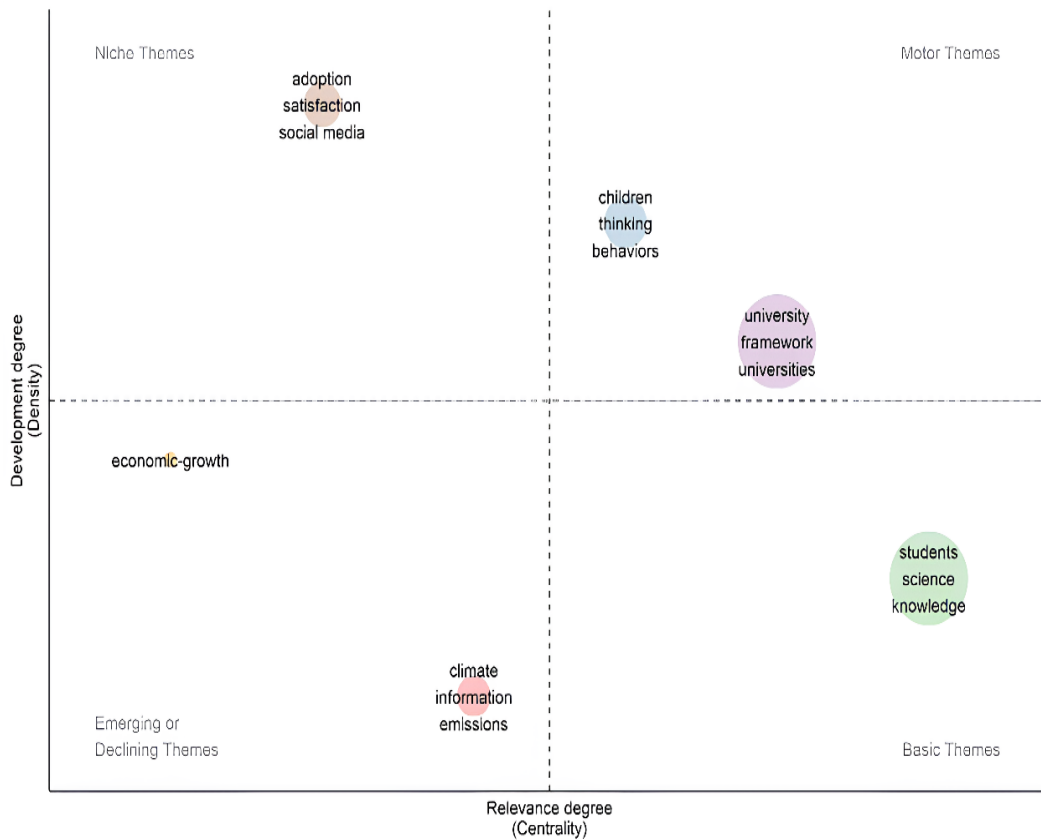


Figure 7. Thematic Map of Research Published on Sustainability in Education Between 1995-2023

As seen in Figure 7, the bottom right quadrant includes themes of students, science, and knowledge; the bottom left quadrant contains themes of climate, economic growth, emissions, and knowledge, indicating areas where sufficient research has not yet been conducted. In the top right quadrant, words like university, thinking, and behaviour are prominent, representing well-developed and essential themes for the field. The bottom left quadrant highlights themes losing interest and where the number of research publications is decreasing, with climate and knowledge themes standing out.

Recent trend topics related to sustainability in education are presented in Figure 8.

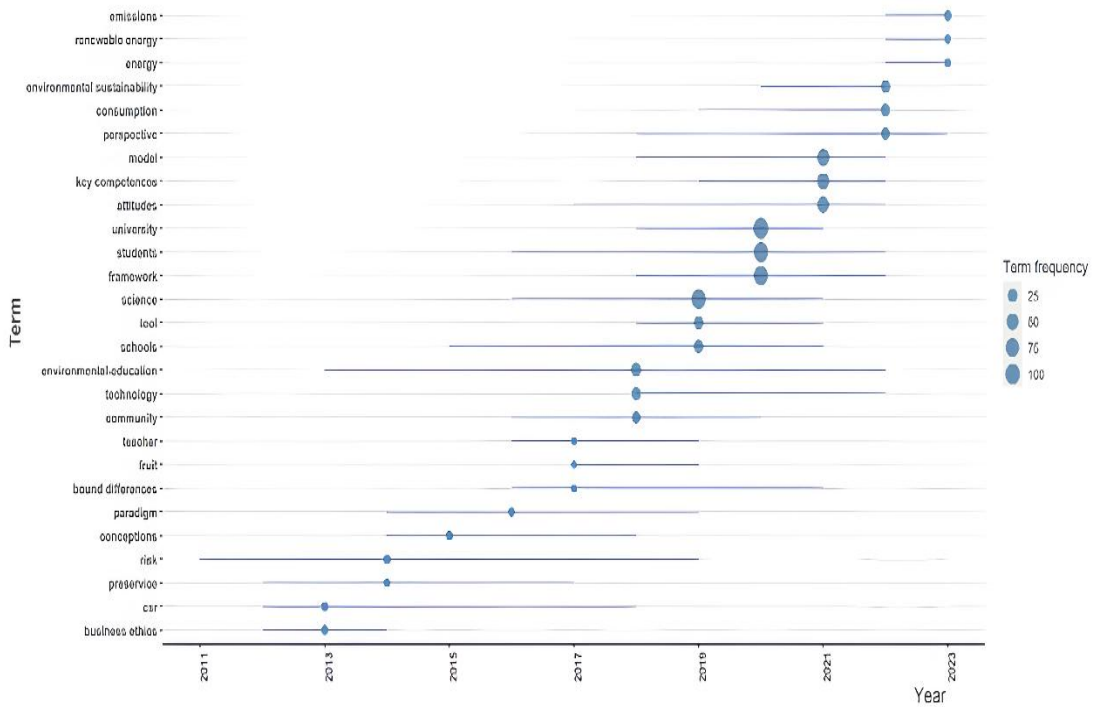


Figure 8. *Trend Topics Between 1995-2023*

The lines in Figure 8 represent the timeline placement of topics, while the nodes indicate the frequency of words. The length of the lines also shows that the topics are still of current interest. Examining Figure 8 reveals that there has been long-standing research in environmental education within the sustainability in education literature, which has remained relevant over time. Looking at recent trends, from 2022 onwards, energy and renewable energy topics have emerged as prominent.

Bibliometric analysis enables the visualization of keywords most commonly employed by authors in studies through a word cloud. Figure 9 displays the keywords that authors have most frequently utilized in their research on sustainability in education spanning the years 1995-2023.



Figure 9. *Word Cloud of Most Frequently Used Keywords in Research on Sustainability in Education Published Between 1995-2023*

An examination of Figure 8 shows that the most frequently used keywords are university ($f=105$), students ($f=87$), science ($f=86$), framework ($f=80$), knowledge ($f=80$).

Discussion, Conclusion and Recommendations

This study aims to illuminate in detail the evolutionary course of research related to sustainability in education (SE) and to present the developments in this field comprehensively. Covering 1587 articles between 1995 and 2023, this research examines the literature's size, development, and global distribution through bibliometric analysis. The analysis provides a broad perspective aimed at deciphering the countries where this field is studied, influential authors, significant articles, prominent journals, and the complex social networks of researchers. This discussion section seeks to delve deeper into the key findings that emerged during this comprehensive exploration process.

When evaluating the concrete findings of the study, it is essential to be aware of the contextual limitations and natural restrictions that shape the scope of the research. A primary limitation of the dataset used in this study is its focus mainly on journal articles, excluding other sources indexed in the WoS database. While the research offers valuable insight into the trajectory of journal articles, it does not aim to cover the entire contribution to the concept of sustainability in education. Secondly, the research faces a methodological limitation of bibliometric analysis; this method is a powerful but specific approach designed for reviewing and mapping the scientific landscape rather than synthesising various research findings. Moreover, bibliometric analysis is geared towards revealing trends in generating knowledge rather than amalgamating the outcomes of existing research. Consequently, this study does not supplant the necessity for detailed reviews that scrutinise the conclusions of works within this body of knowledge. Recognising these inherent limitations of the current research is crucial for accurately interpreting its results and situating them within a wider scholarly dialogue.

The research begins with a comprehensive overview of the descriptive structure of the sustainability in education (SE) literature. This overview encompasses the literature's size, development, annual variations, and geographical distribution, particularly highlighting a continuous growth in the sustainability in education literature since the 1990s. The study emphasizes how sustainability in education research has become more pronounced in practice since the 2010s. The developmental trend in SE literature revealed by the research findings aligns with the results of similar studies (Veiga Ávila et al., 2018; Hallinger & Chatpinyakoo, 2019; Yıldırım, 2020). Furthermore, recent years have seen increased research on sustainability in education. Longitudinal data indicate that 63% of SE literature was produced in the last five years since 2018. These trends confirm the rapidly growing interest in SE literature among academics. Another significant finding from this research is the concentration of the SE knowledge base within a group of economically developed Western societies, with a large portion (37%) originating from the USA. The findings demonstrate that while SE research is becoming a globally recognised and widespread field, most of this research comes from the USA. Consequently, we can infer that sustainability in education attracts attention primarily from researchers in more developed Western countries (USA, UK, Australia, Spain). Therefore, we believe there is a need to increase research in SE on a global scale and in developing countries.

This research, offering a detailed exploration of influential authors, articles, and journals in the SE literature, highlights significant contributions by key figures such as Leal W., Van Poeck K., and Eilks I. Undoubtedly, other researchers have also made substantial contributions to the field's development. For instance, academics like Wiek, Rieckmann, Huisinigh, Lozano, Sterling, and Barth are emphasized for their significant contributions to developing sustainability literature in higher education (Hallinger & Chatpinyakoo, 2019). These researchers have significantly contributed to the field's development. Furthermore, we see that these authors produce the articles receiving the most citations, both locally and globally. Reviewing the academic recognition processes of SE research, this study notes that the journal "Sustainability" is the most published, while "Journal of Cleaner Production" holds the highest h-index, showcasing significant contributions to this field with national and international research. It can be said that "Sustainability" publishes research in the field of sustainability, thereby significantly contributing to the development of sustainability in education. The results of the journal analysis were generally consistent with the literature. For example, "Sustainability" (ranked 4th by Veiga Ávila et al., 3rd by Hallinger and Chatpinyakoo) and "Journal of Cleaner Production" (ranked 1st by Veiga Ávila et al., 2nd by Hallinger and Chatpinyakoo). Similarly, "International Journal of Sustainability in Higher Education," having the second-highest publications in this study, showed results consistent with other research (3rd by Veiga Ávila et al., 1st by Hallinger and Chatpinyakoo). These journals are

among the classic ones in sustainability management (Veiga Ávila et al., 2018). The consistency of results across these studies is more significant than the minor differences in journal rankings. Therefore, they represent the core journals publishing research related to SS, EER, JCP, JEE, AJEE, IJSHE, and HESD. All are high-quality journals, ranking high among WoS journals in their respective subject areas. A critical recommendation emerging from these findings is the increase in the number of journals that encourage and support research in the SE literature, which will provide a broader platform for international studies in the future

This study's third set of results revealed the prevailing themes currently under exploration within the SE body of literature. The analysis points out significant themes like university involvement, critical thinking, and behavioural studies as central to the discourse. These topics have been identified as well-established and vital to the academic field. The research underscores the ongoing relevance of these themes in scholarly debates. In line with this, research focusing on sustainability management in higher education settings, including aspects of teaching, learning, and capacity building in higher education for sustainable development (HESD), as well as research and development within HESD, aligns with existing literature findings (Hallinger & Chatpinyakoo, 2019). Furthermore, the emphasis on environmental education for sustainable development, education for development or global citizenship, and intercultural education (O'Flaherty & Liddy, 2018), along with inquiries into business, economics, environmental science, ecology, and management studies, are acknowledged as pertinent contemporary subjects (Veiga Ávila et al., 2018). This research similarly reveals that environmental education has been a long-standing focus and has remained on the agenda for an extended period. Meanwhile, themes such as climate and knowledge are beginning to lose their significance in the field over the years. A notable result is neglecting themes such as adoption, satisfaction, and social media in SE research. We believe that adoption should fundamentally underlie sustainability. As this research indicates, there is a need for studies in education that motivate society to embrace sustainable development. Looking at recent trends, the literature on SE shows that topics of energy and renewable energy are coming to the forefront. A significant development is that energy has become the most discussed topic among researchers in the SE field. We think one of the factors driving this focus on energy in SE research is the increasing interest in renewable energy sources for a sustainable environment. Our findings point to several conclusions. Firstly, the findings reveal that the capacity to conduct research related to sustainability in education (SE) is unevenly distributed worldwide, being more prevalent in Western developed countries. In contrast, comparatively fewer studies are conducted in developing societies. We emphasise the importance of encouraging academics in developing countries to engage in SE research. Secondly, this study compiled a rigorously validated inventory of pivotal journals, documents, and authors central to shaping discussions within this arena. The prominent scholars, texts, and periodicals highlighted in this analysis, which have played a significant role in advancing the discourse, serve as crucial reference points for scholars in Sustainability Education (SE), laying the groundwork for grasping key conceptual motifs and empirical insights. Given our planet's limited resources, there has been a discernible increase in the emphasis on sustainability over time. This trend is manifested in the expansion of SE literature, the diversity of contributing journals, and the calibre of journals and scholars engaging with this subject. Moreover, sustainability is increasingly an imperative objective by governments, corporations, civil societies, and local governments at national and international gatherings, where diverse stakes frequently have a notable impact. Education is essential for fostering sustainable development and boosting individuals' capabilities to tackle environmental and developmental challenges. From this standpoint, educational initiatives should heighten community awareness regarding sustainability challenges and equip learners with the necessary knowledge and skills (Michelsen & Fischer, 2017). Reflecting on these insights, this research advocates for the inclusion of topics pertinent to embracing sustainable development within SE literature and urges a broadened scope to achieve a thorough and up-to-date comprehension of this critical field of study.

References

- Aria, M., & Cuccurullo, C. (2017). Bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of informetrics*, 11(4), 959-975.
- Ben-Ellyahu, A. (2021). Sustainable learning in education. *Sustainability*, 13(8), 4250.
- Birkle, C., Pendlebury, D. A., Schnell, J., & Adams, J. (2020). Web of Science as a data source for research on scientific and scholarly activity. *Quantitative Science Studies*, 1(1), 363-376.
- Cao, X., Laplante, D. P., Brunet, A., Ciampi, A., & King, S. (2014). Prenatal maternal stress affects motor function in 5½-year-old children: Project Ice Storm. *Developmental psychobiology*, 56(1), 117-125.
- Cobo, M. J., López-Herrera, A. G., Herrera-Viedma, E., & Herrera, F. (2011). Science mapping software tools: Review, analysis, and cooperative study among tools. *Journal of the American Society for information Science and Technology*, 62(7), 1382-1402.
- Dancause, K. N., Laplante, D. P., Oremus, C., Fraser, S., Brunet, A., & King, S. (2011). Disaster-related prenatal maternal stress influences birth outcomes: Project Ice Storm. *Early human development*, 87(12), 813-820.
- Hallinger, P., & Chatpinyakoo, C. (2019). A bibliometric review of research on higher education for sustainable development, 1998–2018. *Sustainability*, 11(8), 2401. <https://doi.org/10.3390/su11082401>
- Hopkins, C., & McKeown, R. (2002). Education for sustainable development: an international perspective. *Education and sustainability: Responding to the global challenge*, 13, 13-24.
- Hu, G., Wang, L., Ni, R., & Liu, W. (2020). Which h-index? An exploration within the Web of Science. *Scientometrics*, 123(3), 1225-1233.
- J. O'Flaherty & M. Liddy (2018) The impact of development education and education for sustainable development interventions: a synthesis of the research, *Environmental Education Research*, 24(7), 1031-1049, <https://10.1080/13504622.2017.1392484>
- King, S., Dancause, K., Turcotte-Tremblay, A. M., Veru, F., & Laplante, D. P. (2012). Using natural disasters to study the effects of prenatal maternal stress on child health and development. *Birth Defects Research Part C: Embryo Today: Reviews*, 96(4), 273-288.
- King, S., Mancini-Marie, A., Brunet, A., Walker, E., Meaney, M. J., & Laplante, D. P. (2009). Prenatal maternal stress from a natural disaster predicts dermatoglyphic asymmetry in humans. *Development and psychopathology*, 21(2), 343-353.
- King, S., & Laplante, D. P. (2005). The effects of prenatal maternal stress on children's cognitive development: Project Ice Storm. *Stress*, 8(1), 35-45.
- Koehn, P. H., & Uitto, J. I. (2014). Evaluating sustainability education: lessons from international development experience. *Higher Education*, 67, 621-635.
- Kopnina, H. (2020). Education for the future? Critical evaluation of education for sustainable development goals. *The Journal of Environmental Education*, 51(4), 280-291.
- Laplante, D. P., Brunet, A., Schmitz, N., Ciampi, A., & King, S. (2008). Project Ice Storm: Prenatal maternal stress affects cognitive and linguistic functioning in 5½-year-old children. *Journal of the American Academy of Child & Adolescent Psychiatry*, 47(9), 1063-1072.
- Liasidou, A. (2015). Sustainable Inclusive Education Reforms. *Inclusive Education and the Issue of Change: Theory, Policy and Pedagogy*, 105-115.
- McFarlane, D. A., & Ogazon, A. G. (2011). The challenges of sustainability education. *Journal of Multidisciplinary Research (1947-2900)*, 3(3).
- Michelsen, G., & Fischer, D. (2017). Sustainability and education 1. *Sustainable Development Policy: A European Perspective*; Taylor and Francis: London, UK, 135-158.
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Research methods and reporting. *Bmj*, 8, 332-336.
- Moss, K. M., Simcock, G., Cobham, V., Kildea, S., Elgbeili, G., Laplante, D. P., & King, S. (2017). A potential psychological mechanism linking disaster-related prenatal maternal stress with child cognitive and motor development at 16 months: The QF2011 Queensland Flood Study. *Developmental Psychology*, 53(4), 629.
- Murray, P. (2012). *The sustainable self: A personal approach to sustainability education*. Routledge.

- Nevin, E. (2008). Education and sustainable development. *Policy & Practice-A Development Education Review*, (6).
- O'Flaherty, J. & Liddy, M. (2018). The impact of development education and education for sustainable development interventions: A synthesis of the research. *Environmental Education Research*, 24(7), 1031-1049, <https://doi.org/10.1080/13504622.2017.1392484>
- Seghezze, L. (2009). The five dimensions of sustainability. *Environmental politics*, 18(4), 539-556.
- Simcock, G., Elgbeili, G., Laplante, D. P., Kildea, S., Cobham, V., Stapleton, H., ... & King, S. (2017). The effects of prenatal maternal stress on early temperament: The 2011 Queensland Flood Study. *Journal of Developmental & Behavioral Pediatrics*, 38(5), 310-321.
- Ping, E. Y., Laplante, D. P., Elgbeili, G., Hillerer, K. M., Brunet, A., O'Hara, M. W., & King, S. (2015). Prenatal maternal stress predicts stress reactivity at 2½ years of age: The Iowa Flood Study. *Psychoneuroendocrinology*, 56, 62-78.
- Walder, D. J., Laplante, D. P., Sousa-Pires, A., Veru, F., Brunet, A., & King, S. (2014). Prenatal maternal stress predicts autism traits in 6½ year-old children: Project Ice Storm. *Psychiatry research*, 219(2), 353-360.
- Warren, A., Archambault, L., & Foley, R. W. (2014). Sustainability Education Framework for Teachers: Developing sustainability literacy through futures, values, systems, and strategic thinking. *Journal of Sustainability Education*, 6(4), 23-28.
- Vare, P., & Scott, W. (2007). Learning for a change: Exploring the relationship between education and sustainable development. *Journal of Education for Sustainable Development*, 1(2), 191-198.
- Veiga, Ávila, L., Rossato Facco, A.L., Bento, M.H.D.S., Arigony, M.M., Obregon, S.L., & Trevisan, M. (2018). Sustainability and education for sustainability: An analysis of publications from the last decade. *Environ. Qual. Manage.* 27, 107–118. DOI: 10.1002/tqem.21537
- Venkataraman, B. (2009). Education for sustainable development. *Environment: Science and Policy for Sustainable Development*, 51(2), 8-10.
- Yıldırım, G. (2020). Thematic analysis of educational research on sustainability. *Mediterranean Journal of Educational Research*, 14(33), 70-106. <https://doi.org/10.29329/mjer.2020.272.4>
- Zupic, I., & Čater, T. (2015). Bibliometric methods in management and organization. *Organizational research methods*, 18(3), 429-472.



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