SINIRSIZ EĞİTİM VE ARAŞTIRMA DERNEĞİ

Sınırsız Eğitim ve Araştırma Dergisi

Eğitim ve Araştırma Education and Research

The Journal of Limitless Education and Research

Mart 2024
Cilt 9, Sayı 1

March 2024
Volume 9, Issue 1

The Journal of Limitless Education and Research

March 2024, Volume 9, Issue 1

Sınırsız Eğitim ve Araştırma Dergisi

Mart 2024, Cilt 9, Sayı 1

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Journal of Limitless Education and Research(J-LERA) is an international refereed journal published three times a year.
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Kapak: Doç. Dr. Ayşe Derya IŞIK-Doç. Dr. Barış ÇUKURBAŞI

The Journal of Limitless Education and Research, Volume 9, Issue 1

Sınırsız Eğitim ve Araştırma Dergisi, Cilt 9, Sayı 1

İNDEKSLER / INDEXED IN

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The Journal of Limitless Education and Research, Volume 9, Issue 1

Sınırsız Eğitim ve Araştırma Dergisi, Cilt 9, Sayı 1

Dear Readers,

We are delighted to present you the March 2024 issue of the Journal of Limitless Education and Research.

The aim of our Journal, which has been continually published by the Limitless Education and Research Association (LERA) for 8 years since 2016, is to contribute scientifically to the field of education and research. To this end, theoretical and applied original studies are published for free and shared with readers at nationwide and worldwide.

The Limitless Journal of Education and Research is published in Turkish and English three times a year and indexed in EBSCO, Education Full Text (H. W. Wilson) Database Coverage List, which is accepted as a field index by the Higher Education Council (UAK in Turkish). Additionally, it is indexed in various national and international indexes such as ASOS, DRJI, ESJI, OAJI, ROAD, SIS, SOBİAD, Worldcat, and receives numerous citations. To the SOBİAD impact factor, our journal is in the top 90th among scientific journals in our country. Our initiatives and studies continue so as to let our journal be scanned in national and international indexes.

SEAD Journal, an internationally peer-reviewed journal, is published with scientific contributions of articles, research, and projects by academics, researchers, educators, and teachers from different countries. Our journal has been maintaining its publication for eight years without compromising its academic and scientific quality, delivering current and new studies to readers in the field.

In this issue of our journal, five scientific research and articles related to education are included. We would like to thank all the editors, authors, reviewers, and translators who contributed to the preparation and publication of this issue.

We extend our respect with the hope that our journal will contribute to scientists, researchers, educators, teachers, and students in the field.

LIMITLESS EDUCATION AND RESEARCH ASSOCIATION

The Journal of Limitless Education and Research, Volume 9, Issue 1

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Değerli Okuyucular,

Sizlere Dergimizin Mart 2024 sayısını sunmaktan büyük mutluluk duyuyoruz.

Sınırsız Eğitim ve Araştırma Derneği (SEAD) tarafından 2016 yılından bu yana 8 yıldır kesintisiz olarak yayınlanan Dergimizin amacı, eğitim ve araştırma alanına bilimsel yönden katkı sağlamaktır. Bu amaçla kuramsal ve uygulamalı özgün çalışmalar ücretsiz yayınlanmakta, ulusal ve uluslararası düzeydeki okuyucularla paylaşılmaktadır.

Sınırsız Eğitim ve Araştırma Dergisi (SEAD), yılda üç sayı olarak Türkçe ve İngilizce yayınlanmakta, ÜAK tarafından alan indeksi olarak kabul edilen EBSCO, Education Full Text (H. W. Wilson) Database Covarage List'te taranmaktadır. Ayrıca ASOS, DRJI, ESJI, OAJI, ROAD, SIS, SOBİAD, Worldcat gibi ulusal ve uluslararası çeşitli indekslerde taranmakta ve çok sayıda atıf almaktadır. SOBİAD etki faktörüne göre Dergimiz, ülkemizdeki bilimsel dergiler içinde ilk 90. sırada bulunmaktadır. Dergimizin ulusal ve uluslararası indekslerde taranabilmesi için girişimlerimiz ve çalışmalarımız devam etmektedir.

Sınırsız Eğitim ve Araştırma Dergisi (SEAD), uluslararası hakemli bir dergi olmakta, farklı ülkelerdeki akademisyen, bilim insanı, araştırmacı, eğitimci ve öğretmen yazarların makale, araştırma, proje gibi bilimsel katkı ve destekleriyle yayınlanmaktadır. Akademik ve bilimsel kalitesinden ödün vermeden sekiz yıldır yayın hayatını sürdürmekte, güncel ve yeni çalışmaları alandaki okuyuculara ulaştırmaktadır.

Dergimizin bu sayısında eğitimle ilgili beş bilimsel araştırma ve makaleye yer verilmiştir. Bu sayının hazırlanması ve yayınlanmasında emeği geçen bütün editör, yazar, hakem ve çevirmenlere teşekkür ediyoruz.

Dergimizin alandaki bilim insanı, araştırmacı, eğitimci, öğretmen ve öğrencilere katkılar getirmesi dileğiyle saygılar sunuyoruz.

SINIRSIZ EĞİTİM VE ARAŞTIRMA DERGİSİ

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https://doi.org/10.29250/sead.1427349

Received: 29.01.2024 **Article Type:** Research **Accepted:** 13.03.2024

An Examination of Preschool Children's Play Skills and Independent Learning Behaviors in Türkiye

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Abstract: Preschool education enables children to develop play skills and independent learning behaviors. This study aims to understand the association between preschool children's play skills and independent learning behaviors. The study was a relational survey model, with 380 children within the 5-year age group attending preschool and kindergarten school in Türkiye. The children were observed for one month. Teachers assessed their play skills and independent learning behaviors using "the Game Skills Scale (GSS)" and "Children's Independent Learning Development Checklist (CHILD 3-5)". The descriptive result of the study, the children's play skills, and independent learning behaviors were found to be high; there was a significant difference according to gender in favor of girls; and the mean score changed according to the school type (the mean of the children attending kindergarten were higher, but the difference was not significant). A positive and strong relationship was found between children's independent learning behaviors and play skills, indicating that children's play skills had a significant effect on their independent learning behaviors.

Keywords: Preschool children, Play skills, Independent learning behaviors.

Cited in: Bay, D. N. (2024). An examination of preschool children's play skills and independent learning behaviors in Türkiye. *The Journal of Limitless Education and Research, Sınırsız Eğitim ve Araştırma Dergisi, 9*(1), 107-127. https://doi.org/10.29250/sead.1427349.

1. Introduction

It is known that children's play skills and independent learning behaviors continue to develop throughout their preschool years. Independent learning behaviors in this period refer to a set of skills and attitudes that enable children to take responsibility for their own learning, including planning, decision-making, and self-regulation (Bransford et al., 2000). Although schools are considered learning spaces, preschool education is mainly associated with play rather than learning. Preschool curricula emphasize play's importance worldwide (Samuelsson & Johansson, 2006). Studies have found a positive relationship between preschool children's play skills and their independent learning behaviors (Bodrova & Leong, 2001; Bulotsky-Shearer et al., 2012; Coolahan et al., 2000; Wang et al., 2023). Studies indicate that play facilitates learning, showing the importance of supporting children's academic development through play, which also carries importance for Türkiye. The preschool education curriculum in Türkiye is based on play. Play is considered a key teaching strategy and method. Therefore, learning through play is seen as an integral part of the curriculum and education (Ministry of National Education, 2013).

However, there is a gap in the literature on how play and learning skills developing under the guidance of public schools' curricula interact with each other in practice. Understanding their relationship and interaction should be considered an effective strategy for developing educational policies. Therefore, having sufficient data on children's play skills and independent learning behaviors and the relationships between them will guide researchers and educators in developing better strategies and practices. This study will provide the necessary data and fill the literature gap by exploring preschool children's play skills, independent learning behaviors, and the relationships between them in different cultural contexts.

1.1. Play Skills and Independent Learning Behaviors in Preschool

Children's play experiences are universal, and preschool children are naturally drawn to play with each other (Bulotsky-Shearer et al., 2012). Children develop play skills in the home, school, and neighborhood settings by interacting with their peers and siblings. These skills also determine their play skills level in the classroom setting (LaForett & Mendez, 2017). Positive play skills developed through peer relationships in the preschool period are defined as developmental skills that emerge with positive learning outcomes (Bulotsky-Shearer et al., 2012; Coolahan et al., 2000). Children who play with their peers socialize, develop self-control, improve their skills, and learn to wait their turn and cooperate with others (Samuelsson &

Johansson, 2006). Therefore, children who engage in play were observed to have higher social competence, self-control, cooperativeness, and thoughtfulness (Rauf & Bakar, 2019). Studies show that children with highly developed play skills are also highly engaged in learning activities in classroom (Bulotsky-Shearer et al., 2012; Coolahan et al., 2000; Fantuzz et al., 2004; Fantuzzo et al., 2005; Mendez et al., 2002; Fantuzzo & McWayne, 2002).

The use of the Penn Interactive Peer Game Scale (Fantuzzo et al., 1998), which examines play interaction, play disruption, and play disconnection dimensions of behaviors, has allowed researchers to focus on play skills and academic skills (Bulotsky-Shearer et al., 2012; Fantuzzo et al., 2004; McWayne et al., 2009; Mendez & Fogle, 2002). Regarding the studies examining children's play skills using this and similar scales in Turkiye, there is a literature gap on the impact of play skills on children's independent learning behaviors. However, developing a child's play skills can affect independent learning behaviors, as in other developmental areas. Learning approaches suggest that learning involves several skills, including patience, motivation, and other learning-oriented attitudes (Barnett Bauer, Ehrhardt et al., 1996). Children who display strong independent learning behaviors are more likely to be successful in academic skills (Lepper & Woolverton, 2002) because independent learning behaviors, which are also referred to as self-regulated learning (Gülay Ogelman et al., 2022), provide the ability to control one's learning environment and assess self-competence for learning. In this way, children can be aware of their strengths and weaknesses in their learning process and try to improve their weaknesses (Ogelman & Rukiye, 2023). In this context, independent learning behaviors/self-regulation is a cyclic and personal process that includes many learning-related concepts (Panadero, 2017). It involves children planning, tracking, and demonstrating their efforts for an activity/task (Zimmerman, 2002). Children who can engage in self-regulated learning are willing to complete the assigned tasks, recognize their strengths and improvement areas, and develop their own learning methods (Brenner, 2022).

Learning behaviors concerning how children approach and engage in classroom tasks are seen from their motivation to complete the task, determination, receptivity, and coping skills (McDermott et al., 2002). Children who develop independent learning behaviors and engage in self-regulated learning from an early age display higher academic achievement and school performance in subsequent years (Jacob et al., 2020). Ladd et al. (1996) found that preschool teachers' assessments of children's engagement and independent learning behaviors are a good predictor of the children's academic achievement and performance in the future. So, children's

level of engagement in early childhood is related to their current and future success (e.g., Blinkoff et al., 2023; Hirsh-Pasek, et al., 2015; Portilla et al., 2014; Williford et al., 2013).

Like independent learning behaviors, play contributes to children's social, cognitive, affective, linguistic, and creative development and academic achievement (Howard-Jones et al., 2002; Wallace & Russ, 2015). One of the basic principles of active learning is that the learning process should be fun. The resulting positive affective climate has been linked to positive learning in children (e.g., Christopher & Farran, 2020; Miller & Almon, 2009; Pianta et al., 2008). Studies have investigated the direct relationship between learning behaviors and peer play skills that provide entertainment (Fantuzzo & McWayne, 2002; McClelland et al., 2000; McWayne & Cheung, 2009). In their study (2002), Fantuzzo and McWayne found that children who frequently engaged in interactive play at home and developed play skills were motivated, independent, attentive, and had positive attitudes toward learning. Play skills developed through peer interaction have been observed to mitigate problematic behaviors that interfere with children's learning, such as inattentiveness, aggression, shyness, and introversion (Coolahan et al., 2000; Zigler & Bishop-Josef, 2006). Therefore, play and learning should be seen as an inseparable whole that promotes each other (Samuelsson & Johansson, 2006).

Studies showing that play skills have a positive impact on learning have led to the development of intervention programs that integrate play skills to support the learning behaviors of disadvantaged children (Bulotsky-Shearer et al, 2014; Fantuzzo et al., 2011). In Norway, a learning-based approach was developed for children through a play-based curriculum, and play created a positive learning atmosphere (Ødegaard & Hu 2019). Similarly, implementing a preschool curriculum where play and learning are interwoven in Sweden allowed children to develop their ideas and thoughts through debate (Samuelsson & Johansson, 2006). In Switzerland, Vogt (2018) implemented a curriculum that included board games and observed that children made significant learning gains. Wu (2019) found that Chinese children who participated in play and learning activities acquired practical life skills they could use through play. This finding was considered contrary to traditional Chinese culture. Moreover, it is known that the impact of programs implemented on different cultural groups can vary. Galindo and Fuller's (2010) study of the differences in the learning behaviors of Cuban, South American, and Latino children in kindergarten illustrated the impact of cultural differences. In this context, how play skills affect the development of preschool children with cultural background differences should be examined (Quintana et al., 2006; Wang & Sue, 2005). Therefore, this study aims to assess through teachers' observations whether children's play skills

mediate independent learning behaviors in Türkiye. A secondary objective is determining whether a difference exists between children's play skills and independent learning behaviors according to gender. The critical role of preschool teachers in observing and assessing children's development was taken into account, and measurement tools developed for and approved by preschool teachers were used (Fazlıoğlu et al., 2013; Saraç et al., 2019). The study's results are expected to contribute to developing pedagogical practices in Türkiye, where a play-based curriculum is implemented.

1.2. Theoretical Framework

The theoretical framework for studies on preschool children's play skills and independent learning behaviors is based on developmental theories in preschool education. According to the theory of cognitive development (Piaget, 1962; Mellou, 1994), children's play is a form of entertainment and a valuable educational activity through which they develop their cognitive, social, and affective skills. Play also allows children to engage in self-directed learning, which is essential for developing independent learning behaviors (Hirsh-Pasek et al., 2009).

On the other hand, sociocultural theory (Vygotsky, 1978) suggests that children's cognitive development is shaped by their cultural context, social interactions, and encounters with other knowledgeable individuals. Play allows children to explore their environment and develop new skills through experimentation and cooperation (Vygotsky, 1978). In play, children constantly interact with their peers and simultaneously generate the play's content by discussing what to do and how to do it (Bateson, 1976). More specifically, the play has improved children's problem-solving, creativity and linguistic skills (Ginsbur2007). Play supports self-regulation and executive function skills, which are essential for independent learning behaviors (Bodrova & Leong, 2015). For this reason, play is considered a fundamental component of preschool education (Roskos & Christie, 2013), which allows children to interact with adults and other children, and supports independent learning behaviors (Bodrova & Leong, 2015). Therefore, play is both an action in which learning takes place and an action sustained using the learned knowledge (İnan-Kaya, 2018).

Ecological systems theory (Bronfenbrenner, 1977) also provides a framework in which multiple systems, including family, school, and society, influence children's development. Children learn by interacting with these systems, providing opportunities to develop new skills and knowledge. Play is an essential aspect of the microsystem, which includes the child's

immediate environment, and can influence the child's development in several ways, including the development of independent learning behaviors (Fromberg & Bergen, 2006).

Furthermore, the theory of self-determination suggests that children who feel autonomous and competent are more likely to display independent learning behaviors. Play provides a safe environment for children to explore their interests and abilities, which in turn helps develop their sense of autonomy and competence (Ryan & Deci, 2000).

In conclusion, the study's theoretical framework on preschool children's play skills and independent learning behaviors suggests that play is a critical component of preschool education. According to various theories, play provides children with opportunities to learn by interacting with their environment, building their own knowledge base, improving their cognitive and social skills, and developing autonomy and competence.

1.3. Current Study

Although play is widely recognized as an important form of learning in preschool education, little is known about the effectiveness of play in preschool educational settings. This study aims to examine the extent to which preschool children's play skills predict their independent learning behaviors. For this purpose, the following research questions were addressed:

1. What is the level of play skills and independent learning behaviors of preschool children?

2. Are there significant differences in children's play skills and independent learning behavior according to certain variables (gender, school type)?

3. Is there a correlation between preschool children's play skills and independent learning behaviors?

4. Do preschool children's play skills levels predict their independent learning behaviors?

2. Method

2.1. Study Design

This study was conducted using the relational survey model. The relational survey model seeks to determine how two or more variables change together and the degree of this change (Karasar, 2015). The relational survey model is an approach that aims to determine how two or more variables change together and the degree of the change. This model attempts to

determine if the variables change together and, if there is a change, how it occurs (Karasar, 2015).

This study examined preschool children's play skills, independent learning behaviors, and the relationships between these variables. It was conducted between May 08 and June 09, 2023, in the Central Anatolia region of Türkiye in preschools and kindergartens affiliated with the Ministry of National Education.

2.2. Setting and Participants

The study was conducted in 6 schools and 21 preschool classrooms in a province in the Central Anatolia region of Türkiye, consisting of 16 classes from 4 preschools and 5 kindergartens from 2 elementary schools. Preschool education in Türkiye is provided in preschools and kindergartens. Preschool is a 3-year program for children between the ages of 3 and 5, and kindergarten is a one-year program within elementary school for 5-year-olds. Mainly, children of middle-income families attend these schools that use a play-based curriculum approved by the Ministry of National Education. Participants were children in the preschool age group with no disabilities whose parents consented to participate in the study. 380 children participated in the study. Of these, 48.2% (n = 183) were girls, and 51.8% (n = 197) were boys. Regarding the distribution according to school type, 79.7% (n = 303) of the children were in kindergarten, and 20.3% (n = 77) were in preschool.

2.3. Data Collection

21 preschool teachers were trained in the protocol. The teachers observed the children on the scale items for one month in large group and small group activities and playtime. They also observed children during routine times of the day such as gathering and breakfast. At the end of one month, they completed the scales separately for each child, taking into account their previous observations of the child. The researcher collected the data during the spring semester of the 2022-2023 academic year between May 8 and June 9, 2023.

2.3.1. Data collection tools

The Information Form, “Game Skills Scale (GSS)”, and “Children's Independent Learning Development Checklist (CHILD 3-5)” were utilized to collect data.

The information form consisted of two questions: The children's gender and the type of school they attend.

"Game skills scale (GSS)": GSS is a 27-item scale developed by Fazlıoğlu et al. (2013). The scale uses a 5-point Likert scale and has a single dimension. The scale is completed by a teacher or parent who knows the child well. The Cronbach Alpha internal consistency coefficient of the scale is .93 (Fazlıoğlu et al., 2013). The Cronbach Alpha of the current study indicated high reliability (alpha= 0.95).

"Children's independent learning development checklist (CHILD 3-5)": The scale was developed by Whitebread et al. (2009) to measure the self-regulated learning skills of children aged 3-5 years through observation and adapted into Turkish by Saraç et al. (2019). In adapting the 22-item unidimensional scale, the properties and factor structure of the tool were analyzed, and 6 items deemed inadequate were removed. The new 16-item measurement tool was re-analyzed in the second stage (N: 197). The test-retest reliability of the measurement tool was, 961, and the internal consistency coefficient was .968, indicating that the scale was a valid and reliable measurement tool. In addition, a single factor with an eigenvalue greater than 1 was obtained, explaining 65.59 % of the total variance. In the scale, which is filled by the teacher based on observation of each child in the classroom, the frequency of a child exhibiting the behavior in question is rated on a 4-point Likert scale (1=never; 4=always). High-scored children also have high self-regulated learning skills (Saraç et al., 2019). Regarding the reliability analysis conducted in the current study, the reliability level was 94.8% for GSS (Cronbach's Alpha= 0.948) and 94.5% (Cronbach's Alpha= 0.945) for CHILD 3-5. The item-total correlations of both scales were above 0.4. According to these results, it can be said that the scales met reliability conditions.

2.4. Data Analysis

SPSS 21.0 program was used to analyze the data. Normality, kurtosis, and skewness were examined. The kurtosis-skewness test was performed to test normality (Arslan et al., 2020). The skewness and kurtosis values of both scales were within ±2 points range (play skills - skewness= -.707, kurtosis= .864 & independent learning behavior - skewness= -.455, kurtosis= -.016). Therefore, parametric tests are chosen, assuming the dimensions converge to a normal distribution (George, 2011). Pearson correlation test, regression analysis, and independent samples t-test were conducted. Here, a correlation coefficient below 0.30 indicated a weak relationship, between 0.30-0.70 indicated a moderate relationship, and above 0.70 indicated a strong relationship (Büyüköztürk et al., 2012). The statistical significance level was taken as $p < .05$.

2.5. Ethical Issues

Eskişehir Osmangazi University Ethics Commission applied for ethical approval at the start of the research process. The study was found to be ethically appropriate by the relevant commission's document dated April 18, 2023, and numbered 2023-06.

3. Results

The results of the analysis are presented in the tables below, including descriptive statistics on play skills and independent learning behaviors, independent samples t-test results of preschool children's play skills and independent learning behaviors by gender, Pearson correlation test results for the relationship between children's play skills and independent learning behaviors, and regression analysis results investigating whether the level of play skills affects children's independent learning behaviors.

3.1. Descriptive Statistic

Table 1
Descriptive Statistics (N=380)

Scale	Number of items	Min	Max	$\bar{X}$	SD	Mean
Game Skills Scale (GSS)	27	48.00	135.00	108.44	17.09	4.02
Children's Independent Learning Development Checklist (CHILD 3-5)	16	18.00	64.00	47.92	10.08	3.00

As indicated in Table 1, showing the general descriptive statistics of the scale scores for 380 children, the mean overall score of the GSS (Game Skills Scale) was 108.44 (±17.09), and the mean overall score of the CHILD 3-5 (Children's Independent Learning Development Checklist) was 47.92 (±10.08). GSS scores ranged from 27 to 135; the CHILD 3-5 scores ranged from 16 to 64. The means were calculated by dividing the mean scores from 1-5 by the number of items within the scale/sub-scale. Tekin (2002, p. 95-96) stated that on a scale of 1-5, scores between 1 and 2.3 are low, scores between 2.3 and 3.7 are moderate, and scores between 3.7 and 5.00 are high. Accordingly, it can be said that children's play skills were high (4.02). On a scale of 1-4, scores between 3-4 are considered high. Regarding the mean score of CHILD 3-5 (3.00), it can be interpreted as the children's independent learning behaviors were at a high level.

An independent sample t-test was conducted to compare whether children's play skills and independent learning behaviors differed significantly according to their gender and the type of school they attended.

Table 2
Results of T-Test

	Girls (*N*=183)		Boys (*N*=197)			
	$\bar{X}$	SD	$\bar{X}$	SD	t	p.
Game Skills Scale (GSS)	111.808	15.589	105.314	17.846	3.784	<.001
Children's Independent Learning Development	50.060	9.768	45.934	9.971	4.070	<.001
	Preschool (*N*=183)		Kindergarten (*N*=183)			
	$\bar{X}$	SD	$\bar{X}$	SD	t	p.
Game Skills Scale (GSS)	108.211	17.034	109.350	17.376	-0.522	0.301
Children's Independent Learning Development	47.600	10.091	49.181	9.978	-1.231	0.110

Looking at Table 2, girls' mean GSS score (111.808±15.589) was higher than those of boys (105.314±17.846), and the difference was statistically significant (t: 3.784, p<0.05). Regarding the CHILD 3-5 scores, girls' mean score (50.060±9.768) was higher than boys (45.934±9.971). The difference was statistically significant (t: 4,070, p<0.05).

Regarding the school type, the GSS mean score of the children attending kindergarten (109.350±17.376) was higher than those attending preschool (108.211±17.034). However, the difference was not statistically significant (t: -0.522, p>0.05). Regarding CHILD 3-5 scores, the mean kindergarten score (49.181±9.978) was higher than preschool's (47.600±10.091). However, the difference was not statistically significant (t:-1.231, p>0.05).

3.2. Relationship between Game Skills and Independent Learning Development

Table 3
Results of the Pearson Correlation Test

		1	2
(1) Game Skills Scale (GSS)	r	1	.841**
	p		<.001
(2) Children's Independent Learning Development Checklist (CHILD 3-5)	r	.841**	1
	p	<.001	

** Significant correlation coefficients (99% reliability)

According to Table 3, the results of the correlation analysis, a positive and strong relationship between GSS and CHILD 3-5 (r: 0841). This result shows that children's independent learning behaviors increase as their play skills increase. In other words, it can be said that there is a statistically significant relationship between children's play skills and their independent learning behaviors and that children's independent learning behaviors vary according to their play skill levels.

3.3. The Effect of Game Skills on Independent Learning Development

Table 4
Results of Regression Analysis

	Coefficient Statistics			Model Statistics			
	β	t	p.	F	p.	R^2	VIF
Constant		-3.248	.001	913.003	<.001	0.706	1.00
Game Skills Scale (GSS)	.841	30.216	<.001				
Children's Independent Learning Development Checklist (CHILD 3-5)							

Table 4 shows that the regression model that examines the effect of GSS on CHILD 3-5 was statistically significant (F: 913.003, p<0.05). Regarding the coefficient, it can be suggested that a 10% increase in Play Skills would increase the Independent Learning Behavior by 8.41% (β: 0.841, p<0.05). In addition, GSS explains 70.6% of the variance change in CHILD 3-5 (R2: 0.706). In other words, 70% of the Independent Learning Behaviors can be explained by play skills.

4. Discussion and Conclusion

In order to examine the relationship between preschool children's play skills and independent learning behaviors, descriptive analysis, difference tests, correlation and regression analyses were conducted on the data obtained from 380 children. Regarding the results of children's play skills and independent learning behaviors, both play skills (4.02±17.09) and independent learning behaviors (3.00) were high. The study found that play skills and independent learning behaviors significantly differed according to gender. Regarding school type, the play skills and independent learning behaviors of children attending kindergarten were higher, but this difference was not statistically significant. A positive and strong relationship was found between children's play skills and independent learning behaviors. Play skills explained approximately 70% of the variance of independent learning behaviors and strongly predicted independent learning behaviors.

Independent learning behaviors are also considered self-regulation behaviors; therefore, the literature on the relationship between self-regulation behaviors and play was reviewed. The literature indicates a positive relationship between play skills and self-regulation behaviors (e.g., Aksoy & Yaralı, 2017; Carlson et al., 2014; Slot et al., 2017; Whitebread et al., 2009). The concept of independence or self-regulation includes higher-order regulatory skills such as self-regulated learning, problem-solving, planning, using strategies, monitoring progress, correcting mistakes, and persisting until the goal is achieved (Bronson, 2000). Likewise, play behaviors involve affective, cognitive, linguistic, and sensory-motor actions and thus allow

the use of multiple parts of the brain (Bergen & Coscia 2001). This correspondence between independent learning behaviors and play skills is also seen in study results (e.g., İvrendi, 2016; Qu, 2010). The finding of a positive relationship between play skills and self-regulation reported in various studies supports the results of the current study. In addition to the strong positive relationship, the current study found that play skills explain a high percentage of independent learning behaviors, showing that independent learning behaviors of children who develop play skills through games in early childhood also develop. In other words, children who play games also perform independent learning (Saraç et al., 2021). In their study on play and learning, Samuelsson and Johansson (2006) concluded that play and learning are mutually reinforcing dimensions and that play is an integral part of children's experiences. It helps them build an understanding of the world around them as part of a lifelong process and that it is inseparable from learning. In their study observing children's spontaneous play, Gastaldi et al. (2019) found that children's social and cognitive skills improved, which is also an indicator of improvement in children's learning behaviors. In this context, the current study's results revealed play's importance in learning. When evaluated in Türkiye as a different culture, it can be said that the high level of children's play skills and independent learning behavior showed the positive effects of implementing play-based preschool curricula in the country's public schools. In Türkiye, there were no significant differences based on the school type, as the program's implementation remains unchanged, although the type of public school varies.

The study's results revealed that girls differed significantly from boys in their play skills and independent learning behaviors, consistent with similar studies' results. Studies showing that girls' play preferences differ from boys (Güler & Kargı, 2008; Kuşcu, 2014; Yavuzer, 2019) suggest that the types of games played may also affect the development of independent learning behaviors. In their study on self-regulation and play preferences of children in Türkiye, Tuzcuoğlu et al. (2020) concluded that girls had a significantly higher preference for playing sedentary and imaginary games compared to boys and, by extension, that there were significant differences in self-regulation skills according to the types of games children chose. The play preference differences according to gender also indicate that their independent learning behaviors may differ. In another study by Aksoy and Yaralı (2017), which examined children's play skills and self-regulatory behaviors according to gender, no significant differences were observed in children's play skills, while there was a significant difference in self-regulation skills in favor of girls. These results may be due to differences in children's play preferences. Özdemir and Budak (2019) examined the relationship between temperament, self-regulation, and play

skills in children and found significant differences in favor of girls. This difference was attributed to girls being more persistent and showing more interactive behavior during play. In this context, the significant difference found in the current study in favor of girls can be attributed to the difference in temperament.

The finding that play skills strongly predict independent learning behavior underlines the importance of fostering children's play skills. Studies show that families' primary expectation from preschool education in Türkiye is preparing their children for primary school (Argon & Akkaya, 2008; Erşan, 2019). Educators' efforts to meet this expectation may lead to a shift towards instruction-oriented practices rather than play-based ones in preschool education. However, the study results showed that developing children's play skills also develops independent learning behaviors. Therefore, practices that foster play skills in early childhood education contribute to children's future success. The study's results will increase the awareness of families and teachers to foster play skills and will also help policymakers refine the play-based education program.

5. Limitations and Future Directions

This study focuses directly on these skills and the relationship between them from a different perspective than other studies on children's play skills and independent learning behaviors in Türkiye (Aksoy & Yaralı, 2017; İvrendi, 2016; Özdemir & Budak, 2019). The results of the study provided important insights into the relationship between play skills and independent learning behaviors. These results will extend the knowledge of teachers and parents in Türkiye about the effect of children's play skills on their independent learning behaviors. Teachers can also support the development of self-regulation skills by providing children with the necessary support and opportunities to play (Timmons et al., 2016) and ensure children's success by encouraging independent learning behaviors (Sadi & Uyar, 2013).

However, this study has some limitations along with its strengths. The study is quantitative research conducted by teachers rating the scale items based on observations. Teachers' observations may both reflect the child's interaction patterns and the teacher's preconceptions about the child (Carr & Kurtz, 1991). In addition, parents' observations of their children were not included in the study. For this reason, future studies can be enriched by conducting in-depth studies. The results' validity can be enhanced by including direct observations of the child's play skills, independent learning behaviors, and parents' views.

Other variables may affect children's play skills and independent learning behaviors, which is another limitation. There may be differences in children's play skill levels and independent learning behaviors arising from the impact of families with different socioeconomic status or education levels. The potential effects of these variables should be explored in future studies.

CONFLICT OF INTEREST STATEMENT

The authors declare that there is no conflict of interest in this study.

RESEARCH AND PUBLICATION ETHICS STATEMENT

The authors declare that research and publication ethics are followed in this study.

The necessary permission to conduct the study was obtained from Social and Human Sciences Ethics Committee of Eskişehir Osmangazi University of Applied Sciences (18.04.2023-06).

AUTHOR LIABILITY STATEMENT

Each step of this study was carried out by the author.

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