



PLAYFULNESS OF PRE-SCHOOL CHILDREN IN TURKEY

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Abstract

In this research, the playfulness of 4- and 5-years-old 181 children, 100 boys and 81 girls, attending a kindergarten in Turkey, was examined. The research was designed according to relational-correlational survey/research model, one of the quantitative research methods; the data were collected using Personal Information Form and Children's Playfulness Scale (CPS) developed by Barnett (1990) and adapted to Turkish by Keleş and Yurt (2017). The playfulness levels of the children were analyzed according to gender, age, number of children in the family, duration of pre-school education, mother's/father's age and education level, mother's working status, and father's profession. To identify the playfulness levels of pre-school children, descriptive statistics and difference statistics were calculated for both overall and each sub-dimension according to the demographic characteristics of the children. As a result of the study, the playfulness levels of the children were found to be high and physical spontaneity was observed to be the playfulness characteristic with the highest score. Significant differences were observed in playfulness of children according to age and duration of pre-school education; whereas no significant difference was observed according to gender, mother's/father's age and education level, mother's working status, and father's profession.

Keywords: Playfulness, play, early childhood education, child, Turkey.

INTRODUCTION

Providing education in line with the interests and needs of children in pre-school education institutions and supporting the development of children at maximum level are considered very important in Turkey. With the increase of the importance of the pre-school education in the country, researches on children's plays have increased (e.g., Aksoy & Yaralı, 2017; Gündüz, Aktepe, Uzunoğlu, & Gündüz, 2017; Sapsağlam, 2018; Tuğrul, Boz, Uludağ, Aslan, Çelik, & Çapan, 2019). Game-based approach has been set as one of the basic principles of the Pre-school Education Program (2013), which has been put into practice by the Ministry of National Education. The researches involving the playing behaviors of pre-school children in Turkey, will contribute to increasing the quality of pre-school education.

Besides the individual differences of children, cultural and environmental differences cause their cognitive, language, social-emotional and motor development to develop at different rates (Shepard, Kagan, & Wurtz, 1998). Teachers should organize the educational setting by considering all these differentiating factors and provide opportunities for children to develop their potential using supportive methods (Cukierkorn, Karnes, & Manning, 2007). Organizing an educational setting suitable to play increases the participation of the children and allow them to achieve a better learning and development (Jones & Reynolds, 2011). In such a setting, children's imaginations, creativity and academic achievements develop (Kangas & Ruokamo, 2012). However, the increasing tendency towards acquiring learning and academic skills has created the necessity of intervention in establishing a playful and creative environment in pre-school education (Lobman, 2003). Children only perceive the activities they initiate as play, they see the activities that are structured and directed by the teacher as learning, not play, and therefore learning does not take place in such cases (Karryb, 1989). Instead of limiting or directing the activities, teachers should find ways to get clues from children's behavior and to expand, and improve their participation (Lobman, 2006). In this study, the



playfulness levels of 181 children attending pre-school education in Turkey were analyzed through independent variables, based on their teachers' observations. As far as is known, no research has been conducted for this cultural structure in this context.

The Importance of Playfulness of Pre-school Children Study

There are some reasons that are considered as important in planning the study on the playfulness of children. One of the most important reasons is the studies revealing that playfulness has an important effect on children's learning and development (Barnett, 1991a, 1991b, 2007; Cornelli Sanderson, 2010; Youell, 2008). Playfulness is an important part of the play (Youell, 2008). Play helps children overcome ordinary challenges they encounter in their lives and share their experiences with adults and peers. The factor that allows children to enjoy their play with their free will and reveal their creativity is having the spirit of playfulness (Singer, 2015). Play can be defined through observable features, however playfulness, which is defined as the child's disposition to play (Keleş & Yurt, 2017) involves children's intrinsic characteristics, depending on the feelings in the play process (Howard, Bellin, & Rees, 2002). These intrinsic features are; the internal motivation of the children independent of external factors, the ability to specify or manage the play, the freedom to use the imagination, and the ability to communicate and interpret in the play process (Pinchover, 2017). Considering the effect of these features on learning, it is important to think about children's perspective as players and to motivate learning through activities they perceive as plays (Howard, Bellin, & Rees, 2002).

The second important reason is the effect of understanding and improving children's playfulness on pedagogical goals (Jones & Reynolds, 2011). When the child plays a game within the activity, it is not clear whether he/she is playing voluntarily (Bateson & Martin, 2013; Howard, Bellin, & Rees, 2002). Teachers who begin to understand children's play and playfulness, can create more entertaining educational settings by planning activities that allow children to show their playfulness (Carter, 1993). Therefore, teachers should observe, understand and support children's playing behavior (Broadhead, Howard, & Wood, 2010), instead of spoiling their fun by using children's play according to the educational goals (Pramling Samuelsson & Carlsson, 2008). Because, the developmental potential of the play is maximized when children perceive the activity as a play and participate in it as a player. However, further information is needed to understand children's play perceptions and playfulness (Howard, Bellin, & Rees, 2002). Children start the play based on different motivations and tendencies. These motivations and tendencies defined as playfulness constitute the child's attitude during play. Children willingly decide with whom, how, when and how much to play in their games and enjoy playing by giving meaning to objects as imagined and desired, and adding their own humor, without being tied to the objective reality. All these playfulness attitudes differ between children (Román-Oyola, Figueroa-Feliciano, Torres-Martínez, Torres-Vélez, Encarnación-Pizarro, Fragosopagán, & Torres-Colón, 2018). For this reason, the playfulness characteristics of children should be examined, and their changing playfulness behaviors should be understood by teachers.

In addition, discovering the effectiveness of various variables on children's playfulness also facilitates understanding children's playfulness characteristics. Some of the variables that have been found to be correlated with the playfulness of children in previous studies are; gender (e.g., Barnett, 1991b; Cornelli Sanderson, 2010; Saunders, Sayer, & Goodale, 1999; Tae-Hyung, Tae-Hyun, & Jae-Shin, 2014; Zachopoulou, Trevlas, & Tsikriki, 2004), age (e.g., Barnett, 1991b; Cornelli Sanderson, 2010; Lieberman, 1965; Rentzou, 2013; Saunders, Sayer, & Goodale, 1999), number of people in the family (e.g., Barnett, 1991b; Barnett & Kleiber, 1984; Rentzou, 2013) and parents' occupation and age (e.g., Barnett & Kleiber, 1984). In Turkey, there are limited number of studies on children's playfulness (e.g. Keles & Yurt, 2017; Macun & Güvendi, 2019) and these studies fail to adequately represent pre-school children's playfulness characteristics. This creates the need to determine children's playfulness levels and to investigate the variables according to which children's playfulness levels differ. In order to contribute to the existing literature, the playfulness characteristics of the children were examined according to various variables in a new cultural context, namely Turkey.



Theoretical Framework

Playfulness is the pure essence of the play (Cornelli Sanderson, 2010; Rentzou, 2013; Youell, 2008). Huizinga criticized focusing on the educational benefits of the play and argued that the essence of the play was lost with the functionalist play approach (Singer, 2013). According to Huizinga, the play cannot be played by force, it is played voluntarily depending on the person's will. At the same time, the play frees individuals by allowing them to create alternative worlds and identities far from their daily lives (Huizinga, 1955; Masters, 2008; Singer, 2013). Huizinga's play theory provides an important framework for defining the elements of the play and playfulness and analyzing the reflections of player interactions on societies and cultures (Masters, 2008). Contrary to the assumption that the play should serve other purposes outside the play, which is highlighted by the other play theories, Huizinga stated that the benefits of the play cannot be achieved without experiencing the fun, which is the essence of the play. Children play the game because they want it, not for its benefit (Singer, 2013). As a result, Huizinga's theory emphasizes the playfulness spirit of the game, which is a voluntary activity, which gives pleasure and freedom (Huizinga, 1955; Masters, 2008; Singer, 2013; Singer, 2015). Understanding the reflection of playfulness in children's own culture should be seen as a premise in achieving development and learning goals through play. Turkey does not have sufficient amount of research on children's playfulness (e.g. Keles and Yurt, 2017; Macun & Güvendi, 2019). In this context, it is thought that determining children's playfulness level within their own culture in Turkey and identifying the variables affecting this level will contribute to support their development and learning.

Purpose of the Current Study

Besides being a personal tendency (Lieberman, 1977), playfulness is a reflection of the culture (Huizinga, 1955; Trevarthen, 2011). Therefore, the results obtained from different cultures make contribution to the literature (Keleş & Yurt, 2017). The purpose of this research is analyzing the playfulness level of the children who attend pre-school educational institutions in Turkey according to different factors. In the current study, teachers were asked to fill the playfulness scale to identify the playfulness levels of the children in their classes.

In this study, the following primary question and two sub-questions were addressed:

What are the playfulness levels of pre-school children and the variables that affect these levels?

1. What are the playfulness levels of pre-school children?
2. Do the playfulness levels of pre-school children significantly differ according to their demographic characteristics (Gender, age, number of children in the family, duration of pre-school education, mother's/father's age and education level, mother's working status, and father's profession)?

METHOD

This study, in which the playfulness of pre-school children and whether children's playing tendency shows a significant difference according to the demographic characteristics were investigated, was designed according to relational-correlational survey/research model, which is one of the quantitative research methods. Relational-correlational survey/research is a research approach aiming to describe a situation that existed in the past or that still exists as it is (Karasar, 2008).

In the research, the playfulness of pre-school children is included in the study as the dependent variable; whereas children's age, gender, number of children in the family, duration of pre-school education, mother's/father's age and education level, mother's working status, and father's profession were included as independent variables.

Participants

This study was carried out with 181 children attending a pre-school education institution in Eskişehir province, in 2019-2020 academic year. In the study, typical case sampling, one of purposeful sampling methods was used. Neuman (2014) states that typical case sampling method is used in



researches where a specific application is evaluated, or a typical situation is examined. Accordingly, based on the sampling feature (McNabb, 2015), the study was conducted with 181 pre-school children in a school at the center, which shows typical characteristics of Eskişehir.

The distribution of the children participating in the study according to their demographic characteristics were analyzed and the results are shown in Table 1.

Table 1. Frequency and percentages of pre-school children participating in the research according to demographic characteristics

Variable	Category	f	%
Age	4-years-old	53	29.3
	5-years-old	128	70.7
Gender	Female	81	44.8
	Male	100	55.8
Number of children in the family	1 child	55	30.4
	2 children	95	52.5
	3 children and more	31	17.1
Duration of pre-school education	1 year	112	61.9
	2 years and more	69	38.1
Mother's age	Less than 30 years old	29	16.0
	30-39-years-old	136	75.1
	More than 40 years old	16	8.8
Father's age	Less than 30 years old	14	7.7
	30-39-years-old	136	75.1
	More than 40 years old	31	17.1
Mother's Education	Secondary school or less	50	27.6
	High school	89	49.2
	University and more	42	23.2
Father's Education	Secondary school or less	47	26.0
	High school	98	54.1
	University and more	36	19.9
Mother's working status	Not working	126	69.6
	Working	55	30.4
Father's Profession	Unemployed	3	1.7
	Civil servant	25	13.8
	Worker	85	47.0
	Self-employed	68	37.6

Regarding the information in Table 1, 29.3% (n=53) of the children participating in the study were 4-year-old and 70.7% (n=128) were 5-year-old. 44.8% (n=81) of the children were girls, and 55.2% (n=100) were boys. Of the children, 30.4% (n=55) were the only child of the family, there are two children in the family of 52.5% (n=95), and there are three or more children in the family of 17.1% (n=31). 61.9% (n=112) of the children attended pre-school education for a year and 38.1% (n=69) for two or more years. Regarding the age of pre-school children's mothers, 16.0% (n=29) were less than 30, 75.1% (n=136) were 30-39-years-old, and 8.8% (n=16) were more than 40 years old. Regarding the age of their fathers, 7.7% (n=14) were less than 30, 75.1% (n=136) were 30-39-year-old, and 17.1% (n=31) were more than 40. Regarding the education of the mothers, 27.6% (n=50) of them were graduated from secondary school and below, 49.2% (n=89) from high school, and 23.2% (n=42) were university graduate or more. The education of the fathers are as follows: 26.0% (n=47) were primary or secondary school graduate, 54.1% (n=89) were high school graduate, and 19.9% (n=36) were university graduate or more. The mothers of 69.6% (n=126) of the children were not working, whereas 30.4% (n=55) were working. Regarding the profession of the fathers, 1.7% (n=3) were observed to be unemployed; 13.8% (n=25) were civil servants, 47.0% (n=85) were workers, and 37.6% (n=68) were self-employed.



Data Collection

The data were collected from the children attending pre-school education institutions using Personal Information Form and Children's Playfulness Scale (CPS).

Personal Information Form: It has been developed by the researcher to collect information about children's age, gender, number of children in the family, duration of pre-school education, mother's/father's age and education level, mother's working status, and father's profession. Personal Information Form was filled out by the teachers of the children.

Children's Playfulness Scale (CPS): CPS, which has been developed by Barnett (1990) and adapted to Turkish by Keleş and Yurt (2017), was used to identify the playfulness level of the children attending pre-school education. The scale consists of 23 items grouped under five dimensions. The scale is answered by the teachers for each child. Items in the scale were rated in 5-point Likert scale, where 1 means "It doesn't fit to this child at all" and 5 means "It completely fit to this child". Two of the scale items contain negative expressions, whereas the other items are positive. The scale is used to identify the playfulness levels of 29-61.5-month-old children.

In the process of adapting CPS to Turkish, first, four people who are familiar with both languages undertook the translation process, then the translations were compared, and expert opinions were received from five academicians working in the field of pre-school education. In the first pilot study, the scale was filled for 79 children by their teachers and the expressions of the items were revised. A second pilot study was conducted to confirm the validity and reliability of the research, in which scale items whose translations were finalized were filled for 196 children by their teachers (Keleş & Yurt, 2017).

Then, first level and then second level confirmatory factor analysis were performed. As a result of the analysis, each item of the scale was found to significantly explain the sub-dimension to which it belongs. The standardized factor loads of the items included in the sub-dimensions were found to vary as follows: physical spontaneity .68 - .91; social spontaneity .48 - .89; cognitive spontaneity .55 - .89; manifest joy .68 - .90; and sense of humor .63 - .82. Model-data fit values calculated in the second level confirmatory factor analysis ($\chi^2/df=2.84$, $RMSEA=.097$, $CFI=.97$, $NFI=.96$, $NNFI=.97$, $GFI=.78$, $RFI=.95$), show that the 5-dimensional 23-item structure was confirmed in the Turkish sample (Keleş & Yurt, 2017).

To determine the reliability of the answers given to the scale items, Cronbach alpha coefficients and McDonalds' ω coefficients were calculated. Cronbach's alpha coefficients were found to be ranged from .79 to .92 and McDonalds' ω coefficient from .80 to .93, thus the reliability of the scale items related to their internal consistency was found to be high (Keleş & Yurt, 2017).

Within the scope of this research, CPS was answered by the teachers for 181 children. Cronbach alpha reliability coefficients were calculated to determine the reliability of the answers given to the scale items. As a result of this calculation, the reliability coefficients were found as follows: physical spontaneity .863; social spontaneity .830; cognitive spontaneity .695; manifest joy .805; and sense of humor .834. The reliability coefficient calculated for the overall scale was .942. These figures show that the reliability of the answers given to the scale items is high for the children participating in the research (Kalaycı, 2009).

Data Analysis

During data analysis, the data collected for 182 children were transferred to SPSS 23.0 program, and the analysis were performed. After confirming that there is no missing and incorrect data, the scores of the sub-dimensions and the whole scale were calculated. Afterwards, z statistics were used to analyze the extreme value of the scores (sub-dimensions and overall) and 1 observation showing extreme value was removed from the dataset. Skewness and kurtosis coefficients were calculated to check the distribution of the scores of the remaining 181 pre-school children. The results are shown in Table 2.

**Table 2.** Skewness and Kurtosis coefficients calculated for the answers given to the scale items.

Scale	n	Skewness	SE	Kurtosis	SE
Physical spontaneity	181	-1.117		.640	
Social spontaneity	181	-.735		-.118	
Cognitive spontaneity	181	-.263	.181	-.252	.359
Manifest joy	181	-.590		-.503	
Sense of humor	181	-.537		-.493	
Overall playfulness score	181	-.541		-.400	

As can be seen in Table 2, skewness and kurtosis coefficients calculated for the distribution of the scores achieved from the sub-dimensions and from the whole scale were between (-1,+1), except for the first dimension. But the coefficient of physical spontaneity dimension was very close to -1. Büyüköztürk (2018) states that skewness and kurtosis coefficients between (-1,+1) indicate that the data does not show an excessive deviation from the normal distribution. Accordingly, CPS scores were found to show normal distribution.

After analyzing the dataset, descriptive statistics including minimum, maximum, average and standard deviation were calculated to determine the playfulness levels of pre-school children. Then, the difference statistics were calculated to identify whether the playfulness of children showed a significant difference according to their demographic characteristics. Before the calculations, each assumption was tested and either parametric tests (t-test, one-way variance analysis for independent measurements) or non-parametric tests (Kruskal Wallis) were performed. While interpreting the difference, p significance value was taken as .05. Cohen's d effect size coefficient was calculated in binary group comparisons to identify the effect size of the difference. The coefficient was interpreted as follows: .20-.49 low; .50-.79 medium; and over .80 high (Cohen, 1988).

RESULTS

Descriptive statistics

To determine the playfulness of pre-school children, descriptive statistics were calculated first, and the results are shown in Table 3.

Table 3. Descriptive statistics of pre-school children's playing tendencies

Sub-dimensions	# of items	n	Minimum	Maximum	Mean	Std.Dev.
Physical spontaneity	4	181	8.00	20.00	17.07	3.12
Social spontaneity	5	181	10.00	25.00	20.92	3.57
Cognitive spontaneity	4	181	6.00	20.00	14.91	3.00
Manifest joy	5	181	11.00	25.00	20.93	3.52
Sense of humor	5	181	8.00	25.00	19.76	4.29
Overall playfulness score	23	181	50.00	115.00	93.60	15.34

Table 3 shows that the scores that pre-school children got from the physical spontaneity dimension ranged between 8.00 and 20.00, and the mean score was calculated as 17.07 (\pm 3.12). Scores taken from the social spontaneity dimension ranged from 10.00 to 25.00, with an average of 20.92 (\pm 3.57). The scores of children from cognitive spontaneity were between 6.00 and 20.00 and the average was 14.91 (\pm 3.00). Manifest joy scores of pre-school children varied between 11.00 and 25.00, and the average was calculated as 20.93 (\pm 3.52). The scores that the children got from sense of humor ranged between 8.00 and 25.00, and the average was 19.76 (\pm 4.29). The last line of the table shows that the scores of pre-school children from 23-items playfulness tendency scale ranged between 50.00 and 115.00, and the average was calculated as 93.60 (\pm 15.34).

Since the number of items in CPS' subdimensions is different, the average scores achieved from each dimension and from the whole scale was scaled in 1-5 range for the ease of comparison. Accordingly, the average scores of the sub-dimensions were as follows: physical spontaneity 4.3; social spontaneity 4.2; cognitive spontaneity 3.7; manifest joy 4.2; sense of humor 4.0; whereas the average of overall playfulness score was calculated as 4.1.



While interpreting the scores, the “ranges/number of categories” proposed by Tekin (2002) was employed, then;

- The scores between 1.0-2.3 were specified as low;
- The scores between 2.3-3.7 were specified as medium;
- The scores between 3.7-5.0 were specified as high

In line with this information, the playfulness of pre-school children participating in the study was found to be high for all sub-dimensions and overall scale. The scores were ranked as physical spontaneity, social spontaneity, manifest joy, sense of humor and cognitive spontaneity.

Difference statistics

The differentiation of the playfulness of children participating in the study according to age was tested. The scores of the children according to age showed normal distribution, therefore t-test was used in the comparison of the related measurements, and the results are shown in Table 4.

Table 4. Independent T-test results for pre-school children’s playfulness according to age

Scale	Age	n	Mean	Std.Dev.	t	df	P	d'																																																												
Physical spontaneity	4-years-old	53	16.25	3.07	2.323	179	.021*	.35																																																												
	5-years-old	128	17.41	3.09					Social spontaneity	4-years-old	53	19.09	3.44	4.690	179	.000*	.70	5-years-old	128	21.68	3.35	Cognitive spontaneity	4-years-old	53	14.09	2.65	2.387	179	.018*	.36	5-years-old	128	15.25	3.08	Manifest joy	4-years-old	53	20.28	3.20	1.606	179	.110	---	5-years-old	128	21.20	3.62	Sense of humor	4-years-old	53	18.72	4.40	2.128	179	.035*	.32	5-years-old	128	20.20	4.19	Overall playfulness score	4-years-old	53	88.43	14.15	2.980	179	.003*
Social spontaneity	4-years-old	53	19.09	3.44	4.690	179	.000*	.70																																																												
	5-years-old	128	21.68	3.35					Cognitive spontaneity	4-years-old	53	14.09	2.65	2.387	179	.018*	.36	5-years-old	128	15.25	3.08	Manifest joy	4-years-old	53	20.28	3.20	1.606	179	.110	---	5-years-old	128	21.20	3.62	Sense of humor	4-years-old	53	18.72	4.40	2.128	179	.035*	.32	5-years-old	128	20.20	4.19	Overall playfulness score	4-years-old	53	88.43	14.15	2.980	179	.003*	.45	5-years-old	128	95.74	15.35								
Cognitive spontaneity	4-years-old	53	14.09	2.65	2.387	179	.018*	.36																																																												
	5-years-old	128	15.25	3.08					Manifest joy	4-years-old	53	20.28	3.20	1.606	179	.110	---	5-years-old	128	21.20	3.62	Sense of humor	4-years-old	53	18.72	4.40	2.128	179	.035*	.32	5-years-old	128	20.20	4.19	Overall playfulness score	4-years-old	53	88.43	14.15	2.980	179	.003*	.45	5-years-old	128	95.74	15.35																					
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	5-years-old	128	21.20	3.62					Sense of humor	4-years-old	53	18.72	4.40	2.128	179	.035*	.32	5-years-old	128	20.20	4.19	Overall playfulness score	4-years-old	53	88.43	14.15	2.980	179	.003*	.45	5-years-old	128	95.74	15.35																																		
Sense of humor	4-years-old	53	18.72	4.40	2.128	179	.035*	.32																																																												
	5-years-old	128	20.20	4.19					Overall playfulness score	4-years-old	53	88.43	14.15	2.980	179	.003*	.45	5-years-old	128	95.74	15.35																																															
Overall playfulness score	4-years-old	53	88.43	14.15	2.980	179	.003*	.45																																																												
	5-years-old	128	95.74	15.35																																																																

*p<.05

Regarding the information in Table 4, a significant difference was observed in physical spontaneity levels of pre-school children according to age ($t_{(179)}=2.323$; $p<.05$; $d'=.35$). Average scores showed that physical spontaneity level of 5-years-old children (17.41 ± 3.09) was significantly higher than 4-years-old children (16.25 ± 3.07). The calculated Cohen’s d effect size shows that the effect of the difference is low. A significant difference was also observed in social spontaneity levels of pre-school children according to age ($t_{(179)}=4.690$; $p<.05$; $d'=.70$). Average scores showed that social spontaneity level of 5-years-old children (21.68 ± 3.35) was significantly higher than 4-years-old children (19.09 ± 3.44). The effect size implies that the effect of the difference is moderate ($t_{(179)}=2.387$; $p<.05$; $d'=.36$). Moreover, a significant difference was observed in cognitive spontaneity levels of pre-school children according to age ($t_{(179)}=4.690$; $p<.05$; $d'=.70$). Average scores showed that cognitive spontaneity level of 5-years-old children (15.25 ± 3.08) was significantly higher than 4-years-old children (14.09 ± 2.65). The effect size implies that the effect of the difference is low. The difference of manifest joy level of children was found to be insignificant according to age ($t_{(179)}=1.606$; $p> 0.05$). In other words, manifest joy level of 4 and 5-years-old children was similar. A significant difference was observed in the sense of humor of pre-school children according to age ($t_{(179)}=2.128$; $p<.05$; $d'=.32$). Average scores showed that sense of humor of 5-years-old children (20.20 ± 4.19) was significantly higher than 4-years-old children (18.72 ± 4.40). The effect size shows that the effect of the difference is low. Lastly in Table 4, the playfulness of pre-school children showed a significant difference according to age ($t_{(179)}=2.980$; $p<.05$; $d'=.45$). Regarding average scores, the playfulness of 5-year-old children (95.74 ± 15.35) was found to be significantly higher than 4-year-old’s (88.43 ± 14.15). The effect size implies that the effect of the difference is moderate. In other words, 4-years-old children have a moderately higher tendency to play than 5-years-olds.



The scores of the children according to gender also showed normal distribution, thus t-test was used in the comparison of the related measurements, and the results are shown in Table 5.

Table 5. Independent T-test results for pre-school children’s playfulness according to gender

Scale	Gender	n	Mean	Std.Dev.	t	df	p	d'
Physical spontaneity	Female	81	17.06	3.06	.039	179	.969	---
	Male	100	17.08	3.18				
Social spontaneity	Female	81	21.14	3.25	.723	179	.471	---
	Male	100	20.75	3.81				
Cognitive spontaneity	Female	81	15.16	2.90	1.004	179	.317	---
	Male	100	14.71	3.08				
Manifest joy	Female	81	21.40	3.30	1.593	179	.113	---
	Male	100	20.56	3.66				
Sense of humor	Female	81	19.96	3.99	.564	179	.573	---
	Male	100	19.60	4.54				
Overall playfulness score	Female	81	94.72	14.22	.879	179	.381	---
	Male	100	92.70	16.20				

*p<.05

Regarding Table 5, pre-school children’s physical spontaneity ($t_{(179)}=.039$; $p>.05$), social spontaneity ($t_{(179)}=.723$; $p>.05$), cognitive spontaneity ($t_{(179)}=1.004$; $p>.05$), manifest joy ($t_{(179)}=1.593$; $p>.05$), and sense of humor ($t_{(179)}=.564$; $p>.05$) scores did not show significant difference according to gender. Similarly, the difference on children's overall playfulness scores according to gender was not significant ($t_{(179)}=.879$; $p>.05$). In other words, the playfulness tendencies of girls and boys were found to be similar both in overall and in all sub-dimensions.

The playfulness of pre-school children according to the number of children in the family was first tested for normality, and then homogeneity of variances was tested by Levene test. After determining that the assumptions are met, one-way analysis of variance (ANOVA) was performed for comparison and the results are shown in Table 6.

Table 6. One way ANOVA analysis results for pre-school children’s playfulness according to the number of children in the family

Scale	# of children	n	Mean	Std.Dev.	F	df	p	n ²
Physical spontaneity	1 child	55	17.33	2.98	1.080	2	.969	---
	2 children	95	16.76	3.33				
	3+ children	31	17.58	2.62				
Social spontaneity	1 child	55	20.91	3.57	.174	2	.471	---
	2 children	95	20.82	3.74				
	3+ children	31	21.26	3.05				
Cognitive spontaneity	1 child	55	14.85	2.56	.098	2	.317	---
	2 children	95	14.87	3.23				
	3+ children	31	15.13	3.08				
Manifest joy	1 child	55	21.25	3.10	.635	2	.113	---
	2 children	95	20.65	3.89				
	3+ children	31	21.23	3.05				
Sense of humor	1 child	55	20.15	3.93	.494	2	.573	---
	2 children	95	19.46	4.52				
	3+ children	31	20.00	4.27				
Overall playfulness score	1 child	55	94.49	13.32	.472	2	.381	---
	2 children	95	92.57	17.00				
	3+ children	31	95.19	13.40				

*p<.05

According to Table 6, the differentiation of physical spontaneity ($F_{(2,180)}=1.080$; $p>.05$), social spontaneity ($F_{(2,180)}=.174$; $p>.05$), cognitive spontaneity ($F_{(2,180)}=.098$; $p>.05$), manifest joy ($F_{(2,180)}=.635$; $p>.05$), sense of humor ($F_{(2,180)}=.494$; $p>.05$) levels were found to be insignificant



according to the number of children in the family. Similarly, pre-school children's overall playfulness scores did not show a significant difference according to the number of children in the family ($F_{(2,180)}=.472$; $p>.05$). In other words, the playfulness of the children who are the only child of their family, and who has one, two or more siblings were similar both in overall and in all sub-dimensions.

The differentiation of the playfulness of pre-school children according to the duration of pre-school education was tested. The scores of the children according to the duration of pre-school education showed normal distribution, therefore t-test was used in the comparison of the related measurements, and the results are shown in Table 7.

Table 7. Independent T-test results for pre-school children's playfulness according to the duration of pre-school education

Scale	Duration of pre-school education	n	Mean	Std.Dev.	t	df	p	d'
Physical spontaneity	1 year	112	16.61	3.03	2.595	179	.010*	.39
	2 years and more	69	17.83	3.14				
Social spontaneity	1 year	112	19.95	3.61	4.995	179	.000*	.75
	2 years and more	69	22.51	2.88				
Cognitive spontaneity	1 year	112	14.67	3.07	1.385	179	.168	---
	2 years and more	69	15.30	2.88				
Manifest joy	1 year	112	20.27	3.50	3.330	179	.001*	.50
	2 years and more	69	22.01	3.30				
Sense of humor	1 year	112	19.04	4.10	2.925	179	.004*	.44
	2 years and more	69	20.93	4.37				
Overall playfulness score	1 year	112	90.54	15.05	3.534	179	.001*	.53
	2 years and more	69	98.58	14.57				

* $p<.05$

Regarding the information in Table 4, a significant difference was observed in physical spontaneity levels of pre-school children according to the duration of pre-school education ($t_{(179)}=2.595$; $p<.05$; $d'=.39$). Average scores showed that physical spontaneity level of the children who were attending a pre-school education institution for two years and more (17.83 ± 3.14) was significantly higher than those who were attending for one year (16.61 ± 3.03). The calculated effect size shows that the effect of the difference is low. A significant difference was also observed in social spontaneity levels of pre-school children according to the duration of pre-school education ($t_{(179)}=4.995$; $p<.05$; $d'=.75$). Average scores showed that social spontaneity level of the children who were attending a pre-school education institution for two years and more (22.51 ± 2.88) was significantly higher than those who were attending for one year (19.95 ± 3.61). The effect size shows that the effect of the difference is moderate. The difference in cognitive spontaneity level of the children was found to be insignificant according to the duration of pre-school education ($t_{(179)}=1.385$; $p>.05$). In other words, the cognitive spontaneity levels of the children who have been attending a pre-school education institution for 1 year and 2 years or more were similar. Manifest joy levels of the children were found to significantly differentiate according to the duration of pre-school education ($t_{(179)}=3.330$; $p<.05$; $d'=.50$). Average scores showed that manifest joy level of the children who were attending a pre-school education institution for two years and more (22.01 ± 3.30) was significantly higher than those who were attending for one year (20.27 ± 3.50). The effect size shows that the effect of the difference is moderate. Sense of humor of the children was also found to significantly differentiate according to the duration of pre-school education ($t_{(179)}=2.925$; $p<.05$; $d'=.44$). Average scores showed that sense of humor level of the children who were attending a pre-school education institution for two years and more (20.93 ± 4.37) was significantly higher than those who were attending for one year (19.04 ± 4.10). The effect size shows that the effect of the difference is moderate. The table also shows that the overall playfulness scores of the children significantly differentiated according to the duration of pre-school education. ($t_{(179)}=3.534$; $p<.05$; $d'=.53$). Regarding average scores, the playfulness of the children who were attending a pre-school education institution for two years and more (98.58 ± 14.57)



was significantly higher than those who were attending for one year (90.54 ± 15.05). The calculated effect size shows that the effect of the difference is moderate. In other words, children who have attended pre-school education for 2 years or more have moderately more playfulness behaviors than children who have attended pre-school education for one year.

The differentiation of the playfulness of pre-school children according to their mother’s age was tested. The scores of the children according to mother’s age did not exhibit normal distribution, therefore Kruskal Wallis test was used in the comparison. The results are shown in Table 8.

Table 8. Kruskal Wallis test results for pre-school children’s playfulness according to mother’s age

Scale	Mother’s Age	n	Mean	Std.Dev.	Rank Mean	X ²	df	p	n ²
Physical spontaneity	Less than 30 years old	29	17.24	3.16	96.95	1.331	2	.514	---
	30-39-years-old	136	16.99	3.12	88.53				
	More than 40 years old	16	17.50	3.14	101.19				
Social spontaneity	Less than 30 years old	29	19.76	4.37	78.69	3.689	2	.158	---
	30-39-years-old	136	21.03	3.37	91.43				
	More than 40 years old	16	22.13	3.26	109.63				
Cognitive spontaneity	Less than 30 years old	29	15.00	3.25	93.41	.080	2	.961	---
	30-39-years-old	136	14.90	2.91	90.43				
	More than 40 years old	16	14.88	3.52	91.50				
Manifest joy	Less than 30 years old	29	20.52	4.06	87.07	.268	2	.875	---
	30-39-years-old	136	21.00	3.39	91.37				
	More than 40 years old	16	21.13	3.76	95.00				
Sense of humor	Less than 30 years old	29	19.76	5.10	93.22	.141	2	.932	---
	30-39-years-old	136	19.79	3.96	90.17				
	More than 40 years old	16	19.56	5.59	94.00				
Overall playfulness score	Less than 30 years old	29	92.28	18.16	89.16	.362	2	.835	---
	30-39-years-old	136	93.70	14.52	90.53				
	More than 40 years old	16	95.19	17.46	98.34				

*p<.05

According to Table 8, the difference on physical spontaneity ($X^2_{(2)}=1.331$; $p>.05$), social spontaneity ($X^2_{(2)}=3.689$; $p>.05$), cognitive spontaneity ($X^2_{(2)}=.080$; $p>.05$), manifest joy ($X^2_{(2)}=.268$; $p>.05$), and sense of humor ($X^2_{(2)}=.141$; $p>.05$) levels of the children were observed to be insignificant according to the age of the mother. Similarly, pre-school children's overall playfulness scores did not show a significant difference according to the mother’s age ($X^2_{(2)}=.362$; $p>.05$). In other words, the playfulness of the children whose mother are younger than 30-years-old, 30-39-years-old, or older than 40-years-old were similar both in overall and in all sub-dimensions.

The scores of the playfulness of the children participating in the research according to their father’s age did not exhibit normal distribution, therefore Kruskal Wallis test was used in the comparison. The results are shown in Table 9a, and Table 9b.

Table 9a. Kruskal Wallis test results for pre-school children’s playfulness according to father’s age

Scale	Father’s Age	n	Mean	Std.Dev.	Rank Mean	X ²	df	p	n ²
Physical spontaneity	Less than 30 years old	14	16.79	3.24	87.68	.454	2	.797	---
	30-39-years-old	136	17.03	3.15	90.09				
	More than 40 years old	31	17.39	3.01	96.48				
Social spontaneity	Less than 30 years old	14	20.00	4.19	80.18	2.002	2	.368	---
	30-39-years-old	136	20.86	3.52	89.68				
	More than 40 years old	31	21.61	3.49	101.68				
Cognitive spontaneity	Less than 30 years old	14	15.57	3.61	101.64	1.209	2	.546	---
	30-39-years-old	136	14.75	2.85	88.65				
	More than 40 years old	31	15.32	3.36	96.50				



Table 9b. Kruskal Wallis test results for pre-school children’s playfulness according to father’s age

Scale	Father’s Age	n	Mean	Std.Dev.	Rank Mean	X ²	df	p	n ²
Manifest joy	Less than 30 years old	14	19.93	3.73	76.36	1.214	2	.545	---
	30-39-years-old	136	21.03	3.53	92.39				
	More than 40 years old	31	20.97	3.45	91.53				
Sense of humor	Less than 30 years old	14	19.71	5.09	91.32	.380	2	.827	---
	30-39-years-old	136	19.71	4.15	89.79				
	More than 40 years old	31	20.03	4.66	96.16				
Overall playfulness score	Less than 30 years old	14	92.00	18.31	88.50	.612	2	.736	---
	30-39-years-old	136	93.38	15.01	89.74				
	More than 40 years old	31	95.32	15.74	97.66				

*p<.05

The playfulness of pre-school children according to the education level of the mother was tested for normality and homogeneity of variances (by Levene test). After determining that the assumptions are met, one-way analysis of variance (ANOVA) was performed for comparison and the results are shown in Table 10.

Table 10. ANOVA analysis results for pre-school children’s playfulness according to mother’s education

Scale	Mother’s Education Level	n	Mean	Std.Dev.	F	df	p	n ²
Physical spontaneity	Less than high school	50	17.00	3.12	.049	2	.952	---
	High school	89	17.15	3.04				
	University and more	42	17.00	3.34				
Social spontaneity	Less than high school	50	20.72	3.42	.177	2	.838	---
	High school	89	21.08	3.75				
	University and more	42	20.83	3.39				
Cognitive spontaneity	Less than high school	50	15.08	3.22	.112	2	.894	---
	High school	89	14.87	3.07				
	University and more	42	14.81	2.62				
Manifest joy	Less than high school	50	20.56	3.58	.406	2	.667	---
	High school	89	21.03	3.49				
	University and more	42	21.17	3.57				
Sense of humor	Less than high school	50	19.20	4.27	.605	2	.547	---
	High school	89	20.02	4.21				
	University and more	42	19.88	4.53				
Overall playfulness score	Less than high school	50	92.56	15.03	.170	2	.843	---
	High school	89	94.15	15.70				
	University and more	42	93.69	15.22				

*p<.05

According to Table 10, the difference on physical spontaneity ($F_{(2,180)}=.049$; $p>.05$), social spontaneity ($F_{(2,180)}=.177$; $p>.05$), cognitive spontaneity ($F_{(2,180)}=.112$; $p>.05$), manifest joy ($F_{(2,180)}=.406$; $p>.05$), and sense of humor ($F_{(2,180)}=.605$; $p>.05$) levels of the children were observed to be insignificant according to the education of the mother. Similarly, pre-school children's overall playfulness scores did not show a significant difference according to mother’s education ($F_{(2,180)}=.170$; $p>.05$). In other words, the playfulness of the children whose mother are graduated from primary-secondary school, high school or university were similar both in overall and in all sub-dimensions.

The playfulness of pre-school children according to the education level of the father was found to show normal distribution and to have homogeneous variances (by Levene test). Therefore, one-way analysis of variance (ANOVA) was performed for comparison and the results are shown in Table 11.

**Table 11.** ANOVA analysis results for pre-school children’s playfulness according to father’s education

Scale	Father’s Education Level	n	Mean	Std.Dev.	F	df	p	n ²
Physical spontaneity	Less than high school	47	16.98	3.46	.789	2	.456	---
	High school	98	17.31	2.62				
	University and more	36	16.56	3.85				
Social spontaneity	Less than high school	47	20.60	3.81	.424	2	.655	---
	High school	98	21.14	3.46				
	University and more	36	20.75	3.57				
Cognitive spontaneity	Less than high school	47	15.21	3.36	.674	2	.511	---
	High school	98	14.94	2.97				
	University and more	36	14.44	2.60				
Manifest joy	Less than high school	47	20.53	3.70	.501	2	.607	---
	High school	98	21.15	3.28				
	University and more	36	20.86	3.95				
Sense of humor	Less than high school	47	19.38	4.27	.440	2	.645	---
	High school	98	19.76	4.21				
	University and more	36	20.28	4.61				
Overall playfulness score	Less than high school	47	92.70	16.38	.218	2	.804	---
	High school	98	94.30	14.44				
	University and more	36	92.89	16.64				

*p<.05

According to Table 11, the difference on physical spontaneity ($F_{(2,180)}=.789$; $p>.05$), social spontaneity ($F_{(2,180)}=.424$; $p>.05$), cognitive spontaneity ($F_{(2,180)}=.674$; $p>.05$), manifest joy ($F_{(2,180)}=.501$; $p>.05$), and sense of humor ($F_{(2,180)}=.440$; $p>.05$) levels of the children were observed to be insignificant according to the education of the father. Similarly, pre-school children's overall playfulness scores did not show a significant difference according to father’s education ($F_{(2,180)}=.218$; $p>.05$). In other words, the playfulness of the children whose fathers are graduated from primary-secondary school, high school or university was similar both in overall and in all sub-dimensions.

Since the playfulness scores of pre-school children participating in the research according to their mother’s working status showed normal distribution, t-test was used in the comparison of the related measurements, and the results are shown in Table 12.

Table 12. Independent t-test results for pre-school children’s playfulness according to mother’s working status

Scale	Mother’s working status	n	Mean	Std.Dev.	t	df	p	d’
Physical spontaneity	Not-working	126	17.13	3.05	.359	179	.720	---
	Working	55	16.95	3.30				
Social spontaneity	Not-working	126	20.83	3.42	.554	179	.580	---
	Working	55	21.15	3.89				
Cognitive spontaneity	Not-working	126	14.70	3.01	1.450	179	.149	---
	Working	55	15.40	2.95				
Manifest joy	Not-working	126	20.93	3.54	.030	179	.976	---
	Working	55	20.95	3.51				
Sense of humor	Not-working	126	19.54	4.28	1.057	179	.292	---
	Working	55	20.27	4.32				
Overall playfulness score	Not-working	126	93.12	14.98	.640	179	.523	---
	Working	55	94.71	16.22				

*p<.05

The working areas of the mothers who participated in the study varied too much, thus the working status of mothers were evaluated in two categories as working and not-working. According to Table 12, the difference on physical spontaneity ($t_{(179)}=.359$; $p>.05$), social spontaneity ($t_{(179)}=.559$; $p>.05$), cognitive spontaneity ($t_{(179)}=1.450$; $p>.05$), manifest joy ($t_{(179)}=.030$; $p>.05$), and sense of humor



($t_{(179)}=1.057$; $p>.05$) levels of the children were observed to be insignificant according to the working status of the mother. Similarly, pre-school children's overall playfulness scores did not show a significant difference according to mother's working status ($t_{(179)}=.640$; $p>.05$). In other words, the playfulness of the children whose mother are working or not working were similar both in overall and in all sub-dimensions.

The playfulness of pre-school children according to the profession of their father was analyzed. Since the father of 1.7% ($n=3$) of the children who participated in the study were unemployed, the comparison was made for 177 children whose father were working. The playfulness score of the children according to the profession of the father was found to show normal distribution and to have homogeneous variances (by Levene test). Therefore, one-way analysis of variance (ANOVA) was performed for comparison and the results are shown in Table 13.

Table 13. Independent t-test results for pre-school children's playfulness according to father's profession

Scale	Father's profession	n	Mean	Std.Dev.	F	df	p	n ²
Physical spontaneity	Civil servant	25	16.96	3.23	.454	2	.636	---
	Worker	85	16.91	3.43				
	Self-employed	67	17.37	2.53				
Social spontaneity	Civil servant	25	20.84	3.48	.205	2	.815	---
	Worker	85	20.80	3.74				
	Self-employed	67	21.16	3.43				
Cognitive spontaneity	Civil servant	25	14.44	2.18	.469	2	.626	---
	Worker	85	14.87	3.25				
	Self-employed	67	15.12	2.99				
Manifest joy	Civil servant	25	20.56	3.76	.468	2	.627	---
	Worker	85	20.85	3.68				
	Self-employed	67	21.27	3.15				
Sense of humor	Civil servant	25	19.60	4.36	.513	2	.599	---
	Worker	85	19.49	4.55				
	Self-employed	67	20.19	4.02				
Overall playfulness score	Civil servant	25	92.40	14.47	.486	2	.616	---
	Worker	85	92.92	16.41				
	Self-employed	67	95.12	14.22				

* $p<.05$

According to Table 13, the difference on physical spontaneity ($F_{(2,180)}=.454$; $p>.05$), social spontaneity ($F_{(2,180)}=.205$; $p>.05$), cognitive spontaneity ($F_{(2,180)}=.469$; $p>.05$), manifest joy ($F_{(2,180)}=.468$; $p>.05$), and sense of humor ($F_{(2,180)}=.513$; $p>.05$) levels of the children were observed to be insignificant according to the profession of the father. Similarly, pre-school children's overall playfulness scores did not show a significant difference according to father's profession ($F_{(2,180)}=.486$; $p>.05$). In other words, the playfulness of the children whose father are civil servant, worker or self-employed were similar both in overall and in all sub-dimensions.

DISCUSSION and CONCLUSION

Current research aimed to discover children's playfulness level in Turkey and the variables affecting playfulness level. It was concluded that the playfulness level of the children participating in the study was high. Regarding the variables, the playfulness level of the children attending pre-school education for 2 years or more were found to be higher than children received 1 year education; the playfulness level of 5-years-old children were found to be higher than 4-years-old ones in some sub-dimensions, although it didn't create a significant difference in overall score. Other variables did not make a significant difference in the playfulness levels of the children. These results were discussed through the relevant literature to identify the implications for pre-school educators.



In the study, the playfulness levels of the children were observed to be high both in overall ($M = 4.1$) and in all sub-dimensions. Regarding the ranking of the scores, physical spontaneity dimension was observed to have the highest average score, whereas cognitive spontaneity dimension had lowest score. In similar studies, the playfulness levels of children were found to be high (Keleş & Yurt, 2017; Zachopoulou, Trevlas, & Tsikriki, 2004), the highest average score was observed in physical spontaneity dimension (Barnet, 1990. 1991a; Zachopoulou, Trevlas, & Tsikriki, 2004), and cognitive spontaneity had lower average score than other dimensions (Keleş & Yurt, 2017; Macun & Güvendi, 2019; Zachopoulou, Trevlas, & Tsikriki, 2004). Physical spontaneity is one of the basic features of pre-school children who express their emotions through movement (Zachopoulou, Trevlas, & Tsikriki, 2004). Children show this feature in the game activity that requires the most movement. Therefore, high levels of playfulness in physical spontaneity can be considered as an expected result.

In the research, the overall playfulness of the children was analyzed according the certain variables and playfulness levels of the children were found to be similar for both 4- and 5-years-old ones. Similarly, Pinchover (2017) concluded that there is no direct relationship between playfulness and children's age, and playfulness level of children is similar. Regarding the sub-dimensions of playfulness in the study, the playfulness levels of 5-years-old children was observed to be significantly higher than 4-years-old ones in terms of physical spontaneity, social spontaneity and cognitive spontaneity. In the study in which Macun and Güvendi (2019) examined the playfulness levels of pre-school children, the playfulness levels of children were found to differ in favor of 5-year-old children in overall and in the sub-dimensions. Barnet (1991b), reported that social spontaneity and cognitive spontaneity levels of children increased with age. With the increase in the age of the children, their skills develop, and children become more conscious regarding playing and winning (Howard, 2002). Therefore, an increase in playfulness level can be observed with age. However, Saunders, Sayer, and Goodale (1999) found that younger children had higher average playfulness score. The reason for this difference in the results of the studies may be the experience that 5-years-old children have gained in terms of playfulness skills. Experiencing playfulness and sense of humor at a young age, allows children to communicate with others and to show playfulness behaviors at later ages (Youell, 2008).

The gender variable, whose effect has been widely investigated in studies on playfulness, did not create a significant difference on the playfulness levels of children in the current study. While some studies show that gender is a significant factor on children's playfulness levels (Barnett, 1991b; Cornelli Sanderson, 2010; Saunders, Sayer, & Goodale, 1999; Tae-Hyung, Tae-Hyun, & Jae-Shin, 2014; Zachopoulou, Trevlas, & Tsikriki, 2004), some studies concluded that it has no effect (Keleş & Yurt, 2017; Macun & Güvendi, 2019; Rentzou, 2013). The fact that gender has no effect on the playfulness levels of children shows that playfulness is a personality trait (Howard, Bellin, & Rees, 2002; Rentzou, 2013). However, regarding the average scores that children got from the sub-dimensions, the girls were observed to have higher averages than boys in all dimensions, except physical spontaneity. Similar studies also found that boys had a higher average than girls in the physical spontaneity subdimension of playfulness (Barnett, 1991b; Tae-Hyung, Tae-Hyun, & Jae-Shin, 2014; Zachopoulou, Trevlas, & Tsikriki, 2004). Preferring more active games (Fabes, Martin, & Hanish, 2003) and being physically more active than girls (Choi & Hyun, 2004) can be considered as a factor for boys having higher scores in physical spontaneity.

Another variable that makes a significant difference on the playfulness levels of the children is the duration of attending a pre-school education institution. The playfulness levels of children who attended pre-school education for two years or more (22.01 ± 3.30) were higher than the children who attended 1 year or less (20.27 ± 3.50) ($p < .05$). In their research, Kapıkıran, İvrendi, and Adak (2006) found that children's social skill behaviors develop positively as school attendance time increases. Pre-school education offers children the opportunity to play with their friends. Children playing with their friends in school environment regulate their behavior towards other children. Play tools in schools also satisfy the needs of children (Brewer & Kieff, 1996). School experience at an early age



shows that children's behavior is affected by classroom experiences (Howard, Jenvey, & Hill, 2006). In the study, children's school experiences were found to create a positive effect on their playfulness levels.

In the study, the number of children in the family was observed to be insignificant on children's playfulness level. Regarding the differences in the sub-dimensions of the scale, the average scores were observed to be close to each other, which led to the conclusion that the playfulness levels of children with different number of siblings are similar. Similarly, Macun and Güvendi (2019) concluded that the number of siblings did not make a significant difference on the playfulness level of the children. In the research examining children's play behaviors, Öztürk and Ahmetoğlu (2018) revealed that the number of siblings was not effective on the play behaviors. However, in some studies, it was concluded that the number of siblings caused differences in some sub-dimensions of the scale (Keleş & Yurt, 2017; Rentzou, 2013). The reason of these differences in the research results may be due to the age or gender difference of the siblings. In their studies examining the effect of the gender on children's playmate selection, Alexander and Hines (1994) found that children tend to choose playmates of the same sex. Moreover, the age differences between siblings can create differences on children's play skills (Youngblade & Dunn, 1995). While pre-school children mostly prefer to play imaginary and symbolic games, they switch to play regular games in primary school (Aksoy, 2014). Game preferences that differ with age can also change the level of sibling exposure.

Other variables addressed in the study (age, education level, working status of the mother and profession of the father) did not create significant differences in children's playfulness levels. Similarly, in the study of Macun and Güvendi (2019), education level and working status of the mothers/fathers were not found to be effective on the playfulness levels of the children. In the study examining children's play behaviors Camgöz (2010) concluded that the education level and professional status of the parents have not created a significant difference. However, Öztürk and Ahmetoğlu (2018) reported that the education level of the father had an effect on the children's play behavior, while the age of the parents and the education level of the mother had no effect on the children's play behavior. The differentiation of the study results according to family variables suggests that different characteristics of the families may have different effects on the playfulness level of the children. Alessandri (1992) observed that mothers who had experienced negative situations in the past, had negative communication with their children while playing games. John, Halliburton, & Humphrey (2012) reported that while playing with children, mothers tend to engage in empathic conversations and teaching, while fathers tend to engage in physical play, act like they are in their child's age, and follow the child's play. Karaca, Gündüz, and Aral (2011) discovered that age and education levels of families have an impact on children's positive social behavior. To better understand the effect of the parents on the child's playfulness level, the correlations between the characteristics of the families and the playfulness levels of the children should be further examined in future researches.

Conclusion

The playfulness levels of the children in pre-school period provide important information to educators. Knowledge of play and playfulness, which are among the basic elements of pre-school education, allows to understand children's play worlds and support the essence of playfulness by freeing them (Singer, 2015). Understanding children's perceptions of play and playfulness approach allows to transfer the play into classroom activities and integrate them into other activities (Howard, Bellin, & Rees, 2002). In the study, the high playfulness levels of the children indicate that they intrinsically have a playful mood (Young, 2008). The increase in children's ages and duration of pre-school education make a positive difference on their playfulness levels, which shows that receiving pre-school education from an early age will support children intrinsic playfulness feelings. In addition, the lack of significant differences according to other variables revealed that children's playfulness levels were based on internal emotions rather than external factors.



Limitations of the Study and Suggestions for Future Research

This study which has been carried out on children attending pre-school education institutions, has expanded the scope of researches on children's playfulness level in Turkey. However, the study has some limitations. Data were collected from 181 participants, who were attending a pre-school educational institution in a province of Turkey. It should be considered that children's playfulness may vary according to cultural differences or demographic characteristics of the participants. Considering that the participants were from similar environments, it should be considered that there may be differences in the playfulness levels of the children living under different conditions. In addition, the results should be supported and confirmed by other researches because it is one of the few studies addressing the playfulness level of pre-school children in Turkey.

For future researches, conducting empirical studies in Turkey on different sample groups, in which playing behavior of the children are also observed, is very important. In addition, it is suggested to conduct longitudinal studies to better understand the change of children's playfulness according to age and school attendance; and investigate parents and teachers' attitudes by using interview and observation methods to better understand the effect of the number of children in the family and the characteristics of the parents as well as teachers (e.g. Carter, 1993; Pinchover, 2017; Trawick-Smith, & Dziurgot, 2010) on children's playfulness levels.

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