

## The effect of symbolic play activities on first reading and writing skills

Esra Ay Karaçuha 

Ministry of National Education, Samsun, Türkiye, esra.ay.nisan@gmail.com

Ahmet Çebi 

Ondokuzmayıs University, Department of Primary Education, Samsun, Türkiye, cebia@omu.edu.tr



**ABSTRACT** The aim of this research is to reveal the effects of symbolic play content activities organized in kindergarten to first reading and writing skills. For this purpose, mixed-method research has been designed. In the first stage of this research, four experiments, including pretest-posttest applied, a paired experiment-control group, were applied. 30 kindergarten students from 15 experimental and 15 control group-students participated. The data obtained from the experimental process were analyzed with the Man-Whitney U Test and Wilcoxon Signed Rank Test. In the second stage, the data were collected through semi-structured observation and interview forms. 20 first-grade students from 10 experimental and 10 control group-students participated. Qualitative data were analyzed through descriptive analysis. The control group participants who successfully acquired the read-write preparation outcomes in the kindergarten and passed to the first grade were more successful in obtaining the first reading and first writing compared to the supervisory set participants who passed the first grade without acquiring the literacy preparation achievements in the kindergarten.

**Keywords:** *Early literacy, Emergent literacy, First reading skills, First writing skills, Symbolic play*

## Simgesel oyunlu etkinliklerin ilk okuma ve yazma becerilerine etkisi

**ÖZ** Bu araştırmanın amacı, anasınıfında düzenlenen simgesel oyun içerikli etkinliklerin ilk okuma ve ilk yazma becerilerine etkisini ortaya koymaktır. Bu amaca yönelik olarak karma yöntem araştırması tasarlanmıştır. Araştırmanın deney sürecine 15 deney 15 denetleme kümesinde olmak üzere 30 anasınıfı çocuğu katılmıştır. Anasınıfı düzeyinde okuma yazmaya hazırlık kazanımları önerilmiş ve bu kazanımlara yönelik 30 simgesel oyun içerikli etkinlik geliştirilerek uygulanmıştır. Bu araştırmanın ilk aşamasında, öntest-sontest uygulamalı, eşleştirilmiş deney-denetleme kümeli olmak üzere, dört deney uygulanmıştır. Deney sürecinden elde edilen veriler Man-Whitney U Testi ve Wilcoxon Sıralı İşaretler Testi ile çözümlenmiştir. Araştırmanın ikinci aşamasına deney kümesinden 10 ve denetleme kümesinden 10 olmak üzere 20 birinci sınıf çocuğu katılmıştır. Bu aşamada veriler yarı yapılandırılmış gözlem ve görüşme formları aracılığıyla toplanmıştır. Nitel veriler betimsel analiz yoluyla çözümlenmiştir. Anasınıfında araştırmaya özgü belirlenen okuma-yazmaya hazırlık kazanımlarını başarıyla edinip birinci sınıfa geçen deney kümesi çocukları ilk okuma ve ilk yazma kazanımlarını edinmede, anasınıfında okuma-yazmaya hazırlık kazanımlarını edinmeden birinci sınıfa geçen denetleme kümesi çocuklarına göre daha başarılı olmuştur.

**Anahtar Sözcükler:** *Erken okuryazarlık, İlk okuma becerileri, İlk yazma becerileri, Simgesel oyun, Tomurcuklanan okuryazarlık*

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## INTRODUCTION

The first eight years of life, from birth to the third grade of primary school, is called early childhood (National Association for the Education of Young Children, 1998). According to Jean Piaget's theory of child development, early childhood encompasses sensorimotor, preoperational, and concrete operational stages (the first three years).

According to Jean Piaget's theory of child development, sensorimotor is the first stage of development, which lasts from birth to about two years of age. In the sensorimotor stage, the infant develops mental schemas through repetitive actions on which future logical-mathematical operations are based. Object permanence and deferred imitation are the two critical developments in the sensorimotor stage. Object permanence is the ability to understand that objects continue to exist even when they have disappeared from view. Deferred imitation is defined as the ability to reproduce a previously witnessed action in the absence of current perceptual support for the action. Deferred imitation is both a prelude and a background to the symbolic play that will manifest itself in the symbolic phase of the preoperative stage (Piaget, 1964).

According to Jean Piaget's theory, preoperational is the second stage of development, which lasts from about two years of age until about six years of age. Piaget divides the preoperational stage into two substages: symbolic (2-4 years of age) and intuitive (4 to 6 years of age). At the preoperational stage, logical-mathematical thinking does not manifest itself fully. Symbolic play fully manifests itself in the symbolic substage and becomes more and more complicated in the intuitive substage. Kindergarten education starts at the end of the preoperative stage. Children design the most complex forms of symbolic play activities at that stage. This is why high-quality kindergartens with educational equipment generally have playhouse centers (Piaget & Inhelder, 2016).

According to Jean Piaget's theory, concrete operational is the third stage of development, lasting from about six to about 11 years of age. Children aged 6-11 years are at the beginning of the concrete operational stage and begin to perform concrete operational specific to logical-mathematical thinking (Piaget & Inhelder, 2016).

Piaget examined the development of children's play along with the cognitive-developmental stages. Piaget divided "play" into three types of "play behavior" – practice play, symbolic play, and play-with-rules. During the kindergarten period, children's plays are mostly symbolic. What differentiates symbolic play from practice play is that creative imagination comes into play in the former. Symbolic play emerges in the symbolic substage but continues to develop in the intuitive substage and the concrete operational stage. Piaget analyzed symbolic play in three main stages and divided the first stage into certain levels because symbolic play evolves and becomes more complex. Symbolic play manifests itself mostly as "play house" which becomes the most complex at the kindergarten level.

Literacy in early childhood is associated with two concepts: early and emergent literacy. Early literacy lasts from birth until eight years of age (National Association for the Education of Young Children, 1998). Contrary to the traditional view, Sulzby (1985, 1986) argues that emergent literacy behaviors develop from two to five years of age (Sulzby, 1985). Emergent literacy refers to the process leading to literacy behaviors that evolve towards formal literacy. Emergent literacy is a striking new way of thinking about scribbling, reading storybooks, or drawing letters. These behaviors continue into first grade but may take longer for some children (Sulzby, 1989). Emergent literacy is literacy from birth to formal literacy education (Whitehurst & Lonigan, 1998). Therefore, kindergarten children have emergent literacy.

According to the theories of two great theorists, Piaget and Vygotsky, symbolic play and early literacy theoretically involve similar mental processes. There is supporting evidence between early literacy and symbolic play (Christie, 2021; Franco et al, 2021; Hà, 2022; Pellegrini, 1985; Rand & Morrow, 2021; Somolanji Tokić & Borovac, 2020; Stone & Stone, 2021).

Literacy skills based on collaboration and peer learning develop during symbolic play (Roskos, 2021). There is a positive relationship between the frequency of playing symbolic plays and early literacy skills (Bergen & Maurer, 2000; Cunningham, 2022; Sidera et al., 2021; Roskos & Lenhart, 2020) According to O'Connor and Stagnitti (2011), children should play plays to develop play, behavior, language, and social skills. Play is an important way for children to make connections between books and their own experiences. Children participating in the play world practice significantly improved narrative length, coherence, and comprehension, but not linguistic complexity (Chung, 2020). There are consistent relationships between play language and achievement in literacy and language measures. Play settings enriched with literacy help children develop literacy skills (Colliver et al., 2021; Creaghe et al., 2021; Roskos, 2021; Scrabeck, 2020). Collaborative peer learning during play in literacy-enriched settings for mixed-age groups helps improve literacy skills (Han, 2021). Guided play-based learning in preschool years supports effective phonics education (Campell, 2021). Birgisdottir et al. (2020) have revealed that early literacy skills also affect math skills positively.

According to (Christie, 2021; Sawyers & Carrick, 2020) earlier research has shown that symbolic play theoretically has a positive effect on early literacy, but that theoretical relationship should be supported empirically. Christie, (2021) recommends that hybrid play-focused successive programs on literacy in early childhood be developed, implemented, and evaluated. They also maintain that we need early childhood teacher education programs and expert teachers who know how to use play to prepare play theories and academic content suitable for children's levels. Although (Christie, 2021; Muscat, 2022) advocate that children need play environments to have literacy experiences, they argue that there is a lack of available data on whether play directly contributes to literacy development. They add that researchers should use multiple methods of data collection and analysis to better understand the relationship between symbolic play and early literacy.

This is one of the first studies investigating the relationship between symbolic play and literacy. The study aimed to determine the effect of kindergarten symbolic play activities on literacy preparation and initial literacy teaching. The study will provide a new perspective on literacy preparation and initial literacy and will significantly contribute to the literature. The study addressed literacy preparation and initial literacy teaching from a holistic perspective. Our results will suggest literacy-related outcomes and activities. We think that kindergarten literacy preparation and first-grade initial literacy outcomes will help authorities develop preschool and primary school first-grade Turkish curricula. Our results will also guide preschool teachers who want to integrate symbolic play into literacy preparatory activities. The following is the research question: How do symbolic play-based kindergarten literacy preparatory activities affect primary school first-grade initial reading and writing skills?

## **THEORETICAL FRAMEWORK**

### **Symbolic Play**

Piaget divides “play” into three: practice play, symbolic play, and play-with-rules. What differentiates symbolic play from practice play is that creative imagination comes into play in the former. For example, a child telling a story for fun is aware that she is making it up. In this sense, she practices telling a story. However, if she transforms one object into another or transfers her own behavior to something else (e.g., her doll), then it means that she puts symbolic imagination to work. In other words, symbolic imagination becomes a part of “play”. Piaget divides symbolic play into three stages: the first stage (transferring symbolic schemas onto objects-first level, the child's identifying her body with other people or objects-second level, and the child distorting reality by reproducing all the scenes in which she might fail in the real world-third level) the second stage (symbolic play moves away from its ludic character and approaches a more realistic representation of the symbol), and the third stage (where rules are emerging gradually) (Piaget, 2013).

## Literacy in Early Childhood

### Emergent literacy

Emergent literacy characterizes literacy development from birth to the first grade of primary school when formal literacy begins (Whitehurst & Lonigan, 1998). Clay was the first to address the concept of “emergent literacy.” Before Clay, people used to think that literacy only began in formal school and that only verbal language developed in children aged 1-5 (Teale & Sulzby, 1986).

According to Teale and Sulzby (1986), emergent literacy leads to reading and writing and describes the evolving situation towards formal literacy. It also indicates a new way of thinking, such as scribbling, pretending to read storybooks, or pretending to write messages. Sulzby (1989) argues that emergent literacy behaviors last until the end of the first grade but may last longer for some children. Emergent literacy is a developmental concept. The impact of cognitive-developmental research on educational settings plays a vital role in the emergence of the concept of emergent literacy because emergent literacy conceptualizes literacy as a developmental process that begins at birth, whereas traditional approaches often argue that reading begins in formal school settings (Whitehurst & Lonigan, 1998).

Emergent literacy continues through sensorimotor and preoperational stages. Kindergarten children play symbolic plays in the intuitive substage of the preoperative stage. Kindergarten teachers should consider their students' developmental characteristics and support their emergent literacy behaviors. Kindergarten activities that help students develop literacy should build a foundation for formal literacy. From a developmental perspective, the transition from emergent to formal literacy should be sequential.

### Early literacy

Early literacy describes literacy development in the first eight years of life. Early literacy encompasses the emergent and formal literacy periods (from the first to the third grade of primary school) (National Association for the Education of Young Children, 1998). Learning to read and write correctly is essential for children to succeed in school and later in life. How successful one is in academic and social life depends on how well one learns to read and write in school (Cunningham & Stanovich, 1997). Although literacy skills continue to develop throughout life, it is argued that early childhood is the critical period for literacy development. A meeting of Learning to Read and Write: Developmentally Appropriate Practices for Young Children was held with the participation of many institutions and researchers under the leadership of the International Reading Association and the National Association of Education of Young Children. The objective of the meeting was to develop a common education policy on developing early literacy. To that end, the meeting addressed such topics as the "development of early literacy," "early literacy skills for certain age levels," "effective practices for early literacy development," and "recommendations for teachers regarding children's age levels." The meeting addressed many aspects of early literacy development and identified its crucial aspects: (i) Early literacy is a developmental process from birth to the end of the third grade, (ii) initial reading and writing instruction should not be limited to the first grade of primary school but should continue until the end of the third grade of primary school, and (iii) teachers should have preschoolers engage in various literacy preparatory activities before starting formal literacy (National Association for the Education of Young Children, 1998).

Kindergarten literacy preparation and first-grade formal literacy activities are evaluated within the scope of early literacy activities. In this respect, literacy preparation and initial reading and writing activities should be addressed from a developmental point of view and designed with a certain integrity.

## METHOD

### Research Design

This study adopted mixed method research with an intervention pattern design to determine the effect of kindergarten symbolic play-based literacy preparatory activities on initial reading and writing skills (Cresswell et al., 2003; Creswell, 2017; Dawadi et al., 2021; Johnson et al., 2007). In this study, the researcher designed and implemented experiments involving symbolic games and collected data with various measurement tools in this process. Then, the researcher collected data through semi-structured observation and interviews when the children moved to first grade. Data from both experiments and semi-structured observations and interviews were analyzed and evaluated using various methods.

Literacy preparation outcomes were grouped under four headings (Line, Word, Sentence, and Text). An evaluation criterion was developed for each learning outcome of each heading to determine whether participants achieved the learning outcomes. Based on these criteria, questions specific to each heading were created for both the pretest and the posttest. Then, thirty symbolic play-based reading and writing preparatory activities were designed for the learning outcomes. The activities were also grouped under four main headings and arranged in accordance with the said order. Four pretest-posttest paired experiment-control group experiments were designed for “Line,” “Word,” “Sentence,” and “Text.” Participants were assigned to the experimental and control groups according to their chronological age. Four experts were consulted for each design phase of the experiments. The experimental and control groups took the “Line” pretest before the “Line” activities. Then, the experimental group performed the symbolic play-based reading and writing preparatory activities developed for the “Line” learning outcomes (intervention). The control group received education according to the current curriculum. After the intervention, both groups took the “Line” posttest. The same procedure was applied for “Word,” “Sentence,” and “Text.” The data were analyzed using the Statistical Package for Social Sciences (SPSS).

In the second stage, first-grade initial reading and writing outcomes were developed. The outcomes were grouped under five headings: “Line,” “Letter,” “Word,” “Sentence,” and “Text.” Semi-structured observation and interview forms were developed for each heading. Four experts were consulted for each stage of the design process. Observations were performed using the semi-structured observation forms during the initial reading and initial writing activities in the academic year. Participants were interviewed at the end of the process related to each topic in accordance with the nature of the initial reading and writing teaching process. Then, the data collection process was completed. The data were analyzed using qualitative research methods and techniques.

### Sample

#### The sample of the experimental process

The experiments were conducted in a public primary school in the centre of a large province in the Black Sea Region. The school has five kindergarten and six first-grade classrooms. The initial sample consisted of 40 kindergarten students aged 60 months in the 2016-2017 academic year. Kindergarten students aged 60 months were the sample of choice because they would move to first grade the following year. The initial sample was divided into experimental (n=20) and control (n=20) groups. However, five participants from each experimental and control group were excluded from the sample because they changed schools, got sick, or moved away. Therefore, the sample consisted of 30 participants: (experimental; n=15 and control; n=15). The researcher's students constituted the experimental group, while the students from another classroom constituted the control group. The control group continued its education according to the existing pre-school education program with its own teachers without any intervention.

## **The sample of the observation and interview process**

The observations and interviews were performed in two public primary schools in the centre of a large city in the Black Sea Region. This stage was conducted in two public primary schools because an experimental group participant was enrolled in another public primary school close to the research school. The primary school has five kindergarten and eight first-grade classrooms.

Participants were recruited using purposive and convenience sampling (Merriam, 2015). The experimental group of the first stage consisted of students who performed kindergarten symbolic play-based activities and moved on to first grade. The control group of the first stage consisted of students who received education according to the current curriculum without any intervention and moved on to first grade. The second stage participants consisted of ten students from the experimental group and ten from the control group. Some of the experimental group participants of the first stage could not participate in the second stage because they moved away, had sick parents, or had parents undergoing a divorce. In the first research school, two experimental and two control group participants were from each of the four first-grade classrooms. Another first-grade classroom of the same school had one experimental and two control group participants. In the first and second stages, there was one experimental group participant from one of the first-grade classrooms of the other research school.

## **Data Collection Tools**

Kindergarten literacy preparatory learning outcomes and first-grade initial reading and writing learning outcomes were developed for the experimental group. We conducted a literature review for the initial reading and writing skills. Türkiye has introduced six Turkish curricula to date (Republic of Türkiye National Ministry of Education, 1924, 1948, 1968, 1981, 2005, 2013, 2015, 2017). We examined the Turkish Curricula's First Reading and Writing sections during the literature review. We also examined the Language Arts Curriculum of the US Common Core State Standards (Council of Chief School Officers, 2010), Finland's National Core Curriculum (Finnish National Board of Education, 2004, 2016), England's National Curriculum (United Kingdom Department of Education, 1999, 2013, 2014), and Singapore's Two English Language Curricula Hong Kong Education Bureau & The Hong Kong Examinations and Assessment Authority, 2017). (Ministry of Education Singapore, 2001, 2020) and Hong-Kong English Language Curricula (Experts were consulted for the literacy preparatory learning outcomes and initial reading and writing learning outcomes. In line with the literacy preparatory learning outcomes, symbolic play-based literacy preparatory activities were designed to lay a foundation for the initial reading and writing skills. The activities were designed to help participants acquire each literacy preparation outcome. The symbolic play-based literacy preparatory activities were associated with all kinds of activities (for example, the integration of arts, science, and literacy preparatory activities is an integrated cluster activity). We used Piaget's symbolic play criteria to ensure the activities were symbolic. In other words, each activity included Piaget's symbolic play criteria. Experts were consulted to determine whether the activities were symbolic activities that corresponded to the learning outcomes. The kindergarten outcomes and the symbolic play-based literacy preparatory activities tailored to those outcomes were clustered under the headings of "Line," "Word," "Sentence," and "Text." The "Line" learning outcomes (Line pretest-posttest), "Word" learning outcomes (Word pretest-posttest), "Sentence" learning outcomes (Sentence pretest-posttest), and "Text" learning outcomes (Text pretest-posttest) assessment tools were developed to determine whether participants acquired the learning outcomes. Four experts were consulted to develop each assessment tool.

Semi-structured observation forms were developed based on the first-grade initial reading and writing instruction learning outcomes. The first-grade initial reading and writing learning outcomes were grouped under the headings of "Line," "Letter," "Word," "Sentence," and "Text." Four experts were consulted to develop the semi-structured observation forms.

Semi-structured interview forms were developed based on the first-grade initial reading and writing instruction learning outcomes. The first-grade initial reading and writing learning outcomes were

grouped under the headings of “Line,” “Letter,” “Word,” “Sentence,” and “Text.” Four experts were consulted to develop the semi-structured interview forms.

## **Data Collection**

### **Data collection through experiments**

In the first stage, the experimental process was designed. The experimental process consisted of three steps: (1) identifying groups (experimental and control), (2) administering the intervention to the experimental group, and (3) determining the effect of the intervention through pretest-posttest. The assumption was that there would be no significant difference between the pretest and posttest scores in the control group (Creswell, 2017).

Both experimental and control groups took the “Line” pretest. Then, the experimental group performed the symbolic play-based “Line” activities (intervention), while the control group performed the activities tailored to learning outcomes in the current curriculum. After the intervention, both groups took the “Line” posttest. The same procedure was carried out for the headings of “Word,” “Sentence,” and “Text.”

### **Data collection through observations and interviews**

Semi-structured observations and interviews were designed to determine whether participants acquired the first-grade learning outcomes. These forms were used to collect data when participants started first grade. Semi-structured observations regarding the “Line” learning outcomes were performed at the beginning of the formal first literacy teaching process. The observations were conducted when the “Letter” activities started. The observations were made based on the order of the “Letter-group” in the current Turkish curriculum. Line, Letter, Word, Sentence and Text learning outcomes were observed throughout the process, and semi-structured interviews were held respectively when each process was completed.

## **Data Analysis**

### **Experimental data analysis**

According to the central limit theorem, normality isn’t tested when the sample is smaller than 29 (Baykul & Güzeller, 2014, Özdamar, 2013). In this study groups are smaller than 29. Because of this the experimental data were analyzed using non parametric tests in the SPSS.

### **Observation and interview data analysis**

The semi-structured observation and interview data were analyzed using descriptive analysis, which focuses on relations based on themes, categories, and codes. Descriptive analysis aims to examine data in depth (Yıldırım & Şimşek. 2013). In this study, features such as long-term observation, data and expert triangulation, and transferability were used and the researcher explained the research setting, process, and results in great detail (Lincoln & Guba, 1985, Meriam, 2015).

## **FINDINGS**

### **Quantitative Findings**

Man Whitney U test was used to compare the Line, Word, Sentence and Text pre-learning of the

experimental and control groups. There was no significant difference in the mean pretest “Line, Word, Sentence and Text ” scores between the experimental and control groups (U= 112.500, p= .000; U= 50.000, p=.009; U=112.500, p= .000; U= 105.000, p= .317). Wilcoxon Signed Rank Test was used to compare the experimental group's Line, Word, Sentence and Text learning before and after the implementation of the study. The experimental group had a significantly higher mean posttest “Line, Word, Sentence and Text” score than the pretest score (p= .001 p< .005, p= .001 p< .01, p= .000, p< .005, p= .000 p< .005). There was no significant difference between the mean pretest and posttest “Line, Word, Sentence and Text” scores in the control group (p= 1.000 p> .005, p= .317 p> .05, p= .157 p> .005, p= .317 p> .005). Man Whitney U test was used to compare the Line, Word, Sentence and Text final learning of the experimental and control groups. The experimental group had a significantly higher mean posttest “Line, Word, Sentence and Text” score than the control group (U= .000, p= .000; U= .000, p= .000; U= .000, p= .000; U= .000, p= .000)

There was no significant difference in the pretest scores concerning the Line, Word, Sentence and Text learning outcomes between the experimental and control groups. The control group participants could not acquire the “Line, Word, Sentence and Text” learning outcomes. However, the experimental group had a significantly higher posttest score concerning the “Line, Word, Sentence and Text” learning outcomes than the control group. This result showed that the kindergarten symbolic play-based literacy preparatory activities helped the experimental group participants acquire the “Line, Word, Sentence and Text” learning outcomes.

### Observation and Interview Findings

#### Line theme

**Table 1.**  
*Line Theme View 1*

	LINE 1													
	Sitting Properly and Holding a Pencil								Writing Style					
	Sitting Properly for Writing				Holding the Pen Properly for Write				Direction of Writing				LDS	
	KBU		ADBET		HPR		UPSWYW		LR		TD			
E	C	E	C	E	C	E	C	E	C	E	C	E	C	
Free Line	7	5	7	6	8	8	9	4	-	-	-	-	-	-
Perpendicular Line	7	5	7	6	8	8	9	4	10	0	10	0	10	0
Horizontal Line	7	5	7	6	8	8	9	4	10	0	10	0	10	0
Right slash	7	5	7	6	8	8	9	4	10	0	10	0	10	0
Left Slash	7	5	7	6	8	8	9	4	10	0	10	0	10	0

*Note. The table includes the number of participants in whom the specified codes were observed. KBU=Keeping the Body Upright; ADBET=Adjusting the Distance Between Eye and Text; HPR= Holding the Pencil Right; UPSWYW= Using the Pen to See What You Write; LR= Left to Right; TD= Top-Down; LDS= Line Drawing Style; E= Experimental Group; C= Control Group*

**Table 2.**  
Line Theme View 2

	LINE 2													
	Sitting Properly and Holding a Pencil								Writing Style					
	Sitting Properly for Writing				Holding the Pen Properly to Write				Direction of Writing					
	KBU		ADBET		HPR		UPSWYW		LR		LDS			
	E	C	E	C	E	C	E	C	E	C	E	C	E	C
Curved Line	7	5	7	6	8	8	9	4	10	0	10	0	10	0
Square	7	5	7	6	8	8	9	4	10	0	10	0	2	0
Rectangular	7	5	7	6	8	8	9	4	10	0	10	0	1	0
Triangle	7	5	7	6	8	8	9	4	10	0	10	0	7	0
Plus Sign	7	5	7	6	8	8	9	4	10	0	10	0	10	0
Minus sign	7	5	7	6	8	8	9	4	10	0	10	0	10	0
Equal Sign	7	5	7	6	8	8	9	4	10	0	10	0	10	0
Circle	7	5	7	6	8	8	9	4	10	0	10	0	10	0
S	7	5	7	6	8	8	9	4	10	0	10	0	10	0
8	7	5	7	6	8	8	9	4	10	0	10	0	10	0

Note. The table includes the number of participants in whom the specified codes were observed. KBU=Keeping the Body Upright; ADBET=Adjusting the Distance Between Eye and Text; HPR= Holding the Pencil Right; UPSWYW= Using the Pen to See What You Write; LR= Left to Right; TD= Top-Down; LDS= Line Drawing Style; E= Experimental Group; C= Control Group

**Sitting Properly and Holding a Pencil** Three experimental group participants could not keep their bodies upright when performing the “Line” activity. Three experimental and five control group participants could not adjust the distance between their eyes and the text during the “Line” activity. Two experimental and two control group participants could not hold the pencil correctly during the “Line” activity. One experimental and six control group participants could not see what they wrote during the “Line” activity.

**Writing Style** All experimental group participants noticed that the text went from left to right and top-down. However, not all the control group participants noticed that the text went from left to right and top-down (Table 1& Table 2). All experimental group participants had the right line drawing style in all figures but the square, rectangle, and triangle. Two experimental group participants drew the square correctly. One experimental group participant drew the rectangle correctly. Seven experimental group participants drew the triangle correctly. None of the control group participants drew all the lines correctly.

**Letter theme**

**Table 3.**  
*Letter Theme View 1*

LETTER 1																		
Sitting Properly and Holding a Pencil										Writing Style								
Sitting Properly to Write		Holding the Pen Properly to Write						Direction of Write		Spelling of Letters								
BDT		ADBET		KDK		UPSWYW		NTTWFLR		NTTWTD		UCWS		LCWS				
E	C	E	C	E	C	E	C	E	C	E	C	E	C	E	C	E	C	
Ee	6	4	7	4	8	8	9	7	10	0	10	0	8	6	10	8		
Ll	6	4	7	4	8	8	9	7	10	0	10	0	10	7	10	8		
Aa	6	4	7	4	8	8	9	7	10	0	10	0	10	3	10	8		
Kk	6	4	7	4	8	8	9	7	10	0	10	0	10	7	10	7		
İi	6	4	7	4	8	8	9	7	10	0	10	0	10	5	10	4		
Nn	6	4	7	4	8	8	9	7	10	0	10	0	9	2	10	6		
Oo	6	4	7	4	8	8	9	7	10	0	10	1	10	7	10	7		
Mm	6	4	7	4	8	8	9	7	10	0	10	1	7	4	10	7		
Uu	6	4	7	4	8	8	9	7	10	0	10	1	10	7	10	8		
Tt	6	4	7	4	8	8	9	7	10	0	10	1	10	7	10	8		
Üü	6	4	7	4	8	8	9	7	10	0	10	1	10	9	10	9		
Yy	6	4	7	4	8	8	9	7	10	0	10	1	10	8	10	9		
Öö	6	4	7	4	8	10	9	7	10	0	10	0	10	9	10	10		
Rr	6	4	7	4	8	10	9	7	10	0	10	0	8	5	10	5		
Iı	6	4	7	4	8	10	9	7	10	0	10	0	10	8	10	8		

*Note. The table includes the number of participants in whom the specified codes were observed. KBU=Keeping the Body Upright; ADBET= Adjusting the Distance Between Eye and Text; HPR= Holding the Pencil Right; UPSWYW= Using the Pen to See What You Write; NTTWFLR= Noticing That A Text Is Written From Left To Right; NTTWTD= Noticing that A Text Is Written Top-Down; UCWS= Upper Case Writing Style; LCWS= Lower Case Writing Style; E= Experimental Group; C= Control Group*

**Table 4.**  
*Letter Theme View 2*

LETTER 2																
Sitting Properly and Holding a Pencil								Writing Style								
Sitting Properly to Write				Holding the Pen Properly to Write				Direction of Write				Spelling of Letters				
BDT		ADBET		KDK		UPSWYW		NTTWFLR		NTTWTD		UCWS		LCWS		
E	C	E	C	E	C	E	C	E	C	E	C	E	C	E	C	
Dd	6	4	7	4	8	10	9	7	10	0	10	0	8	7	10	5
S s	6	4	7	4	8	10	9	7	10	0	10	0	10	8	10	8
B b	6	4	7	4	8	10	9	7	10	0	10	0	10	8	10	7
Z z	6	4	7	4	8	10	9	7	10	0	10	0	10	7	10	7
Ç ç	6	4	7	4	8	10	9	7	10	0	10	1	10	8	10	6
G g	6	4	7	4	8	10	9	7	10	0	10	1	0	0	10	4
Ş ş	6	4	7	4	8	10	9	7	10	0	10	1	10	7	10	7
C c	6	4	7	4	8	10	9	7	10	0	10	1	10	7	10	6
P p	6	4	7	4	8	10	9	7	10	0	10	1	8	4	10	5
H h	6	4	7	4	8	10	9	7	10	0	10	0	10	3	10	5
V v	6	4	7	4	8	10	9	7	10	0	10	0	9	6	10	6
Ğ ğ	6	4	7	4	8	10	9	7	10	0	10	0	0	0	10	5
F f	6	4	7	4	8	10	9	7	10	0	10	0	8	6	10	8
J j	6	4	7	4	8	10	9	7	10	0	10	0	10	6	10	6

*Note.* The table includes the number of participants in whom the specified codes were observed. KBU=Keeping the Body Upright; ADBET= Adjusting the Distance Between Eye and Text; HPR= Holding the Pencil Right; UPSWYW= Using the Pen to See What You Write; NTTWFLR= Noticing That A Text Is Written From Left To Right; NTTWTD= Noticing that A Text Is Written Top-Down; UCWS= Upper Case Writing Style; LCWS= Lower Case Writing Style; E= Experimental Group; C= Control Group

**Sitting Properly and Holding a Pencil** Six experimental and four control group participants kept their bodies upright during all “Letter” activities. Seven experimental and four control group participants adjusted the distance between their eyes and the text. Eight experimental and eight control group participants held their pencils correctly while writing the first two “Letter-group” activities. Eight experimental and ten control group participants held their pencils correctly while writing the last three “Letter-group” activities. Nine experimental and seven control group participants saw what they wrote in all “Letter-group” activities (Table 3& Table 4).

### Writing Style

**Figure 1.**  
Letter Theme Exercises (P7: experimental group participant)

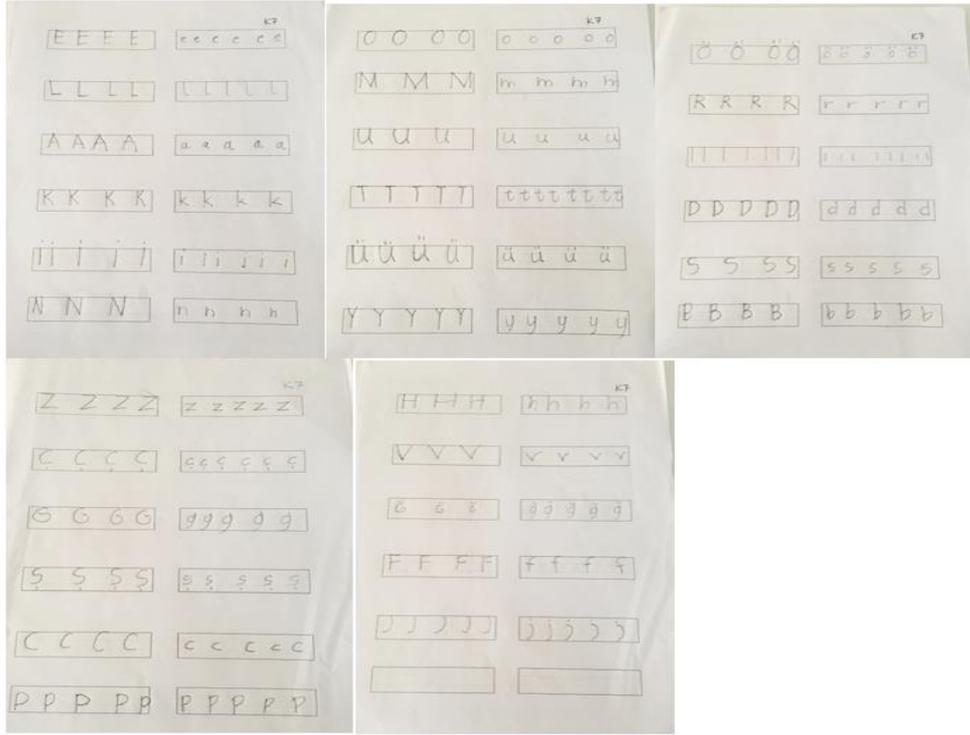


Figure 1 shows the letter theme exercises performed by Participant 7, an experimental group participant. Participant 7 completed all lines from the beginning to the end in all “Letter” activities. Although it seemed like P7 wrote all upper-case and lowercase letters correctly, he wrote the letter "M," "R," "G," and "Ğ" incorrectly (Figure 1).

The observer noted the following on the “Letter-group” observation form: “Participant 7 wrote all the letters correctly according to the technique. He completed all the lines from left to right and top-down.” The observer noted the following on the second “Letter-group” observation form: M: Participant 7 is zig-zagging bottom-up.” The observer took the following note at the bottom of the observation form: “Participant 7 wrote all the letters but ‘M’ correctly. He completed all the lines from left to right and top-down.” The observer noted the following on the third “Letter-group” observation form: R: He’s drawing the first line bottom-up.” The observer took the following note at the bottom of the observation form: “Participant 7 wrote all the letters but ‘R’ correctly. He completed all the lines from left to right and top-down.” The observer noted the following on the fourth “Letter-group” observation form: G: “He writes the letter ‘G’ in one stroke, starting from the top.” The observer took the following note at the bottom of the observation form: “Participant 7 wrote all the letters but ‘G’ correctly. He completed all the lines from left to right and top-down.” The observer noted the following on the fifth “Letter-group” observation form: Ğ: He writes the letter ‘Ğ’ in one stroke, starting from the top.” The observer took the following note at the bottom of the observation form: Participant 7 wrote all the letters but ‘Ğ’ correctly. He completed all the lines from left to right and top-down.”

**Figure 2.**

Letter Theme Exercises (P1: control group participant)



Figure 2 shows the letter theme exercises performed by Participant 1, a control group participant. Participant 1 completed the lines to the end only in the second “Letter-group” activities. However, he could not complete the lines to the end in the other “Letter-group” activities. Although it seemed like P1 wrote all the letters correctly, he only wrote the upper-case letters “Z,” “K,” “U,” and “T” and the lowercase letters “e,” “l,” “k,” “u,” “t,” “y,” and “z” (Figure 2).

In the first “Letter-group” observation form, E: “He draws his first line from the bottom up.” A: “He starts by drawing from the bottom up.” a: “He draws a circle in reverse and draws a line next to it.” The observer took the following note at the bottom of the observation form: “P1 isn’t completing the lines.” In the second “Letter-group” observation form, O: “He writes an upper-case ‘O’ in reverse from bottom to top.” o: “He writes a lowercase ‘o’ in reverse from bottom to top.” M: “He writes an upper-case ‘M’ in a top-down zigzag shape.” M: “From bottom to top.” Ü: “He first puts the dots of the letter ‘Ü’.” ü: “He first puts the dots of the letter ‘ü’.” Y: “He writes an upper-case ‘Y’ all the lines from bottom to top.” The observer took the following note at the bottom of the observation form: “P1 completes the lines to the end even though he left some lines unfinished.” In the third “Letter-group” observation form, Ö: “He writes the letter ‘Ö’ in reverse from bottom to top.” ö: “He writes the letter ‘ö’ in reverse from bottom to top.” R: “He draws his first line from the bottom up. He first writes an inverted ‘o’ then draws a line.” r: “He writes the lowercase ‘r’ from bottom to top.” I: “He draws the upper-case ‘I’ from bottom to top.” i: “He draws the lowercase ‘i’ from bottom to top.” D: “He draws all the stages from bottom to top.” d: “He writes a lowercase ‘b’ instead of a lowercase ‘d’.” B: “He draws his first line from the bottom up. He draws two circles on top of each other, upside down.” b: “He writes a lowercase ‘d’ instead of a lowercase ‘b’.” The observer took the following note at the bottom of the observation form: “P1 could not write any letter in this letter set according to his technique. He wrote three letters at the beginning of the lines and did not complete the lines to the end.” In the fourth “Letter-group” observation form, G: “She writes an upper-case ‘G’ in one move without raising her hand.” g: “First she draws an inverted

circle, then she draws her tail.” The observer took the following note at the bottom of the observation form: “P1 completed the line while writing the letters 'Z' and 'z', but she wrote the letters 'G' and 'g' three times each and stopped there.” In the fifth “Letter-group” observation form, Ğ: She drew an uppercase ‘Ğ’ in one move.” ğ: “She drew an inverted circle and then a tail.” J: “She writes a lowercase ‘j’ instead of an uppercase ‘J’.” j: She writes an uppercase ‘J’ instead of a lowercase ‘j’.” The observer took the following note at the bottom of the observation form: “P1 could not write any letter in this set correctly. He did not complete the lines.”

**Word theme**

**Table 5.**  
Word Theme View 1

WORD 1						
Sitting Right for Reading/Writing				Holding the Pencil Right to Write		
Sitting Right for Reading		Sitting Right for Writing				
KBU	ADBET	KBU	ADBET	HPR	UPSWYW	
E	10	10	8	8	8	9
C	5	5	5	5	10	6

Note. The table includes the number of participants in whom the specified codes were observed. KBU= Keeping the Body Upright; ADBET= Adjusting the Distance Between Eye and Text; HPR= Holding the pencil right; UPSWYW= Using the Pen to See What You Write; E= Experimental Group; C= Control Group

**Table 6.**  
Word Theme View 2

WORD 2																						
Identifying between Letters and Sounds			Identifying Syllables						Identifying a Word													
SHMLWH		NVCP		SWS			CWCS			NMWS			RWCLS									
q1	q2	q3	q1	q2	q1	q2	q3	q4	q1	q2	q1	q2	q3	q1	q2	q3	q4	q5	q6	q7	q8	
E	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
C	0	1	3	10	9	1	0	1	1	0	0	0	0	0	4	1	2	0	3	2	0	3

Note. SHMLWH= Saying How Many Letters a Word Has; NVCP= Noticing a Vowel Changed Place; SWS= Splitting a Word into Syllables; CWCS= Creating a Word by Combining Syllables; NMWS= Noticing the Meaning of a Word in a Sentence; RWCLS= Reaching a Word by Changing Letters in a Syllable; E= Experimental Group; C=Control Group; q1-10: Questions

**Sitting Right for Reading/Writing** Findings regarding proper sitting for reading and writing are given below.

**Sitting Right for Reading** Eight experimental group participants held their bodies upright while reading, while seven experimental group participants held their bodies upright while writing. Two experimental group participants could not hold their bodies upright while reading. Although one experimental group participant could not hold his body upright while reading, he adjusted the distance between his eyes and the text. Only one experimental group participant could not adjust the distance between his eyes and the text while reading. Five control group participants held their bodies upright and adjusted the distance between their eyes and the text while reading. Six control group participants could not hold their bodies upright while reading. Four control group participants could not adjust the

distance between their eyes and the text (Table 5).

**Sitting Right for Writing** Seven experimental group participants held their bodies upright and adjusted the distance between their eyes and the text while writing during the "Word" activities. Three experimental group participants could not hold their bodies upright while reading and could not adjust the distance between their eyes and the text. Four control group participants could hold their bodies upright and adjusted the distance between their eyes and the text while reading (Table 5).

**Holding the Pencil Right to Write** Eight experimental group participants held their pencils right while writing. Two experimental group participants failed to hold their pencils right while writing. Nine experimental group participants saw what they wrote. All control group participants held their pencils right. Six control group participants saw what they wrote. Four control group participants could not see what they wrote (Table 5).

**Identifying between Letters and Sounds** Experimental group participants gave the following answers to the questions under the category of "Identifying between Letters and Sounds" in the theme of "Word:" "I: How many letters does the word 'iki' (two) have? P9: Three. I: How do you pronounce the letter 'R' preceded by 'I'? P3: Rı I: How do you pronounce the letter 'I' preceded by 'R'? P3: Ir". All experimental group participants correctly answered the questions associated with SHMLWH and NVCP (Table 6).

Control group participants gave the following answers to the questions under the subcategory of SHMLWH of the category of "Identifying between Letters and Sounds" in the theme of "Word:" I: How many letters does the word 'iki' (two) have? P3: I don't know. One control group participant gave the right answers to the second question associated with the subcategory of SHMLWH. Three control group participants gave the correct answers to the third question associated with the subcategory of SHMLWH. Participant 10 (control group) failed to notice the vowel change in the second question (Table 6).

**Identifying Syllables** Experimental group participants gave the following answers to the questions associated with the subcategory of SWS of the category of "Identifying Syllables:" I: How many syllables does the word 'Çanakkale' (Gallipoli) have? P9: Four (counting by clapping hands). All experimental group participants answered the SWS questions correctly (Table 6).

Control group participants gave the following answers to the questions associated with the subcategory of SWS of the category of "Identifying Syllables:" I: How many syllables does the word 'silgi' (rubber) have? P2: Two. One control group participant (P2) answered the third question correctly. Another control group participant (P6) answered the first and fourth questions correctly. The other control group participants either said "I don't know" or gave wrong answers (Table 6).

Experimental group participants gave the following answers to the questions associated with the subcategory of CWCS of the category of "Identifying Syllables:" I: Can you combine these syllables into two words? P7: 'Rek bö' (börek=pastries) and 'to pan lon' (pantolon = trousers). I: Can you turn these syllables into two words? P7: Börek. I: I'll give you the rest, 'to pan lon,' What word is it? P7: Pantolon. All experimental group participants answered the CWCS questions correctly (Table 6).

Control group participants gave the following answers to the questions associated with the subcategory of CWCS of the category of "Identifying Syllables:" I: Can you combine these syllables into two words? I: 'Rek bö to pan lon' P7: No, I can't. None of the control group participants answered the CWCS questions correctly (Table 6).

**Identifying a Word** Experimental group participants gave the following answers to the questions associated with the NMWS regarding "Identifying a Word." I: Can you make three sentences

with the word 'çanta'? P10: Babam bana çanta aldı (My dad bought me a bag). P10: Çantamın içine dosyalarımı koydum (I've put my folders into my bag). P10: Çantam çok güzel (I have a lovely bag). All experimental group participants answered the NMWS questions correctly (Table 6).

Control group participants gave the following answers to the questions associated with the NMWS regarding "Identifying a Word." I: Can you make three sentences with the word 'çanta'? P4: Nodding his head no. None of the control group participants answered the NMWS questions correctly (Table 6).

Experimental group participants gave the following answers to the questions associated with the RWCLS regarding "Identifying a Word." I: Could you read the first word, please? P3: 'Çinta'. I: Is 'çinta' a word? P3: No. I: What word could it be then? P3: It could be a 'çita' (cheetah) because it's an animal. I: How can we turn it into the word 'çita'? P3: We should omit the letter 'n'. All experimental group participants answered the RWCLS questions correctly (Table 6).

Control group participants gave the following answers to the questions associated with the RWCLS regarding "Identifying a Word." I: Could you read this word, please? P6: Yapzak. I: What does the word 'yapzak' mean? P6: Yap boz (jig saw puzzle). I: What should we change to turn it into the word 'yap boz'? P6: Only this. I: Only the last letter? P6: Yes. Four control group participants answered the first RWCLS question correctly. One control group participant answered the second RWCLS question correctly. Two control group participants answered the third RWCLS question correctly. Three control group participants answered the fifth RWCLS question correctly. Two control group participants answered the sixth RWCLS question correctly. Eight control group participants answered the third RWCLS question correctly.

### Sentence theme

**Table 7.**  
Sentence Theme View

SENTENCE																			
Sitting Properly and Holding a Pencil											Identifying a Word in a Sentence		Identifying Meaning of a Sentence						
Sitting Reading		Right		for		Sitting Writing		Right		for		Holding the Pencil Right to Write							
KBU	ADBET			KBU	ADBET			HPR	UPSWYW			SHMWSH	SPWS	IEIS	IEIS	IEIS	IEIS	IEIS	IEIS
E	C	E		C	E	C	E	C	E	C	E	C	E	C	E	C	E	C	E
O	9	7	9	7	7	4	7	5	8	10	9	6							
q1													10	1					
q2														10	2				
q3														10	2				
q4															10	2			
q5																	10	3	

Note. The table includes the number of participants in whom the specified codes were observed. KBU= Keeping the Body Upright; ADBET= Adjusting the Distance Between Eye and Text; HPR= Holding the pencil right; UPSWYW= Using the Pen to See What You Write; SHMWSH= Saying How Many Words a Sentence Has; SPWS= Saying the Place of a Word in a Sentence; IEIS= Identifying and Explaining an Interrogative Sentence; IEMS= Identifying and Explaining the Meaning of a Sentence; O= Observation; E= Experimental Group; C= Control Group; q1-q5: Questions

**Sitting Properly and Holding a Pencil** Nine experimental group participants held their bodies

upright and adjusted the distance between their eyes and the text while reading. One experimental group participant could not hold his body upright and could not adjust the distance between his eyes and the text while reading. Seven control group participants held their bodies upright and adjusted the distance between their eyes and the text while reading. Three control group participants could not hold their bodies upright and could not adjust the distance between their eyes and the text while reading (Table 7).

**Identifying a Word in a Sentence** Experimental group participants gave the following answers to the questions under the subcategory of “Saying How Many Words a Sentence Has” of the category of “Identifying a Word in a Sentence” in the theme of “Sentence:” *I: Could you read this sentence, please? P5: Ali bugün okula yürüyerek geldi (Ali has walked to school today). I: How many words are in this sentence? P5: (counting with his fingers.) 1,2, 3,4,5. Five.* All experimental group participants gave correct answers to the questions under the category of “Saying How Many Words a Sentence Has” (Table 7).

Control group participants gave the following answers to the questions under the subcategory of “Saying How Many Words a Sentence Has” of the category of “Identifying a Word in a Sentence” in the theme of “Sentence:” *I: Could you read this sentence, please? P1: Ali bugün okula yürüyerek geldi. I: How many words are there in this sentence? P1: Twenty-six.* Only one control group participant gave the correct answer to the question under the subcategory of “Saying How Many Words a Sentence Has” (Table 7).

Experimental group participants gave the following answers to the questions under the subcategory of “Saying the Place of a Word in a Sentence” of the category of “Identifying a Word in a Sentence” in the theme of “Sentence:” *I: Could you read this sentence, please? P7: Ali bugün okula yürüyerek geldi. I: What is the third word of this sentence? P5: (counting) Pointing at the word ‘okula.’ I: What is the second to last word of this sentence? P5: One, two (counting). Pointing at the word ‘yürüyerek.’* All experimental group participants gave the correct answers to the questions under the subcategory of “Saying the Place of a Word in a Sentence” (Table 7).

Control group participants gave the following answers to the questions under the subcategory of “Saying the Place of a Word in a Sentence” of the category of “Identifying a Word in a Sentence” in the theme of “Sentence:” *I: What is the second to last word of this sentence? P4: yürüyerek. I: What is the third word of this sentence? P7: I forgot.* Two control group participants gave the correct answers to the questions under the subcategory of “Saying the Place of a Word in a Sentence” (Table 7).

**Identifying the Meaning of a Sentence** Experimental group participants gave the following answers to the questions under the subcategory of “Identifying and Explaining an Interrogative Sentence” of the category of “Identifying the Meaning of a Sentence” *I: Why don't you read the first sentence? P5: Çantanda kaç kitap var (How many books are in your bag) (No question mark). I: Now read the second sentence, please. P5: Kitabımı çantama koydum (I've put my book into my bag) (No question mark). I: Which of those two sentences should have a question mark at the end? P5: This (pointing at the first sentence) I: Which of those two sentences should have a full stop at the end? P5: This. (pointing at the second sentence). I: Why should we put a question mark at the end of the first sentence? P5: Because it's a question.* All experimental group participants gave the right answers to the questions under the subcategory of “Identifying and Explaining an Interrogative Sentence.”

Control group participants gave the following answers to the questions under the subcategory of “Identifying and Explaining an Interrogative Sentence” of the category of “Identifying the Meaning of a Sentence” *I: Why don't you read the first sentence? P5: Çantanda kaç kitap var (No question mark). I: Now read the second sentence, please. P5: Kitabımı çantama koydum (No question mark). I: Which of those two sentences should have a question mark at the end? P5: This. Pointing at the first sentence. I: Which of those two sentences should have a full stop at the end? P5: Buna. Pointing at the second*



of the category of “*Identifying a Sentence in a Text:*” *How many sentences are in this text? P3: 15 I: How did you figure? P3: I counted them. I counted the full stops.* Eight experimental group participants gave the right answers to the questions under the subcategory of “*Distinguishing and Saying the Number of Sentences in a Text*” of the theme of “*Text*” (Table 8).

Control group participants gave the following answers to the questions under the subcategory of “*Identifying and Saying the Number of Sentences in a Text*” of the category of “*Identifying a Sentence in a Text:*” *I: How many sentences are in this text? P4: There are ten sentences. I: How many sentences are in this text? I: Can I count them? P7: You mean these? P7: Like one by one? P7: I don't know.* None of the control group participants gave the right answers to the questions under the subcategory of “*Distinguishing and Saying the Number of Sentences in a Text*” of the theme of “*Text*” (Table 8).

**Identifying the Meaning of a Text** Experimental group participants gave the following answers to the questions under the subcategory of “*Identifying the Characters of a Text*” of the category of “*Identifying the Meaning of a Text.*” *I: Who are the subjects (antagonists) of this text? P9: The donkey, cat, dog, rooster.* All experimental group participants gave the right answers to the questions under the subcategory of “*Identifying the Characters of a Text.*”

Control group participants gave the following answers to the questions under the subcategory of “*Identifying the Characters of a Text*” of the category of “*Identifying the Meaning of a Text.*” *I: Who are the subjects (antagonists) of this text? P6: The donkey. I: Who else? P6: The rooster. P6: and the cat.* Two control group participants gave the right answers to the questions under the subcategory of “*Identifying the Characters of a Text.*” Three control group participants could not give the full answers. Five control group participants gave no answer (Table 8).

Experimental group participants gave the following answers to the questions under the subcategory of *Identifying the Action in a Text* of the theme of “*Identifying the Meaning of a Text.*” *I: What is going on in this text? P5: The bandits were caught and then broke out. I: Why did the bandits escape? P5: Not to get caught. I: Who chased the bandits away? P5: They scared the bandits at home. I: Who are they? P5: The animals.* All experimental group participants gave the right answers to the questions under the subcategory of “*Identifying the Action in a Text*” (Table 8).

Control group participants gave the following answers to the questions under the subcategory of *Identifying the Action in a Text* of the theme of “*Identifying the Meaning of a Text.*” *I: What is going on in this text? I: What happened? P7: The animals. I: Yes. What about them? What did the animals do? P7: I don't know.* None of the control group participants gave the right answers to the questions under the subcategory of “*Identifying the Action in a Text*” (Table 8).

Experimental group participants gave the following answers to the questions under the subcategory of “*Identifying the Scene*” of the category of “*Identifying the Meaning of a Text.*” *I: Where did the action take place? P5: At home in the forest.* All experimental group participants gave the right answers to the questions under the subcategory of “*Identifying the Scene*” (Table 8).

Control group participants gave the following answers to the questions under the subcategory of “*Identifying the Scene*” of the category of “*Identifying the Meaning of a Text.*” *I: Where did the action take place? P2: I don't know.* None of the control group participants gave the right answers to the questions under the subcategory of “*Identifying the Scene*” (Table 8).

Experimental group participants gave the following answers to the questions under the subcategory of “*Identifying the Time of the Action*” of the category of “*Identifying the Meaning of a Text.*” *I: When did the action take place? P4: while sleeping. In the evening.* Nine experimental group participants gave the right answers to the questions under the subcategory of “*Identifying the Time of the Action*” (Table 8).

Control group participants gave the following answers to the questions under the subcategory of “Identifying the Time of the Action” of the category of “Identifying the Meaning of a Text.” I: *When did the action take place? P1: After they went to Bremen.* None of the control group participants gave the right answers to the questions under the subcategory of “Identifying the Time of the Action” (Table 8).

Experimental group participants gave the following answers to the questions under the subcategory of “Telling the Story in One’s Own Words” of the category of “Identifying the Meaning of a Text.” I: *Can you tell me what’s going on in this text in your own words? P5: The donkey got kicked out of there, and then the dog, then the cat, and then the rooster. Then it was nighttime. Then, while the rooster was lying under a tree, he saw a puppet there. There were bandits in the puppet. While they were having dinner, the cat jumped on top of the donkey and watched them. Then they scared them away.* Seven experimental group participants gave the correct answers to the questions under the subcategory of “Telling the Story in One’s Own Words” (Table 8).

Control group participants gave the following answers to the questions under the subcategory of “Telling the Story in One’s Own Words” of the category of “Identifying the Meaning of a Text.” I: *Can you tell me what’s going on in this text in your own words? P1: They go to the rooster to go to Bremen, and then it’s happened. I: What has happened? P1: Something terrible.* None of the control group participants gave the right answers to the questions (Table 8).

## DISCUSSION AND CONCLUSION

In the present study, the “Line” learning outcomes aimed to help the experimental group participants develop emergent literacy skills to build a foundation for initial literacy skills. The “Line” learning outcomes drew attention to the drawing style of each basic line type. The symbolic play-based literacy preparatory activities helped the experimental group participants achieve the “Line” learning outcomes. The experimental group participants performed the kindergarten symbolic play-based literacy preparatory activities under the theme of “Line” to lay a foundation for the first-grade “Letter” activities. The activities were designed to teach the participants the lines that made up letters. Therefore, they helped the participants learn how to write letters. The results showed that the experimental group participants were better at acquiring the “Letter” learning outcomes than the control group participants. The results indicated that the experimental group participants were better at recognizing the direction of a text and writing letters correctly than the control group participants.

Both the observation and interview results show that many students write letters wrong, although the letters they write look like how they are supposed to be written. These results indicate that teachers focus more on the result than the process. For example, the teacher does not care whether the student writes the upper-case letter “G” in one stroke, starting from the top, or draws the second line of the letter from right to left as long as he/she writes it as similar to the original “G” as possible. Therefore, the experimental group participants were remarkably successful in writing letters correctly, probably thanks to the kindergarten education.

Adult support in play settings enriched with writing helps children relate texts with meaning (Roskos, 2021). Cunningham (2022) maintain that joint participation in literacy activities through play raises children’s writing awareness. Roskos (2021) state that play settings equipped with text-enriched materials help children read the words around them and that the “interactive” adult role contributes significantly to children’s writing awareness in this context. Research shows that play helps children develop writing awareness, which is consistent with our result. In the present study, “Word” learning outcomes aim to help children sense parts of words, break words into syllables, and form new words from syllables with the assistance of adults. Word knowledge in the future depends on these preschool learning outcomes. These results showed that the kindergarten symbolic play-based activities tailored to the “Word” theme helped the experimental group participants identify syllables. During the first-

grade initial literacy teaching, students combine letters into syllables and syllables into words. However, after they form words, they do not break them into syllables and letters. Therefore, the control group participants could not distinguish the syllables and letters. On the other hand, the kindergarten symbolic play-based activities tailored to the “Word” theme helped the experimental group participants identify the components of words. The control group participants could not acquire the first-grade “Word” learning outcomes either. First-grade teachers use the letter method for first reading and writing instruction, moving from the part to the whole. In other words, they produce syllables from letters and words from syllables. However, they exclude students from this process and form the syllables and words in the books by themselves. What is more, once they form words, they do not break them into syllables and letters. They do not generate new words from new parts. Children participate more in the initial reading and writing teaching process. Children can learn words and their constituent parts more meaningfully if teachers actively employ both synthesis and decoding. All these apply to the experimental group participants as well. Both experimental and control group participants had similar initial literacy learning experiences because they were in the same classrooms in first grade. Despite all this, the experimental group participants were much better at acquiring the first-grade learning outcomes regarding words and their parts because they performed the kindergarten symbolic play-based activities.

Lenhart al. (2019) found that the say-tell-do-play (STDP) technique with play raised children’s word awareness significantly. They demonstrated the benefits of deliberate and direct instruction to help children learn new words. Children learned to read texts while playing with a supportive adult in print-enriched play settings and children were better at learning play-related words when they played literacy plays (Roskos, 2021). These studies show that play has a significant role in word awareness, which is consistent with our result. In the present study, the “Sentence” learning outcomes aimed to teach the participants the following: (1) a sentence consists of words, (2) the first word of a sentence begins with a capital letter, and (3) a sentence ends with a period (.) or a question mark (?). The “Sentence” learning outcomes also aimed to teach the participants how to sense that a sentence contains a judgment and how to explain a sentence in their own words with the assistance of adults. The results showed that the kindergarten symbolic play-based activities tailored to the "Sentence" theme helped the experimental group participants distinguish words in a sentence and identify the meaning of a sentence in first grade. The control group participants failed to acquire the “Sentence” learning outcomes in first grade.

In the present study, the “Text” learning outcomes aimed to teach the participants the following: (1) identifying a sentence in a text, (2) identifying the meaning of a text. These results showed that the kindergarten symbolic play-based activities helped the experimental group participants identify the meaning of the text in first grade. On the other hand, the control group participants could not acquire the “Text” learning outcomes in first grade. O'Connor and Stagnitti (2011) argue that children who play are more likely to develop play, behavior, language, and social skills. Play is the most important way for children to connect books and their own experiences. Children who participated in the play world practice significantly improved narrative length, coherence, and comprehension but not linguistic complexity (Roskos, 2021). Somolanji Tokić & Borovac (2020) stated that early literacy skills develop in school settings where symbolic play environments are encouraged. Our results showed that activities involving symbolic play and a classroom environment suitable for playing symbolic play helps students achieve sentence and text outcomes.

The kindergarten symbolic play-based literacy preparatory activities helped the experimental group participants acquire learning outcomes. Preschool teachers should use symbolic play-based activities to help their students acquire related reading and writing learning outcomes. Educators should remember that the literacy preparation process should go hand in hand with the initial reading and writing instruction process. Primary school curricula should be connected with preschool curricula. Authorities should update the current higher education curricula to turn students into teachers who can develop play-based activities.

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## TÜRKÇE GENİŞLETİLMİŞ ÖZET

Okul öncesi dönem çocuğu Piaget'nin belirlemelerine göre işlemöncesi dönemdedir. Piaget bilişsel gelişim alanında yaptığı çalışmalarının yanı sıra çocuk oyununun gelişimine ilişkin çalışmalar da yapmıştır. Piaget, oyunu, alıştırma oyunu, sembol oyun ve kurallı oyun olmak üzere üçe ayırmıştır. Piaget'nin belirlemelerine göre işlemöncesi dönemin sonunda anasınıfı eğitimine alınan anasınıfı çocuğu, karmaşıklaşarak gelişen sembol oyun etkinliklerinin en karmaşık biçimlerini tasarlar. Eğitsel donanım açısından gelişkin anasınıflarında evcilik oyunu odaklarının yer alması bu nedenledir. Okulöncesi eğitimin temel amaçlarından biri ilkokula hazırlıktır. İlkokula hazırlık kapsamında okuma-yazmaya hazırlık çalışmaları büyük önem taşımaktadır. Bu araştırmanın amacı, anasınıfında düzenlenen sembol oyun içerikli etkinliklerin ilk okuma ve ilk yazma becerilerine etkisini ortaya koymaktır. Bu amaç doğrultusunda şu soruya yanıt aranmıştır: Anasınıfında düzenlenen sembol oyun içerikli okuma ve yazmaya hazırlık etkinlikleri birinci sınıfta ilk okuma ve ilk yazma becerilerini nasıl etkilemiştir?

Bu araştırma, anasınıfında düzenlenen sembol oyun içerikli okuma-yazmaya hazırlık etkinliklerinin ilk okuma ve ilk yazma becerilerine etkisinin incelenmesi amacıyla karma yöntem araştırması olarak tasarlanmıştır. Bu çalışmada karma yöntem araştırması desenlerinden müdahale deseni kullanılmıştır. Bu desen çerçevesinde hem deneysel veriler hem de yarı yapılandırılmış gözlem ve görüşmelerden elde edilen veriler, toplanmış, çözümlenmiş ve değerlendirilmiştir.

Araştırmanın deney sürecine seçkisiz örnekleme ile belirlenen 15 deney 15 denetleme kümesinde olmak üzere 30 anasınıfı çocuğu katılmıştır. Araştırmanın bu aşamasında araştırmacı deney kümesinin sınıf öğretmenidir. Araştırma deney süreci ile yarı yapılandırılmış gözlem ve görüşme süreci olmak üzere iki aşamadan oluşmaktadır. Birinci aşamaya alt yapı oluşturmak amacıyla öncelikle dünyanın önde gelen eğitim sistemlerinin anasınıfı ve birinci sınıf programları incelenmiş, ayrıntılı literatür taraması yapılmıştır. tüm bu araştırmalar ışığında anasınıfı düzeyinde, bu çalışmaya özgü geliştirilmiş, okuma-yazmaya hazırlık kazanımları, Çizgi, Sözcük, Tümce, Metin olmak üzere, dört başlık altında kümelendirilmiştir. Bu dört başlığın kazanımlarının edinilip edinilmediğini belirlemek amacıyla, her başlığın her bir kazanımına karşılık gelen değerlendirme ölçütleri geliştirilmiştir. Bu ölçütler, her bir başlığa özgü hem öntest hem de sontest uygulamaları için kullanılacak sorulardan oluşturulmuştur. Ardından, bu dört başlığın her bir kazanımını edindirmeye yönelik olan 30 sembol oyun içerikli okuma-yazmaya hazırlık etkinliği tasarlanmıştır. Tasarlanan etkinlikler her hafta bir tane olmak üzere eğitim öğretim yılı boyunca uygulanmıştır. Bu etkinlikler, kazanımlarda olduğu gibi, dört ana başlığa ayrılmış; etkinlikler, söz konusu sıralamaya uygun biçimde düzenlenmiştir. Bu çalışmada, Çizgi, Sözcük, Tümce, Metin başlıklarına ilişkin olarak öntest-sontest uygulamalı, eşleştirilmiş deney-denetleme kümeli olmak üzere, gerçekleştirilmesi öngörülen dört deney tasarlanmıştır. Deney ve denetleme kümeleri, çocukların takvim yaşları göz önünde bulundurularak eşleştirilmiştir. Deneylerin tüm tasarım aşamalarında dört alan uzmanı görüşü alınmış, etkinlikler uygulanmaya uygun bulunmuştur. Çizgi başlığına ilişkin uygulamalar başlatılmadan önce, deney ve denetleme kümelerine Çizgi Öntesti uygulanmıştır; ardından, deney kümesi için, araştırma bağlamında Çizgi başlığı için geliştirilen kazanımlar doğrultusunda oluşturulmuş sembol oyun içerikli okuma-yazmaya hazırlık etkinlikleri uygulanmıştır. Denetleme kümesi ise yürürlükteki izlencenin kazanımlarına yönelik düzenlenmiş etkinliklerle öğrenim görmeyi sürdürmüştür. Çizgi kazanımları için tasarlanan etkinlik uygulamaları bittiğinde, Çizgi Sontesti, hem deney hem de denetleme kümesine uygulanmıştır. Çizgi başlığına ilişkin belirtilen uygulama basamakları, sırasıyla, Sözcük, Tümce ve Metin başlıkları için de uygulanmıştır. Deney süreci sonucunda elde edilen tüm veriler, SPSS 22.0 paket programı kullanılarak çözümlenmiş; çözümlenen veriler, değerlendirilmiştir.

Araştırmanın ikinci aşamasına araştırmanın birinci aşamasını katılıp anasınıfı eğitimini tamamlayan deney kümesinden 10 ve denetleme kümesinden 10 olmak üzere 20 birinci sınıf çocuğu katılmıştır. Araştırmanın ikinci aşamasında, ilkokul birinci sınıf düzeyinde ilk okuma ve yazma kazanımları geliştirilmiştir. Geliştirilen bu kazanımlar, Çizgi, Harf, Sözcük, Tümce, Metin başlıkları altında kümelendirilmiştir. Geliştirilen kazanımlar doğrultusunda, her bir başlık için, yarı yapılandırılmış

gözlem ve görüşme formları oluşturulmuştur. Tüm bu tasarım sürecinin her aşamasında uzman görüşü alınmıştır. Çizgi, harf, sözcük, cümle ve metin yarı yapılandırılmış gözlem formları aracılığıyla çocukların her biri, eğitim-öğretim yılı boyunca, ilk okuma ve ilk yazma çalışmaları sırasında gözlemlenmiştir. Çizgi, harf, sözcük, cümle ve metin yarı yapılandırılmış görüşme formları aracılığıyla çocukların her biriyle, ilk okuma ve yazma öğretimi sürecinin doğasına uygun, her bir başlıkla ilgili işleyişin sonunda, sırasıyla Çizgi, Harf, Sözcük, Tümce, Metin başlıkları görüşmeleri yapılmıştır. Tüm bu uygulamaların ardından, veri toplama süreci tamamlanmış, toplanan veriler nitel araştırma yöntemlerinden betimsel analiz yoluyla çözümlenmiştir.

Araştırmanın sonuçlarına göre anasınıfında simgesel oyun içerikli okumaya hazırlık etkinliklerine katılan deney kümesi öğrencileri, yürürlükteki okulöncesi eğitim izlencesiyle eğitim almış olan denetleme kümesi öğrencilerine göre araştırmada belirlenen okuma yazmaya hazırlık kazanımlarını edinmede çok daha başarılı olmuştur. Anasınıfında okuma-yazmaya hazırlık kazanımlarını başarıyla edinip birinci sınıfa geçen deney kümesi çocukları Harf, Çizgi, Sözcük ve Tümce başlıkları altında kümelendirilen ilk okuma ve ilk yazma kazanımlarını edinmede, anasınıfında okuma-yazmaya hazırlık kazanımlarını edinmeden birinci sınıfa geçen denetleme kümesi çocuklarına göre daha başarılı olmuştur.