

The effect of dramatic play on early literacy: an experimental study

Fatih Mehmet Aslan¹, Yasemin Yüzbaşıoğlu², Ayşe Alptekin³, Ayşegül Sarıkaya³

¹Department of Clinical Psychology, Graduate School of Education, Doğuş University, Istanbul, Turkey

²Karahüyük Neighborhood Ahmet Hashaş Primary School, Konya Provincial Directorate of National Education, Konya, Turkey

³Department of Child Development, Health Services Vocational School, Selcuk University, Konya, Turkey

Article Info

Article history:

Received Jan 16, 2023

Revised Jan 2, 2025

Accepted Jan 25, 2025

Keywords:

Dramatic play

Early childhood

Early literacy

Piaget

Vygotsky

ABSTRACT

In line with the theories of Piaget and Vygotsky, the aim of the present study is to examine the effect of the dramatic play activities program on the early literacy skills of preschool children. The study is based on an experimental research design with pretest-posttest and control group. While the dependent variable of the study is children's early literacy skills, the independent variable is dramatic play activity. Early literacy test (EROT) was used as data collection tool. The participants of the present study consist of 32 children divided equally as the participants of the experimental and control group. The age of the children is between 63-72 months. The children in the experimental group participated in a program of dramatic play activities over a period of 10 weeks, 5 days each week, 2 hours daily for 100 hours in total. Analysis of covariance (ANCOVA), t-test, and descriptive statistics were used in the analysis of the data. In line with the data obtained in the present study, dramatic play activity program positively affects the early literacy skills of preschool children in terms of receptive language and expressive language vocabulary acquisition, naming skills, functional knowledge, and listening comprehension skills.

This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.



Corresponding Author:

Ayşegül Sarıkaya

Department of Child Development, Health Services Vocational School, Selcuk University

Konya, Turkey

Email: artegull@gmail.com

1. INTRODUCTION

In the 21st century, new views on the definition and development of literacy have begun to emerge. There have been studies proving that literacy is not just about reading the alphabet, but starts with visual literacy such as reading pictures and graphics. It is thought that visual literacy is followed by combining words and pictures, and finally, of the words [1].

The issue of early literacy has attracted the attention of many researchers and various studies have been carried out related to the factors that are considered to have an impact on early literacy skills. These studies were related to early parent-child interactions and early literacy development [2]–[5], bilingual children and early literacy development [6], early literacy development of children from low income families [7], early literacy development information of early childhood educators [8]–[10], the effect of socio-cultural level on early literacy development [11]–[13], the twin study of early literacy development [14], interactive book reading and early literacy, and the environmental factors [15], [16]. There are even meta-analysis studies on what studies on early literacy in home and school-like settings have focused on in the last decade [17]. Parallel to the development of technology, the effect of technological applications on early literacy skills is among the topics researched [18], [19]. Considering that early literacy period includes preschool

children, the effect of play, the main occupation of children, on early literacy development has taken place in research topics throughout the last decade. Nowadays the fact that play and literacy share a common ground and that previously formed systems-at many levels, including language use and expression ground, is widely recognized.

The mainly accepted basic theories on play and early literacy are the views of Piaget, Vygotsky, and Bronfenbrenner. Whereas children at early ages progress with sensory-motor actions on objects in the physical world according to the characteristics of their ages, during the adolescence their intellect progress with abstract and logical thinking. According to Piaget's theory [20], play makes an important contribution to cognitive development, although it is not the "ultimate" point of cognitive development. Considering through the lens of Piaget's theory, there are intermediary factors between play and literary skills. These intermediary factors include shared mental processes associated with perceptual discrimination skills, representational abilities, and narrative competencies that play an important role in both promoting play activity and learning to read and write. It has been determined that the use of symbolic transformations by 3 and a half year old children during games, affects the spontaneous emergence of writing at the age of 5 [21]. There are reports supporting Piaget's theories on this issue. These opinions are the consideration that metaphor use (symbol-symbol) is a facilitator in early literacy development [22], through use of dramatic play to encourage children to remember building blocks of the story; and hence help them remember the stories they have read [23], physical activities such as applause games, dance for children increase cognitive development of the children through facilitating the ability of neurons to communicate with each other [24].

Vygotsky suggests that play can provide a mediation with outreach learning to improve literacy skills. He also sees the game as a 'self-help' tool. When children enter the game, they can create their own scaffolding by improving themselves in areas such as self-control, cooperation with others, memory, language use and literacy [25], [26]. He assumes that games that provide daily experiences with others through games such as role-playing games develop literacy concepts and skills. Bronfenbrenner [27], on the other hand, states that game conditions provide the necessary synergy for the emergence of literary skills through both real time and historical identification of the place, time, interaction and personality. This symbiosis is indeed a great puzzle. The combination of child and play activity cannot be easily observed as both are implicit dynamic systems constantly in motion. This is the underlying reason for the complexity intermediary factor between play and literacy.

Dramatic play involving play is interesting for pupils and kindergarten children and provides many learning experiences [28]. It helps them develop their vocabulary, syntactic knowledge, discourse knowledge, and metacognitive thinking [29]. Dramatic play functions as a mediator for children to listen and produce meaningful words, provides opportunities for the development of reading and writing [28], involves children in literacy as a holistic and meaningful communication process [30] and introduces the writing process to children [31]. Playgrounds where children can play roles such as mother, father, store clerk in the preschool period are considered to contribute to pupils' literacy skills [32].

The "classical" theories of Piaget [33] and Vygotsky [34], [35] provide strong theoretical frameworks for investigating play-literacy relationships. These classical theories try to explain game-literacy dynamics through role-playing, narrative thinking, meta-game talk [36]. However, the important question here is: does play or dramatic play directly contribute to the early literacy development of children? Pellegrini and Ryzin [36] argue that the use of modern statistical techniques will be very helpful in revealing the causal relationships between play and development [37]. In the light of this information, in the present study, the effect of dramatic play on children's early literacy skills will be examined with an experimental model within the framework of Piaget and Vygotsky theories. The present study is considered to shed light on the field of study and form a stepping stone for novel studies through enabling direct evidence for the impact of dramatic play on early literacy development within the relevant literature. This study is important to eliminate the deficiency of Pellegrini and Ryzin [36] in the field of play and early literacy, and to support Piaget and Vygotsky's views on play and early literacy in the literature [38]–[43] with an experimental study.

2. METHOD

This research is based on an experimental model with pretest–posttest and control group. The method in which the experimental group and the control group are determined and then the pre-experimental and post-experimental tests are carried out for both groups is named as the experimental model with pretest-posttest and control group [44]. While the dependent variable of the study is children's early literacy skills, the independent variable is dramatic play activity.

Among the two different kindergarten children within in the same school, the children whose teacher have had a certificate of teaching dramatic play activities was determined as the experimental group and the other class as the control group. The children in the experimental group participated in a program of dramatic

play activities for a total of 100 hours, 2 hours a day, 5 days a week throughout a period of 10 weeks. The program was implemented by the classroom teacher. The content of the program includes relaxation and warm-up activities, pantomime, role playing, improvisation, formation activities, and evaluation performances.

2.1. Participants

Purposive sampling method was employed while forming the study group. Only kindergartens in which the teachers were using drama play on voluntary basis were included in the present study. The study group of the study consists of the children enrolled at two different kindergarten classes in the same public school affiliated to the Konya Directorate of the Ministry of National Education in Meram district during the 2021-2022 academic year. The children attending one of the two kindergartens were determined as the experimental and the children attending the other kindergarten as the control group. In the study, there were a total of 32 children out of whom 16 were in the experimental group and 16 in the control group. The age of the children in the experimental group ranges between 64-72 months and their average age is 68.87 months. The age of the children in the control group ranges between 63-72 months and their average age is 69.12 months. Whereas the experimental group consists of 10 girls and 6 boys, the control group consists of 8 girls and 8 boys. The participants in the experimental and control group were similar in terms of age and socio-economic status.

While forming the study group of the present study, to ultimate principle was voluntariness of both the children and their primary care takers. Before the study, a meeting was held with the families to inform them about the purpose and content of the study. Subsequently, a written permission, the “research participation permission form”, was obtained from all the primary care takers of the children participating.

2.2. Data collection and material

Early literacy test (EROT) was administered to the experimental as well as the control groups along with the general information form within the scope of the study. General information form collected data about the participants' date of birth, gender, number of siblings, educational status of the parents, and parental income level. This form was filled by the primary care taker of the children and handed to the researcher.

EROT was developed by Kargin *et al.* [40] and has seven sub tests. These are vocabulary in receptive language, vocabulary in expressive language, general naming, functional knowledge, letter knowledge, phonological awareness, and listening comprehension. These subtests include a sample item and 15 questions, and children are asked to mark out of the four pictures presented the item asked. The correct answers are scored as 1 and incorrect answers as 0 in the scale. The Kuder Richardson (KR-20) coefficient calculated for the reliability of the scale was found to be .68, and the 2-half test reliability was determined as .67. The test-retest reliability coefficient of the scale is .56 in the receptive language vocabulary subscale.

2.3. Data analyses

SPSS 21.00 package program was used for the analysis of the data obtained. Analysis of covariance (ANCOVA) was used because the pretests were not equal. ANCOVA is a statistical method that investigates the effect of independent variables on the dependent variable, is also used in the analysis of covariate that has a relationship with the dependent variable, and evaluates variance analysis and regression analysis together. In the ANCOVA, the effect arising from the covariate is removed and the relationship between the change in the dependent variable and the independent variable is investigated [45]. ANCOVA is defined as a powerful statistical method that can be used wherever the analysis of variance is considered when the necessary conditions are met [46].

3. RESULTS

The suitability of the data obtained for ANCOVA was controlled, the gender*pretest interaction for perceptive language is ($F=6.71$, $p=.14>.05$), for general naming ($F=7.06$, $p=.13>.05$), for functional information. ($F=1.96$, $p=.16>.05$), and for listening comprehension ($F=0$, $p=.92>.05$) all without statistical significance. The variance-covariance matrices obtained were considered as homogenous and the answers to the research questions were sought by ANCOVA. For expressive language development, ANCOVA gender*pretest interaction was statistically significant ($F=10.89$, $p=.00<.05$) and not suitable for ANCOVA. Expressive language subscale scores were analyzed with the t-test. In addition, the homogeneity of the early childhood education and intervention assessment (ECEIA) sub-dimension scores was checked with the Levene test, and the results were receptive language ($p=.84>.05$), general naming ($p=.37>.05$), functional knowledge ($p=.14>.05$), listening comprehension ($p=.59>.05$), expressive language ($p=.28>.05$) of the sub-dimensions were found to be significant. All dimension scores are homogeneously distributed.

As presented in Table 1, it can be seen that there is a significant difference between the pretest-posttest scores of receptive language skills subsequent to the implementation of dramatic play

activities conducted for the development preschool children's early literacy skills ($F_{(1,32)}=5.30$, $p=.02<.05$, $\eta^2=.16$). This finding can be evaluated as the difference between the pretest and posttest scores of the children is significant and that the applied dramatic play activity program is an effective approach in developing receptive language skills. However, when the η^2 value is examined, it can be said that 16% of the change in posttest scores is due to the dramatic game activity program applied. In addition, it was examined if the difference in posttest scores varied according to the gender of the children. Preserving the pretest scores, the posttest scores did not differ significantly according to their gender variable of the participants ($F_{(1,32)}=.67$, $p=.54>.05$, $\eta^2=.35$).

Table 1. Single factor ANCOVA of early childhood literacy rating scale receptive language subscale pretest and posttest scores

Source	Sum of squares	df	Mean square	F	p	Partial eta squared (η^2)
Corrected model	16.34 ^a	3	5.44	1.80	.16	.16
Intercept	6.43	1	6.43	3.27	.08	.16
Pretests	8.52	1	8.52	5.30	.02	.16
Gender	.18	1	.18	.67	.54	.35
Error	84.37	28	3.01	-	-	-
Total	4039.00	32	-	-	-	-

a. R squared=.16 (adjusted R squared =.07)

On analyzing Table 2, it is seen that there is a significant difference between the general naming sub-dimension pretest-posttest scores ($F_{(1,32)}=28.06$, $p=.00<.05$, $\eta^2=.51$). This finding suggests that the difference between the pretest and posttest scores of the students is significant and that the applied dramatic play activity is an effective approach in developing the child's general naming skills. However, when the η^2 value is examined, it can be said that 51% of the change in posttest scores is due to the dramatic game activity program applied. It was found that the difference in posttest scores did not differ significantly by gender ($F_{(1,30)}=.63$, $p=.57<.05$, $\eta^2=.38$).

According to Table 3, when children's functional knowledge sub-dimension pretest scores are preserved, it can be seen that there is a significant difference between pretest-posttest scores ($F_{(1,32)}=8.96$, $p=.00<.05$, $\eta^2=.24$). In addition, when the η^2 value is examined, it can be said that 24% of the change in the posttest scores is due to the applied dramatic game activities program. When the pretest scores are preserved, it was determined that the posttest scores of the children participating did not differ according to their gender ($F_{(1,32)}=.86$, $p=.52>.05$, $\eta^2=.46$).

Table 2. Single factor ANCOVA of early childhood literacy rating scale general naming subscale pretest and posttest scores

Source	Sum of squares	df	Mean square	F	p	Partial eta squared (η^2)
Corrected model	24.29 ^a	3	8.09	5.57	.00	.37
Intercept	11.50	1	11.50	10.01	.05	.76
Pretests	14.21	1	14.21	28.06	.00	.51
Gender	.75	1	.75	.63	.57	.38
Error	40.67	28	1.45	-	-	-
Total	2129.00	32	-	-	-	-

a. R squared=.37 (adjusted R squared =.30)

Table 3. Single factor ANCOVA of early childhood literacy rating scale functional knowledge sub-dimension pretest and posttest scores

Source	Sum of squares	df	Mean square	F	p	Partial eta squared (η^2)
Corrected model	8.98 ^a	3	2.99	2.55	.07	.21
Intercept	21.78	1	21.78	27.75	.00	.85
Pretests	3.97	1	3.97	8.96	.00	.24
Gender	2.65	1	2.65	.86	.52	.46
Error	32.88	28	1.17	-	-	-
Total	2122.00	32	-	-	-	-

a. R squared=.21 (adjusted R squared =.13)

According to Table 4, there is a significant difference between the pretest and posttest scores of listening comprehension subtest related to the implementation of the dramatic play activities performed to develop preschool children's early literacy skills ($F_{(1,32)}=11.79$, $p=.00<.05$, $\eta^2=.30$). This finding suggests that

the difference between children's pretest and posttest scores is significant and that the applied dramatic play activity program is an effective approach in improving listening skills. However, on examining the η^2 value, it can be said that 30% of the change in the posttest scores is due to the dramatic game activity program applied. When the pretest scores are preserved, it was determined that the posttest scores of the students differed significantly according to their genders ($F_{(1,32)}=18.22$, $p=.00<.05$, $\eta^2=.60$). On examining this differentiation among the groups, it is seen that there is a significant difference ($p=.00$) between the girls of the experimental (mean=5.66) and control (mean=4.87) groups.

As seen in Table 5, there is no significant difference between the pretest scores of the experimental and control groups ($t=.91$, $p=.36>.05$). When the posttest scores of the experimental (mean=12.87) and control (mean=10.25) groups were analyzed, it was determined that there was a significant difference in favor of the experimental group ($t=4.90$, $p=.00<.05$). It is thought that the program of dramatic play activities applied positively affects children's expressive language skills.

Table 4. One-factor ANCOVA of early childhood literacy rating scale's listening comprehension sub-dimension pretest and posttest scores

Source	Sum of squares	df	Mean square	F	p	Partial eta squared (η^2)
Corrected model	5.65 ^a	4	1.41	5.59	.00	.45
Intercept	8.34	1	8.34	28.43	.00	.61
Pretests	2.93	1	2.93	11.79	.00	.30
Gender	.07	1	.07	18.22	.00	.60
Error	6.81	27	.25	-	-	-
Total	905.000	32	-	-	-	-

a. R squared =.45 (adjusted R squared =.37)

Table 5. T-test results of early childhood literacy rating scale expressive language subscale pretest and posttest scores

		Groups	N	Mean	Std. Deviation	t	p
Posttest	Experimental		16	12.87	1.78	4.90	.00
	Control		16	10.25	1.18		
Pretest	Experimental		16	9.68	1.13	.91	.36
	Control		16	9.25	1.52		

4. DISCUSSION

The dramatic play activity program implemented had positive effects on vocabulary in receptive language, vocabulary in expressive language, general naming, functional knowledge, and listening comprehension skills among the skills of early literacy of preschool children. Vocabulary in the receptive language is a condition in which children give what is wanted from them among the objects presented in pictures. Receptive language skills are parallel to cognitive processes, and that linguistic structures can be another manifestation of universal cognitive structures [38]. For Piaget, language is a system of symbols representing the world; for Vygotsky, language is not only a means of expression, but also a means of thought [33]. This information suggests that Vygotsky and Piaget explained receptive language skills with mental skills. Piaget argues that children's pretend play offers opportunities to practice representational skills that support abstract reasoning, therefore, pretend play and literacy share some mental processes [33]. Vygotsky [34] states that children pretend play itself is transformative and unique in the preschool development period. Imaginative game activity transforms the child's thought processes, is an axis between thought and object, that is, it turns thought towards meaning rather than object as motivation for action. Children's pretend play is effective in literacy development as it directly advances the mental processes necessary to learn to read and write. These views of Vygotsky and Piaget support the results obtained in this study in the context of the dramatic play program improving receptive language skills.

Expressive language development is related to children's expressing the object presented in the real world or in pictures. When children participate in role plays, children's symbolic play, in which they use different speech patterns, flexible and meaningful intonations, supports their expressive language and therefore literacy development [41]. Those influenced by Vygotsky's view developed his ideas and saw that it had a unique impact on the development of early literacy by influencing children's expressive language development, the development of metalanguage awareness, and the development of imagination through imaginary play [42]. The view of Vygotsky on the effect of expressive language development on literacy skills supports the conclusion of the study on expressive language development.

General nomenclature is considered as knowing the common properties of an object as well as the group or classification of it. In this study, the area most affected by the dramatic play is the general naming

sub-dimension with a rate of 51%. According to Piaget [33], knowledge is acquired through one's action and interaction with people and beings. Action patterns become established, expand, merge with others and differentiate; then are internalized and organized into groups and classified into file like structures [42]. Piaget's view is based on the idea that the previously mentioned children's pretend play offers opportunities to practice representational skills that support abstract reasoning, and therefore shares some mental processes with imaginary play and literacy [33]. When combined, it is predicted that the general knowledge skills of literacy and mental development may have a common denominator in the settlement, development, merging, differentiation and turn into group structures. Moreover, Piaget's views on grouping agree with the result obtained in this study of the general naming sub-dimension.

Functional knowledge is a skill related to saying what the objects shown and named are used for. The symbolic nature of children's plays parallels the symbolic nature of literacy. Vygotsky assigns a symbolic meaning function to an object in order to convey meaning to the children's movements and gestures [34]. Children's symbolic play is a complex speech system with the help of gestures that convey and indicate the meaning and function of different objects [43]. In other words, the symbolic game is a place where the functions of the object entity or person in life are experienced and learned. These views of Vygotsky are thought to support the result of the research, that functional knowledge, which is a sub-dimension of early literacy skills, is directly affected by the game.

Listening comprehension skills are based on the ability of the children to answer what, where, why, when, how, and who questions about the story after reading or listening. Social interaction between individuals is the source of literacy knowledge. Vygotsky draws attention to social interaction between individuals as a source of literacy knowledge. During play, young children are introduced to literacy concepts and skills, such as narration, which require them to accept different viewpoints. This process encourages literate thinking through more complex social exchanges. In children's pretend play, young children match their social actions to their peers and use their literate thinking ways, literacy knowledge, tools, scenarios, and skills [41]. So, there is a scenario and a story in the game. Mutual children create this story and engage in a social exchange within this scenario. They need to remember what each other is telling so that they can add to the script or story during social exchange. Kendrick [47] concluded that systematic reviews of children's play narratives affect literacy learning and self-structuring in early childhood education. Kim [48] compared 4- and 5-year-old children who played out situations using storytelling, examining how pretend play helps children understand narrative structures. The ability to use narratives contributed significantly to literacy skills. Pretend play makes it easier to remember and express the narrative for shorter periods of time [48].

5. CONCLUSION

When the results of the study were examined, the dramatic play activities carried out to improve the early literacy skills of preschool children significantly affected the receptive language skills of the children. It has been observed that dramatic play activities to develop preschool children's early literacy skills significantly affect children's general naming skills. In addition, the sub-dimension of naming skills was determined as the sub-dimension most affected by dramatic play activities among early literacy skills. When the posttest scores of the early literacy functional knowledge sub-dimension of the children who were applied dramatic play activities were kept under control, there was a significant difference between the pretest-posttest scores. There is a significant difference between the pretest and posttest scores of listening comprehensions related to the implementation of dramatic play activities to develop preschool children's early literacy skills. The program of dramatic play activities applied positively affected children's expressive language skills. It is seen that there is a significant difference between the pretest-posttest scores of listening comprehensions related to the implementation of dramatic play activities to develop preschool children's early literacy skills. When the pretest scores of the preschool children's early literacy skills listening comprehension sub-dimension to whom dramatic play activities were applied were kept under control, the posttest scores of the students differed significantly according to their gender. This differentiation is in favor of girls.

The results are discussed within the framework of Vygotsky and Piaget's classical theories on play and literacy. The findings indicate that these theories support the use of dramatic play activities program on the early literacy skills of preschool children. However, in the present study, only dramatic games were studied. Physical games, free games, intelligence games, or even clinical games were not used. The study conducted with more than one experimental group, would have provided more information to the relevant literature within the scope of the present study. In this study, only gender and pretests were kept constant, and social and economic status was equalized. Similar studies conducted with children with differing demographic characteristics could reveal findings enabling the widespread use of dramatic play activities program on the early literacy skills of preschool children with differing socio-economic backgrounds.

FUNDING INFORMATION

Authors state no funding involved.

AUTHOR CONTRIBUTIONS STATEMENT

This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Fatih Mehmet Aslan	✓			✓			✓			✓	✓		✓	✓
Yasemin Yüzbaşıoğlu	✓			✓		✓				✓	✓		✓	✓
Ayşe Alptekin	✓	✓			✓				✓	✓	✓	✓		✓
Ayşegül Sarıkaya	✓		✓					✓		✓	✓			✓

C : Conceptualization

M : Methodology

So : Software

Va : Validation

Fo : Formal analysis

I : Investigation

R : Resources

D : Data Curation

O : Writing - Original Draft

E : Writing - Review & Editing

Vi : Visualization

Su : Supervision

P : Project administration

Fu : Funding acquisition

CONFLICT OF INTEREST STATEMENT

Authors state no conflict of interest.

INFORMED CONSENT

We have obtained informed consent from all individuals included in this study.

ETHICAL APPROVAL

The research related to human use has been complied with all the relevant national regulations and institutional policies in accordance with the tenets of the Helsinki Declaration and has been approved by the authors' institutional review board or equivalent committee.

DATA AVAILABILITY

Derived data supporting the findings of this study are available from the corresponding author [AS] on request.

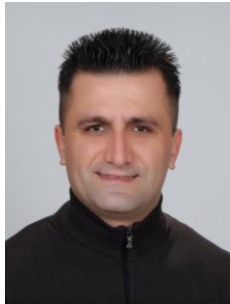
REFERENCES

- [1] J. M. Machado, *Early Childhood Experiences in Language Arts: Early Literacy*. Boston, MA: Cengage Learning, 2015.
- [2] L. R. Dennis and E. Horn, "Strategies for Supporting Early Literacy Development," *Young Exceptional Children*, vol. 14, no. 3, pp. 29–40, Sep. 2011, doi: 10.1177/1096250611420553.
- [3] J. Anderson, A. Anderson, J. Lynch, and J. Shapiro, "Examining the effects of gender and genre on interactions in shared book reading," *Reading Research and Instruction*, vol. 43, no. 4, pp. 1–20, Jun. 2004, doi: 10.1080/19388070409558414.
- [4] L. M. Phillips, S. P. Norris, and J. Anderson, "Unlocking the door: Is parents' reading to children the key to early literacy development?" *Canadian Psychology/Psychologie Canadienne*, vol. 49, no. 2, pp. 82–88, 2008, doi: 10.1037/0708-5591.49.2.82.
- [5] B. J. Dodici, D. C. Draper, and C. A. Peterson, "Early Parent—Child Interactions and Early Literacy Development," *Topics in Early Childhood Special Education*, vol. 23, no. 3, pp. 124–136, Jul. 2003, doi: 10.1177/02711214030230030301.
- [6] P. O. Tabors and C. E. Snow, "Young Bilingual Children and Early Literacy Development," in *Handbook of Early Literacy Research*, S. B. Neuman and D. K. Dickinson, Eds., New York, NY: Guilford Press, 2001, pp. 159–178.
- [7] D. Beals, J. M. de Temple, and D. K. Dickinson, "Talking and listening that support early literacy development of low-income children," in *Bridges to Literacy: Children, Families, and Schools*, D. K. Dickinson, Ed., Oxford, UK: Blackwell Publishing, 1994, pp. 19–40.
- [8] C. Crim, J. Hawkins, J. Thornton, H. B. Rosof, and J. Copley, "Early Childhood Educators' Knowledge of Early Literacy Development," *Issues in Teacher Education*, vol. 17, no. 1, pp. 17–30, 2008.
- [9] A. E. Cunningham, J. Zibulsky, and M. D. Callahan, "Starting small: Building preschool teacher knowledge that supports early literacy development," *Reading and Writing*, vol. 22, no. 4, pp. 487–510, Apr. 2009, doi: 10.1007/s11145-009-9164-z.
- [10] E. Runnion and S. Gray, "What Clinicians Need to Know About Early Literacy Development in Children with Hearing Loss," *Language, Speech, and Hearing Services in Schools*, vol. 50, no. 1, pp. 16–33, Jan. 2019, doi: 10.1044/2018_LSHSS-18-0015.
- [11] J. P. Gee, "A sociocultural perspective on early literacy development," in *Handbook of Early Literacy Research*, S. B. Neuman and D. K. Dickinson, Eds., New York, NY: Guilford Press, 2002, pp. 30–42.

- [12] R. van Steensel, "Relations between socio-cultural factors, the home literacy environment and children's literacy development in the first years of primary education," *Journal of Research in Reading*, vol. 29, no. 4, pp. 367–382, Nov. 2006, doi: 10.1111/j.1467-9817.2006.00301.x.
- [13] R. Gallimore and C. Goldenberg, "Activity Settings of Early Literacy: Home and School Factors in Children's Emergent Literacy," in *Contexts for Learning: Sociocultural Dynamics in Children's Development*, A. L. Brown, Ed., New York, NY: Oxford University Press, New York, NY, 1993, pp. 315–335, doi: 10.1093/oso/9780195067156.003.0016.
- [14] B. Byrne *et al.*, "Longitudinal twin study of early literacy development: Preschool through Grade 1," *Reading and Writing*, vol. 20, no. 1, pp. 77–102, Dec. 2006, doi: 10.1007/s11145-006-9019-9.
- [15] D. Avelar, R. A. Dore, A. J. Schwichtenberg, C. K. P. Roben, K. Hirsh-Pasek, and R. M. Golinkoff, "Children and parents' physiological arousal and emotions during shared and independent e-book reading: A preliminary study," *International Journal of Child-Computer Interaction*, vol. 33, p. 100507, Sep. 2022, doi: 10.1016/j.ijcci.2022.100507.
- [16] T. Inoue, G. Manolitsis, P. F. de Jong, K. Landerl, R. Parrila, and G. K. Georgiou, "Home Literacy Environment and Early Literacy Development Across Languages Varying in Orthographic Consistency," *Frontiers in Psychology*, vol. 11, p. 1923, Jul. 2020, doi: 10.3389/fpsyg.2020.01923.
- [17] W. H. Teale, C. E. Whittingham, and E. B. Hoffman, "Early literacy research, 2006–2015: A decade of measured progress," *Journal of Early Childhood Literacy*, vol. 20, no. 2, pp. 169–222, Jun. 2020, doi: 10.1177/1468798418754939.
- [18] Y. Xu and M. Warschauer, "A content analysis of voice-based apps on the market for early literacy development," in *Proceedings of the Interaction Design and Children Conference*, Jun. 2020, pp. 361–371, doi: 10.1145/3392063.3394418.
- [19] B. Walker, "Affects of educational technology on literacy development in early childhood education: A review of the literature," in *Society for Information Technology & Teacher Education International Conference*, 2013, pp. 1752–1787.
- [20] E. Thelen and L. B. Smith, "Dynamic Systems Theories," in *Handbook of Child Psychology: Theoretical Models of Human Development*, 5th ed., W. Damon and R. M. Lerner, Eds., New York, NY: John Wiley & Sons, 1998, pp. 563–634.
- [21] A. D. Pellegrini, L. Galda, J. Dresden, and S. Cox, "A longitudinal study of the predictive relations among symbolic play, linguistic verbs, and early literacy," *Research in the Teaching of English*, vol. 25, no. 2, pp. 219–235, May 1991, doi: 10.58680/rte199115470.
- [22] A. H. Dyson, "Weaving possibilities: Rethinking metaphors for early literacy development," *The Reading Teacher*, vol. 44, no. 3, pp. 202–213, 1990.
- [23] S. B. Silvern, J. B. Taylor, P. A. Williamson, E. Surbeck, and M. F. Kelley, "Young Children's Story Recall as a Product of Play, Story Familiarity, and Adult Intervention," *Merrill-Palmer Quarterly*, vol. 32, no. 1, pp. 73–86, 1986.
- [24] E. Jensen, *Brain-Based Learning: The New Paradigm of Teaching*, 2nd ed. Thousand Oaks, CA: Corwin Press, 2008.
- [25] E. Bodrova and D. J. Leong, "Vygotskian perspectives on teaching and learning early literacy," in *Handbook of Early Literacy Research*, D. K. Dickinson and S. B. Neuman, Eds., New York, NY: Guilford Press, 2006, pp. 243–256.
- [26] K. Roskos and S. B. Neuman, "Descriptive observations of adults' facilitation of literacy in young children's play," *Early Childhood Research Quarterly*, vol. 8, no. 1, pp. 77–97, Mar. 1993, doi: 10.1016/S0885-2006(05)80099-7.
- [27] U. Bronfenbrenner, "Developmental ecology through space and time: A future perspective," in *Examining Lives in Context: Perspectives on The Ecology of Human Development*, P. Moen, G. H. Elder Jr., and K. Lüscher, Eds., Washington, DC: American Psychological Association, 2004, pp. 619–647, doi: 10.1037/10176-018.
- [28] V. Chauhan, "Drama Techniques for Teaching English," *The Internet TESL Journal*, vol. 10, no. 10, p. 16 Oct 2008, 2004.
- [29] P.-Y. Sun, "Using Drama and Theatre to Promote Literacy Development: Some Basic Classroom Applications," 2003. [Online]. Available: <https://eric.ed.gov/?id=ED477613>
- [30] G. D. McNamee, J. B. McLane, P. M. Cooper, and S. M. Kerwin, "Cognition and affect in early literacy development," *Early Child Development and Care*, vol. 20, no. 4, pp. 229–244, Jan. 1985, doi: 10.1080/0300443850200402.
- [31] P. Cooper, "When Stories Come to School: Telling, Writing, and Performing Stories in the Early Childhood Classroom," *Teachers and Writers*, vol. 24, no. 3, pp. 1–9, 1993.
- [32] D. M. Barone, M. H. Mallette, and S. H. Xu, *Teaching Early Literacy: Development, Assessment, and Instruction*. New York, NY: Guilford Press, 2005.
- [33] J. Piaget, *Play, dreams and imitation in childhood (C. Gattegno and F. N. Hodgson, Trans.)*. New York, NY: W. W. Norton & Company, 2007.
- [34] L. Vygotsky, "Play and its role in the mental development of the child," in *Play: Its Role in the Development and Evolution*, J. S. Bruner, A. Jolly, and K. Sylva, Eds., London, UK: Penguin Books Ltd., 2017, pp. 537–554.
- [35] L. S. Vygotsky and M. Cole, *Mind in Society: Development of Higher Psychological Processes*. Cambridge, MA: Harvard University Press, 1978.
- [36] A. D. Pellegrini and M. J. van Ryzin, "Commentary: Cognition, play, and early literacy," in *Play and Literacy in Early Childhood: Research from Multiple Perspectives*, K. A. Roskos, Ed., New York, NY: Routledge, 2017, pp. 65–80.
- [37] J. F. Christie and K. A. Roskos, "Play's potential in early literacy development," in *Encyclopedia on Early Childhood Development*, R. E. Tremblay, M. Boivin, and R. D. Peters, Eds., Montreal: Centre of Excellence for Early Childhood Development, 2009, pp. 1–6.
- [38] E. Ferreiro and H. Sinclair, "Temporal relationships in language," *International Journal of Psychology*, vol. 6, no. 1, pp. 39–47, Feb. 1971, doi: 10.1080/00207597108247296.
- [39] G. Kausar, "Educational Implication of Piaget and Vygotsky Language Learning Theories in Pakistani Context: A Review," *Dialogue (Pakistan)*, vol. 5, no. 3, pp. 254–268, 2010.
- [40] T. Kargın, C. Ergül, Ş. Büyüközütrk, and B. Güldenoğlu, "A Study for developing the test of early literacy for Turkish kindergarten children," (in Turkish), *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Özel Eğitim Dergisi*, vol. 16, no. 3, pp. 237–270, 2015.
- [41] O. Saracho, "Matching Teachers' and Students' Cognitive Styles," *Early Child Development and Care*, vol. 173, no. 2–3, pp. 161–173, Jun. 2003, doi: 10.1080/0300443030303097.
- [42] D. Chapman and L. P. Kaelbling, "Input Generalization in Delayed Reinforcement Learning: An Algorithm and Performance Comparisons," in *Proceedings of the Twelfth International Joint Conference on Artificial Intelligence (IJCAI-91)*, 1991, pp. 726–731.
- [43] O. N. Saracho and B. Spodek, "Young children's literacy-related play," *Early Child Development and Care*, vol. 176, no. 7, pp. 707–721, Oct. 2006, doi: 10.1080/03004430500207021.
- [44] N. Karasar, *Scientific Research Method*. Ankara: Bilim Yayınları (in Turkish), 2006. [Online]. Available: https://www.nobelyayin.com/bilimsel-arastirma-yontemi-kavramlar-ilkeler-teknikler_1755.html
- [45] S. Kılıç, "Analysis of Covariance," *Psychiatry and Behavioral Sciences*, vol. 7, no. 1, pp. 73–78, 2017, doi: 10.5455/jmood.20161230045344.

- [46] J. M. Ryan, M. N. Freed, and R. K. Hess, *Handbook of statistical procedures and their computer applications to education and the behavioral sciences*. New York, NY: McMillian Publishing Company, 1991.
- [47] M. Kendrick, "Playing house: A 'sideways' glance at literacy and identity in early childhood," *Journal of Early Childhood Literacy*, vol. 5, no. 1, pp. 5–28, Apr. 2005, doi: 10.1177/1468798405050592.
- [48] S. Y. Kim, "The Effects of Storytelling and Pretend Play on Cognitive Processes, Short-Term and Long-Term Narrative Recall," *Child Study Journal*, vol. 29, no. 3, pp. 175–191, 1999.

BIOGRAPHIES OF AUTHORS



Fatih Mehmet Aslan    is continuing his Ph.D. in clinical psychology at Doğuş University. He is an accredited professional experiential play therapist and supervisor. He worked in various institutions in the Ministry of National Education. Within the framework of clinical psychology academic studies, he works in the fields of child psychopathology, child psychotherapy, trauma in children, and anxiety in children. He can be contacted at email: drfmaslan@gmail.com.



Yasemin Yüzbaşıoğlu    completed his doctorate in Selçuk University Social Sciences Institute, Department of Child Development and Home Management Education. She is currently working as a preschool teacher. She works in the areas of cognitive development and preschool math skills. She can be contacted at email: yaseminyuzbasioglu@hotmail.com.



Ayşe Alptekin    is an assistant professor at Selcuk University, Health Services Vocational School, Department of Child Development. Her areas of expertise are sexual development in children, early childhood intervention programmers, creativity, and social development. She can be contacted at email: elmaliayse@hotmail.com.



Ayşegül Sarıkaya    is an assistant professor at Selcuk University, Health Services Vocational School, Department of Child Development. Her areas of expertise are visual perception, child creativity and childhood paintings. She can be contacted at email: artegull@gmail.com.