

## The examination of the variables affecting the print awareness skills of six-year-old children attending kindergarten<sup>1</sup>

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### Abstract

This study aimed to investigate the relationships between child gender, maternal education, writing readiness skills, and print awareness skills. A total of three hundred and sixteen six-year-old children, comprising one hundred and eighty-three girls and one hundred and thirty-three boys, were assessed for their writing readiness skills and print awareness skills. Spearman correlation coefficients were calculated to examine the potential relationships among child gender, maternal education, writing readiness skills, and print awareness skills. Additionally, a regression analysis was conducted to assess the predictive strength of these variables on print awareness skills, with child gender and maternal education treated as dummy variables. The results of the regression analysis revealed that these three variables accounted for approximately nine percent of the variance in print awareness skills. The implications of these findings were discussed in terms of understanding the interconnectedness of child gender, maternal education, writing readiness skills, and print awareness skills in promoting emergent literacy development. These findings hold significance for practitioners as they aim to determine the predictive power of writing readiness skills and provide appropriate support for children in relation to these skills.

**Keywords:** Emergent literacy skills, writing readiness skills, print awareness skills, preschoolers

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## Introduction

Emergent literacy skills, including print awareness, oral language, print knowledge, alphabet knowledge, phonological sensitivity, and writing, play a crucial role in children's social and academic success (Hammill, 2004; Justice & Pullen, 2003; Lonigan, Burgess, & Anthony, 2000; Whitehurst & Lonigan, 1998). Key areas in emergent literacy development include exploring environmental print, understanding the role of print, understanding the relationship between speech and print, recognizing the sounds in spoken words, and developing vocabulary. Print awareness and emergent writing skills, defined as early skills, are crucial in supporting children's reading abilities and reducing individual differences in future reading success (Storch & Whitehurst, 2002; Whitehurst & Lonigan, 1998).

Print awareness is a crucial literacy skill that encompasses children's ability to understand the function and form of print, as well as the relationship between spoken and written language (Hiebert, 1981). This skill involves recognizing that writing follows a linear flow, words are separated by spaces, print follows specific rules, and that letters and numbers have distinct characteristics (Puranik, Lonigan, & Kim, 2011). Print awareness skills, which include knowledge of print structure and rules, as well as book conventions, provide children with a conceptual framework for interpreting written information (Van Kleeck, 2003). Differentiating between print and pictures is one of the initial concepts that children learn about literacy (Lovelace & Stewart, 2007). Scholars have emphasized the significance of children understanding the distinction between print and pictures as it facilitates their learning of both the structure and function of print (Christie, Enz, & Vukelich, 2003).

Environmental print, particularly print awareness, is considered a significant predictor of emergent literacy development (Neumann, 2016). Environmental print refers to the print that surrounds individuals in their everyday environment, taking various forms such as different fonts, shapes, and sizes, and commonly appearing in capital letters (Horner, 2005; Neumann, Hood, & Ford, 2013). Children worldwide encounter numerous print stimuli, including signs, food packaging, traffic signs, newspapers, shopping lists, and billboards. Even at the age of two to three, children begin to recognize that people use print for various purposes, such as reading and writing, leading to the natural development of print awareness (Neuman, Coople, & Bredekamp, 2000). The positive impact of the early development of print awareness on children's literacy skills has been well-established (Lovelace & Stewart, 2007), as literacy skills in early childhood serve as a strong predictor for future literacy success (Hammill, 2004).

Print is defined as a visual coding tool used for representing verbal language. The process of handwriting involves the completion of several tasks, including maintaining a proper sitting position, adopting correct body posture, paying visual attention, writing within the boundaries of the paper, holding the pencil correctly, using the non-writing hand to secure the paper on the desk, and finally, placing the feet on the floor and resting the arms on the table (Havens, 2002). It has been observed that children with low writing skills often struggle with holding the pencil and paper correctly, as well as maintaining proper posture (Rosenblum, Goldstand, & Parush, 2006). The development of writing skills is a multifaceted process that involves various abilities, including fine motor control, visual perception, visual-motor coordination, motor planning, palm manipulation, attention, and sensory awareness in the fingers. If handwriting competency is not achieved at school, it can have significant negative effects on both children's academic success and self-esteem. This complex and essential ability includes a number of skills that may affect handwriting skills such as motor control skills, bilateral and visual-motor integration, motor planning, in-hand manipulation, proprioception, visual perception, continuous attention, and sensory awareness of the fingers. Poor handwriting capabilities may be associated with both intrinsic factors (a child's handwriting capabilities) and extrinsic factors (either environmental or biomechanical components) (Asher, 2006; Denton, Cope, & Moser, 2006; Feder & Majnemer, 2007). In short, requirements for children's writing readiness include correct use of writing tools, hand-eye coordination, understanding the direction of writing, and recognition of the rules of print.

According to Clay (2001, as cited in Diamond et al., 2008), writing plays a critical role in learning to read as it directs children's attention to print. When children engage in letter writing, they develop the ability to closely observe the distinguishing features of each letter. By directing their attention to the letter forms during writing, children can enhance their knowledge of letter names (Mayer, 2007).

Dinehart (2014) emphasized that regular opportunities for children to express themselves on paper can aid in their understanding of the purposes of print. Similarly, Cabell, Tortorelli, and Gerde (2013) stated that children demonstrate their knowledge of print through writing activities. Furthermore, educational programs designed to enhance children's writing readiness skills have also been found to be effective in improving their reading readiness skills (Jones, Reutzel, & Fargo, 2010; Lust & Donica, 2011; Puranik et al., 2011). In a study conducted by Hand, Lonigan, and Puranik (2022), it was found that early writing skills uniquely contributed to later reading outcomes. Results indicated that preschool children's invented spelling contributed unique variance to later reading outcomes beyond the contributions of early literacy skills.

Numerous studies highlight the positive contributions of reading and writing skills to each other. For instance, Kim et al. (2011) discovered a correlation between reading skills, such as spelling, letter writing, and verbal language, and children's writing skills. Molfese et al. (2006) identified a connection between alphabet knowledge, including letter copying, spelling, and writing names, and writing skills. Additionally, Ritchey (2006) established a relationship between letter-writing skills and spelling abilities. In a longitudinal study conducted by Shatil, Share, and Levin (2000), it was found that preschool writing skills are associated with spelling, decoding, and reading comprehension in first grade. Wealer et al. (2022) found that phonological awareness demonstrated a unique predictive value for reading and spelling skills in Grade 1.

Some studies have reported that writing skills developed during the preschool period have a positive impact on children's literacy skills in later stages of education (Longcamp et al., 2005; Longcamp et al., 2008). On the other hand, insufficient writing skills can have negative effects on academic success and self-esteem (Marr & Cermak, 2003; Ratzon, Efraim, & Bart, 2007). Stevenson and Just (2012) have also highlighted that a child's proficiency or inadequacy in writing skills influences their ability to meet academic demands. Therefore, it is crucial to focus on writing skills starting from the early stages of preschool education. Failure to make accurate determinations during this period may make it more challenging to identify writing difficulties in the future (McMaster & Espin, 2007). Additionally, early assessments can offer teachers opportunities to support children and take appropriate measures for enhanced literacy development (Van Hartingsveldt et al., 2010). Educators and researchers should conduct valid and reliable assessments of children's writing skills as they aid in identifying students who may be falling behind their peers and implementing targeted interventions (Coker & Ritchey, 2014).

The theoretical information and previous research findings mentioned above suggest that various skills related to writing and reading, such as print awareness and writing readiness, are interconnected in children. Furthermore, several reports highlight the positive influence of writing and reading skills on children's academic success in the long run. Therefore, it can be argued that evaluating writing and reading skills is of utmost importance as it allows for early support in preschool education. In this regard, establishing predictive relationships between literacy skills can provide valuable information for educators and parents to effectively support children.

Although writing readiness skills have been recognized as a crucial predictor of reading skills (Hammil, 2004), only a limited number of studies have specifically focused on the predictive effect of writing readiness skills. Conversely, numerous studies have examined the predictive effect of reading skills (Gerde, Bingham, & Wasik, 2012; Hooper et al., 2010; Justi, Henriques, & Justi, 2021; Vadasy, Sanders, & Abbott, 2008). These studies have found that certain skills, such as phonological awareness, alphabet knowledge, print awareness, and vocabulary, are predictors of writing skills. For example, Blair and Savage (2006) discovered that phonological awareness and alphabet knowledge are important predictors of children's writing skills. Similarly, Maki et al. (2001) stated that phonological awareness and visual-motor skills also play a significant role in predicting children's writing skills. Additionally, Hecht and Close (2002) identified alphabet knowledge, oral language knowledge, phonological awareness, and print awareness as predictors of children's writing skills. Gerde et al. (2012) found that capital letter knowledge and motor development are important predictors of children's writing skills. Furthermore, Welsch, Sullivan, and Justice (2003) determined that, in addition to alphabet and print knowledge, the age of the child is also an important predictor for name-writing ability. In all of these studies, it can be observed that the predictive effect of reading skills on

different literacy skills is examined. Based on the fact that there are very few studies determining the predictability of writing skills, it is considered necessary to conduct more research that reveals the predictive power of writing skills.

Maternal education is one of the most extensively studied demographic variables associated with children's literacy. Foster et al. (2005) stated, "Parental demographic background variables such as level of education may serve as proxy variables for home literacy experiences associated with kindergarteners' literacy skills." While many studies have focused on the relationship between maternal education and children's literacy skills (Cottone, 2012; Magnuson et al., 2019; Wu & Sterling-Honig, 2010), only a few papers have examined the predictive power of this variable (Skibbe et al., 2008; Stephenson et al., 2008).

Likewise, while the gender variable has been widely explored as a child characteristic in numerous studies focusing on early literacy, there is a scarcity of research that specifically investigates the predictive role of gender in children's literacy skills (Van Tonder et al., 2019). However, the number of studies examining child gender is comparatively lower than those examining maternal education (Dyňa et al., 2020; Myrtil, Justice, & Jiang, 2019).

Therefore, conducting an investigation on the relationship between child gender, maternal education, writing skills, and print awareness, as well as identifying the predictive role of writing readiness skills, child gender, and maternal education in print awareness skills, can make a valuable contribution to early childhood literacy. Additionally, the present study will offer much-needed information on the relationship between these variables in the Turkish context.

Therefore, the purpose of this paper is to investigate the predictive strength of child gender, maternal education, and writing readiness skills on print awareness skills of six-year-old children and the relationships between these skills and child gender and maternal education. Therefore, this study answered the following questions:

(1) Is there a significant relationship between child gender, maternal education, writing readiness skills, and print awareness skills?

(2) Is child gender, maternal education, and writing readiness skills in six-year-old children a significant predictor of print awareness skills?

### **Methods**

The study is in the relational screening model in terms of revealing the extent to which the variables affect each other. Relational screening models are research models that aim to determine the presence and/or degree of co-variation among two or more variables. Correlation is a type of analysis used in the relational analysis, and it aims to determine whether variables co-vary together and, if so, how they co-vary in searches of different types of correlations (Karasar, 2009). The study has been designed using a relational screening model to reveal the relationships between variables of child gender, maternal education, writing readiness skills, and print awareness skills. The dependent variable of the study is the skill of print awareness skills, while the independent variables are child gender, maternal education, and writing readiness skills.

### **Participants**

In the correlational survey study, the target population comprised six-year-old children enrolled in independent kindergartens affiliated with the Kilis Provincial Directorate of National Education. The sample for the study consisted of three hundred and sixteen children, selected through the criterion sampling method from among the children attending these independent kindergartens. The inclusion criteria for the sample selection in this study involved children who are six-year-old and attend independent kindergartens. The sample included more girls (57.9%, n=183) than boys (42.1%, n=133). The educational backgrounds of the mothers varied, with years of education ranging from 5 to 16. The educational level of mothers was as follows: 36 mothers (11%) were literate 68 mothers (22%) had completed primary school; 154 mothers (49%) had completed high school; 42 mothers (13%) had completed a college degree; and 16 mothers (5%) had completed a graduate degree.

## Study tools

### **The control list for the evaluation of the print awareness of pre-school children (CLPAP)**

“The Control List for the Evaluation of the Print Awareness of Pre-school Children” was developed by Şimşek and Alisinanoğlu (2013a) to measure print awareness levels in preschool children. The scale consists of 17 items with two dimensions, 9 items of the first dimension are about “Book Concepts” and the second dimension consists of 8 items related to “Print Concepts”. “The Control List for the Evaluation of the Print Awareness of Pre-school Children”, which was administered during classroom visits, asked children to perform tasks (e.g., “Show me the title of this book”, “Show me which way I go to read the page”) that were posed by the investigator while examining a storybook together. Participants received a point for each acceptable response, for a possible total score of 17. The control list includes the target concept, concept type, instructions for the investigator, and acceptable responses.

For the construct validity, exploratory factor analysis (EFA) was conducted with two hundred children and CFA was performed with another two hundred children. The result of EFA revealed that CLPAP was composed of two factors with core values of 7.69 and 4.84. The variance explained by the first factor was 45.26% while 28.45% was explained by the second factor. The total variance explained by the factors was 73.71%. According to the CFA, construct reliability for the first factor was .92 and the explained variance was .62. However, for the second factor, they were computed as .97 and .84, respectively. The first subscale of the control list was denominated “Book Concepts” and the other was termed “Print Concepts”. The Kuder Richardson-20 (KR-20) formula was used to measure the reliability of the control list. The KR-20 reliability coefficient was calculated to be 0.64 for the first factor (Book Concepts), 0.51 for the second factor (Print Concepts), and 0.72 for the total scale (Şimşek & Alisinanoğlu, 2013a).

### **The control list for the evaluation of the writing readiness skills of pre-school children (CLWRP)**

“The Control List for the Evaluation of the Writing Readiness Skills of Pre-school Children” developed by Şimşek and Alisinanoğlu (2013b) measures children’s writing readiness skills such as correct sitting position for writing, holding a pencil, securing paper on the surface, keeping a proper distance between eyes and writing material, knowing the print direction, and drawing in accordance with the instructions. The validity and reliability of the scale were examined by Şimşek and Alisinanoğlu (2013b) using test-retest reliability and agreement between independent raters. The test-retest reliability coefficient was calculated as 0.90 indicating the control list had high construct stability. Regarding the agreement between raters, the lowest and highest agreement between experts were calculated as they were 0.32 and 1.00, respectively. All correlations were statistically significant.

### **Procedures for data collection**

Ethics clearance and approval for this study were obtained from the Institutional Review Board of Kilis 7 Aralık University, Turkey. The basic plan was to identify a group of preschool-age children, compare their writing readiness, and print awareness skills with those of a group of same-age, typically developing children. Accordingly, six-year-old children were selected as the focus group. All data were collected in the autumn of the 2019-2020 preschool year. During that time, children were assessed on two developed literacy skills: print awareness and writing readiness skills. Two control lists “The Control List for the Evaluation of the Print Awareness of Pre-school Children” and “The Control List for the Evaluation of the Writing Readiness Skills of Pre-school Children” were used to collect data. Trained undergraduate research assistants administered direct assessments of literacy skills in two to three 20-minute sessions at the child’s preschool in a quiet space. Children were assessed within 2 months period in the autumn of the school year.

### **Data analysis**

The data in this study were analyzed using SPSS 17.0 statistical analysis software. Correlational analysis and regression analysis were conducted to examine the relationships between child gender, maternal education, print awareness skills, and writing readiness skills. Missing data were excluded from the analyses, resulting in a varying sample size for different analyses. Pearson correlation coefficient was used to assess the relationships between these skills, while regression analysis was employed to determine the predictive strength of the variables.

In this study, non-continuous variables, namely, gender and maternal education, were coded as dummy variables and included in the regression analysis. Four dummy variables were created for the mother's education level corresponding to five intervals, namely, literate, primary, high school, undergraduate, graduate, and above. To create the dummy variable for child gender, girls were coded as "0". According to Büyüköztürk (2009), in certain cases, it might be appropriate to thoroughly examine the impact of non-continuous variables on the dependent variable. To perform such an analysis, one level of the interval-scale variable is left out and a "dummy" variable is created that contains one less interval (G-1) than the number of total intervals.

## Findings and Discussion

### Correlational analyses

Correlation analyses were conducted to examine the relationship between child gender, maternal education, print awareness skills, and writing readiness skills. The results showed that there were no significant correlations between gender and maternal education with print awareness skills. However, a low significant correlation ( $r=.29$ ,  $p<.01$ ) was found between print awareness skills and writing readiness skills.

Table 1.  
Correlations among variables for print awareness skills

Variables	(1)	(2)	(3)	(4)
Child gender	-	-	-	-
Maternal education	.014	-	-	-
Print awareness skills	-.020	.039	-	-
Writing readiness skills	-.030	.029	.29**	-

\*\* $p<.01$  (2-tailed)

As seen in Table 1, no significant correlation exists between child gender and print awareness skills ( $r = -.020$ ,  $N=316$ ,  $p>.01$ ). These findings are consistent with the study conducted by Brown et al. (2013), which also reported no associations between gender and printed word skills, such as differentiating between letters, numbers, and shapes, as well as spacing between words. These results suggest that boys and girls demonstrate similar levels of proficiency in understanding the rules and structure of print. Numerous studies have emphasized the significance of children's interest in literacy activities as a crucial factor influencing their literacy skills (Kaderavek & Pakulski, 2007; Martini & Senechal, 2012; Puranik & Lonigan, 2012). Therefore, our findings may be attributed to the fact that both boys and girls exhibit similar interests in engaging in literacy activities.

Additionally, the analysis presented in Table 1 indicates that there is no significant correlation between gender-related differences in writing readiness skills ( $r=.030$ ,  $N=316$ ,  $p>.01$ ). However, Dynia et al. (2020) found a positive association between name writing and both child age and gender. They observed slightly higher name-writing proficiency in girls compared to boys, suggesting that this result may be attributed to the superior grasping and flexibility exhibited by young girls. Other studies have highlighted the significance of fine motor skills in the development of writing abilities in children (Dinehart & Manfra, 2013; Grissmer et al., 2010). In the present study, children were assessed based on their understanding of print rules, and no significant gender-related differences were observed in their writing readiness skill scores. Hence, it can be argued that girls and boys display comparable levels of writing readiness skills, such as maintaining a proper sitting position for writing, holding a pencil, securing paper on the surface, maintaining an appropriate distance between their eyes and writing material, understanding print direction, and following instructions for drawing. Furthermore, it can be concluded that children possess similar skills, knowledge, and experiences regardless of their gender.

Based on Table 1, there is no significant correlation between maternal education and print awareness skills ( $r=.039$ ,  $N=316$ ,  $p>.01$ ). However, contrary to our findings, some studies have reported a correlation between children's print awareness and the educational level of their mothers (Norman, 2007; Skibbe et al., 2008). This discrepancy can be explained by the fact that mothers, regardless of their educational background, provide similar home literacy environments for their children.

Numerous studies have also emphasized the significant correlations between children's literacy skills and the underlying factors of the home literacy environment (Farver et al., 2013; Xu, Farver, & Krieg, 2017). Therefore, the findings of this study suggest that factors such as the home literacy environment may have a greater influence and may overshadow the impact of maternal education.

Furthermore, no significant correlations were found between maternal education and writing readiness skills ( $r=.029$ ,  $N=316$ ,  $p>.01$ ). However, in contrast to our findings, some studies have reported a positive effect of maternal education level on their children's literacy readiness skills (Hofslundsengen, Gustafsson, & Eriksen-Hagtvvet, 2019; Hooper et al., 2010). For instance, Dynia and Solari (2021) found that children with autism, whose mothers had higher education levels, exhibited better print awareness, word awareness, and name-writing skills. However, in the case of the Kilis city province examined in the present study, no significant correlation was found between both print awareness and writing readiness scores and maternal education. Compared to the major provinces in Turkey where most studies have been conducted, Kilis city is a relatively small province with fewer social opportunities and activities. The social life and socio-demographic characteristics of Kilis city differ significantly from those of developed and larger cities in Turkey. In this regard, both highly educated and less educated mothers in Kilis city likely have ample time to spend with their children. These unique social characteristics of Kilis city may have contributed to our findings, which show significant differences from previous studies. Therefore, it can be argued that mothers in our sample implemented similar literacy activities or provided similar support for their children's literacy education. Many studies have presented that parenting literacy practices have positive effects on children's literacy skills (Puranik et al., 2018; Skibbe et al., 2008; Van Bergen et al., 2017).

Furthermore, it is worth noting that specific parental habits, such as engaging in book reading and asking questions during shared reading, can significantly contribute to children's literacy development, irrespective of the parent's education level. Therefore, it is suggested that certain home-related variables may have influenced the results obtained in our study. This argument aligns with the findings of previous studies that have emphasized the positive influence of the home early literacy environment and related literacy practices (Evans & Shaw, 2008; Hood, Conlon, & Andrews, 2008).

### **Correlations between print awareness skills and writing readiness skills**

Table 1 reveals a significant but low correlation ( $r=.29$ ,  $N=316$ ,  $p<.01$ ) between children's print awareness skills and writing readiness skills. This finding is consistent with previous studies that have examined the relationship between writing and reading skills. For instance, Puranik et al. (2011) found that print awareness and letter-writing skills contribute to name-writing skills, while alphabet knowledge, print awareness, and letter-writing skills support letter-writing skills. Additionally, Welsch et al. (2003) emphasized the impact of age and name-writing skills on print knowledge. The results obtained from this study suggest that as children's writing readiness skills improve, their print awareness abilities also increase. The association between writing readiness skills and print awareness indicates that both skills encompass the structure and rules of print.

### **Regression analyses**

Regression analyses were conducted to examine the relationships between child gender, maternal education, writing readiness skills, and print awareness skills. The results of the regression analysis are presented in Table 2, which shows the contributions of the three variables (child gender, maternal education, and writing readiness skills) to the prediction of print awareness skills.

Table 2.

Regression analysis of child gender, maternal education, writing readiness skills on children's print awareness

Variables	Print awareness skills				
	B	SE B	$\beta$	t	p
Child gender	.09	.42	.012	.23	.83
Maternal education	-.41	.61	-.037	-.68	.49
Writing readiness skills	.44	.08	.29*	5.42	.000

\* $p < .05$ ;  $R = .297$   $R^2 = .088$ ;  $F = 10.058$   $p < .01$

A multiple regression analysis was conducted to examine the relationship between print awareness skills, child gender, maternal education, and writing readiness skills. In this analysis, child gender, maternal education, and writing readiness skills were considered independent variables, while print awareness skills were the dependent variable. The results of the analysis revealed a significant overall effect of the model,  $F(3, 312)=.297, p<.001, R^2=.088$ . Child gender, maternal education, and writing readiness skills accounted for 9% of the total variance in print awareness. The standardized regression coefficients ( $\beta$ ) indicated the relative importance of the predictor variables on print awareness as follows: writing readiness skills ( $\beta=.29, p<.05$ ), maternal education ( $\beta=-.037, p>.05$ ), and child gender ( $\beta=.012, p>.05$ ). The t-test results for the significance of the regression coefficients indicated that only writing readiness skills significantly predicted print awareness skills.

Based on the findings of the present study, it can be argued that writing readiness skills are predictive of print awareness. The emphasis placed by teachers on the rules, function, and structure of print during writing activities may have contributed to this result. While there is substantial theoretical knowledge regarding the potential of writing to enhance a child's reading ability, and the importance of the reading-writing relationship is widely acknowledged, further research is needed to gain a deeper understanding of this relationship and the predictive role of writing skills on reading skills.

### **Conclusions**

In this study, the relationship between child gender, maternal education, writing readiness skills, and print awareness skills of six-year-old children attending kindergarten was examined. In addition, this article aimed to examine the predictive powers of child gender, maternal education, and writing readiness skills on print awareness skills.

### **Relations between gender with writing readiness and print awareness skills**

Correlation analyses revealed that child gender did not show a significant relationship with print awareness and writing readiness skills. This finding is consistent with previous studies. A review of the literature indicated that studies investigating the gender variable in relation to emergent literacy skills of preschool children consistently found no significant differences based on gender (Kelman, 2006; Son, Lee, & Song, 2013). Similarly, Hammer, Farkas, and Maczuga (2010) found that gender had no impact on the reading skills of preschool children, and exploring the effect of this variable on reading readiness skills in primary school children contributes to the field. Bayraktar (2018) also reported no significant difference between children's print awareness skills and the gender variable in their study. Additionally, in a separate study by Campbell et al. (2019), it was concluded that name-writing ability (assessed at school entry) had a greater influence on writing skills compared to variables such as gender, age, and years in the program.

### **Relations between maternal education with writing readiness and print awareness skills**

One of the interesting findings of the study is the lack of a significant relationship between maternal education and print awareness and writing readiness skills. However, previous research has reported significant associations between maternal education and children's print awareness and writing readiness skills (Brooks-Gunn, Han, & Waldfogel, 2002; Hammer et al., 2010; Hartas, 2011). In this study, the lack of an increase in children's print awareness and writing readiness skills with the increase in maternal education level suggests that mothers have not acquired knowledge on supporting their children's literacy skills throughout their education. The reason for this finding in the current study may be attributed to the fact that mothers in the sample shared similar home literacy environments with their children due to the unique characteristics of the Kilis city province, as mentioned earlier. Therefore, it is recommended to explore different variables related to the home literacy environment to determine which specific factors are more/less influential on children's print awareness and writing skills. Consistent with this, home literacy environment aspects are found to differentially relate to children's oral abilities, phonological sensitivity, and print awareness (Xu et al., 2017). In addition to maternal education, further studies may examine some different variables such as mothers' literacy habits, home activities implemented by mothers with their children, and the duration of these activities on children's print awareness and writing readiness skills. Based on the results obtained, it is suggested that the effect of more variables such as appropriate role modeling for children and building a social interaction on literacy skills can be examined. Because the main factor



in the development of literacy skills including writing skills is a child's observation of parents or other adults and social interaction with them (Aram & Levin, 2001). Moreover, children's knowledge of print and writing skills develop in environments where adults are good role models for them (Bloodgood, 1999).

### **Relations between writing readiness skills and print awareness skills**

According to the correlation analysis, there is a low but positive correlation between children's writing readiness skills and print awareness. Given the finding from this study that print and writing skills are related, it is important to provide support for both skills both at school and at home. In line with this, Zhang and Bingham (2019) suggested that writing instruction delivered by teachers not only enhances children's writing skills but also improves their reading skills. Before starting school, it should be noted that children often have difficulty distinguishing non-alphabetic symbols from letters (Schmitterer & Schroeder, 2018). Children's awareness of this issue can be enhanced by providing them with opportunities to engage in activities that promote these skills from an early age.

According to Gerde et al. (2012), writing is considered an important activity that should be integrated into children's learning environment. Furthermore, these activities are more beneficial when supported and accompanied by an adult or parent (DeBaryshe, Binder, & Buell, 2000). Makin and Whitehead (2004) suggest several daily literacy activities that can be carried out with children, such as collecting print materials, visiting places where children can encounter written text, preparing shopping lists and greeting cards, and creating a message board for reminder notes. Therefore, it is essential to inform both teachers and parents about these daily literacy activities with children. Training programs can be implemented to provide guidance and support for parents and teachers, encouraging their active participation. For example, in the study conducted by Hannon, Nutbrown, and Morgan (2020), mothers were encouraged to participate in a program aimed at supporting their children's literacy skills. The study findings indicated that children whose mothers had a lower education level exhibited greater advancements in literacy skills compared to children whose mothers had a higher education level.

### **Writing readiness skills as a predictor of print awareness**

Based on the results of the regression analysis aiming to assess the predictive power of writing readiness skills on print awareness in six-year-old children, it was observed that writing readiness skills significantly predict print awareness. However, although this study suggested a potential correlation between the two skills due to the inclusion of similar terms like print rules and print structure, further research is required to assert that writing skills serve as a crucial predictor of reading skills.

Taking into consideration the reciprocal predictive nature of both skills and their shared elements, it can be argued that emphasizing the development of print awareness skills should be prioritized during writing activities. In line with this, it has been emphasized that preschool teachers should not perceive children as incapable of engaging in writing before reaching a certain level of maturity, and instead, should actively support the cultivation of these skills (Dennis & Votteler, 2013). Therefore, teachers must encourage children from an early age to scribble from left to right and create letter-like shapes (Perlmutter et al., 2009).

Therefore, in light of the significant impact of reading and writing skills on children's future academic success, it is crucial to implement appropriate and effective literacy activities from the preschool period onwards. In this regard, Bengocheaa, Justice, and Hijlkemac (2017) recommended that assessing these skills can contribute to understanding children's development and identifying the types of support (such as book reading, literacy environment, etc.) provided to children. Future studies can further investigate parental behaviors and activities that promote children's literacy skills.

### **Implications**

Based on the findings of the study, the following recommendations can be made to researchers:

When children participate in writing-related activities, their attention should be drawn to the rules, functions, and structure of print. Children should be included in writing activities from an early age by

creating writing activities appropriate for their age. Mothers should be informed about literacy activities that can be done at home with their children. The relationship between the frequency of reading and writing activities conducted at home and school and children's literacy skills can be examined. It can be determined which types of literacy preparation activities children are included at home and school. The influence of different reading and writing skills on each other can be investigated. The predictive effect of different demographic variables related to the family, teacher, and child on children's reading and writing skills can be examined. Future studies can be included larger sample sizes from different regions or provinces to enhance the generalizability of the results. In addition to focusing on six-year-old children, it may be that beneficial to investigate the predictive strength of writing skills in other age groups, such as four- and five-year-old children, to gain a more comprehensive understanding. By considering these recommendations, researchers can further contribute to the understanding and promotion of children's print awareness and writing readiness skills in early childhood literacy.

### **Limitations**

This study had several limitations. Firstly, it was restricted to a sample of three hundred and sixteen children attending independent kindergartens in Kilis city. Conducting further studies with larger sample sizes from different provinces would enhance the generalizability of the findings. Secondly, the focus of this study was solely on six-year-old children, and exploring the predictive power of writing readiness skills across other age groups, such as four- and five-year-olds, would provide a more comprehensive understanding. Lastly, it should be noted that the results of this study are based on the psychometric properties of the two checklists used in Turkey: "The Control List for the Evaluation of the Writing Readiness Skills of Pre-school Children" and "The Control List for the Evaluation of the Print Awareness of Pre-school Children." While these scales have demonstrated high internal consistency reliability and good test-retest reliability, further research is required to examine additional psychometric properties, such as specificity and sensitivity.

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**Ethic Statement:** In this study, I declare that the rules stated in the "Higher Education Institutions Scientific Research and Publication Ethics Directive" are complied with and that I do not take any of the actions based on "Actions Against Scientific Research and Publication Ethics". At the same time, I declare that author contributes to the study and that all the responsibility belongs to the article author in case of all ethical violations.

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