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The Predictive Role of Attention and Listening Comprehension in Phonological Awareness Skills in 60- to 72-Month-Old Preschoolers

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Abstract

Starting primary school marks a significant milestone for children. Learning to read and write is one of the fundamental skills expected from children when they begin primary education. Reading skills are crucial to become successful in both social and academic life. Early literacy skills lay the foundation for a child's later academic achievement and independent learning skills. It is thus essential to explore the relationships between attention, listening comprehension, and phonological awareness, which all form the basis of reading skills. This research aimed to explore the relationship between attention, listening comprehension, and phonological awareness in 60- to 72-month-old preschoolers. It used a correlational research design. The data of the study were collected through the "FTF-K Attention Test for Five-Year-Old Children", "Listening Comprehension Test" and "Phonological Awareness Scale". The data were analysed using descriptive statistics, correlation analysis, and multiple regression analysis. The analysis results showed a significant weak positive correlation between attention and phonological awareness skills. There was also a significant moderate positive correlation between listening comprehension and phonological awareness skills. Consequently, attention and listening comprehension skills were prerequisites for phonological awareness skills.

Keywords: Attention, listening comprehension, phonological awareness, preschool students, correlational research

60-72 Aylık Okul Öncesi Çocukların Fonolojik Farkındalık Becerilerinde Dikkat ve Dinleme Anlama Becerisinin Aracı Rolü

Özet (Türkçe)

İlkokula başlamak çocuklar için önemli bir dönüm noktasıdır. Okuma ve yazmayı öğrenmek, çocuklar ilkokula başladıklarında onlardan beklenen temel becerilerden biridir. Okuma becerileri hem sosyal hem de akademik hayatta başarılı olmak için çok önemlidir. Erken okuryazarlık becerileri, bir çocuğun daha sonraki akademik başarısı ve sonraki öğrenme durumları için temel oluşturur. Bu nedenle, okuma becerilerinin temelini oluşturan dikkat, dinleme anlama ve fonolojik farkındalık arasındaki ilişkileri araştırmak önemlidir. Bu araştırma, 60 ila 72 aylık okul öncesi çocuklarda dikkat, dinlediğini anlama ve fonolojik farkındalık arasındaki ilişkiyi araştırmayı amaçlamıştır. Bu araştırmada ilişkisel bir araştırma tasarımı kullanılmıştır. Araştırmanın verileri "FTF-K Beş Yaş Çocukları için Dikkat Toplama Testi", "Dinlediğini Anlama Testi" ve "Fonolojik Farkındalık Ölçeği" aracılığıyla toplanmıştır. Veriler, tanımlayıcı istatistikler, korelasyon analizi ve çoklu regresyon analizi kullanılarak analiz edilmiştir. Analiz sonuçları, dikkat ve fonolojik farkındalık becerileri arasında anlamlı, zayıf bir pozitif korelasyon olduğunu göstermiştir. Ayrıca, dinlediğini anlama ve fonolojik farkındalık becerileri arasında anlamlı, orta düzeyde pozitif bir korelasyon bulunmuştur. Sonuç olarak, dikkat ve dinlediğini anlama becerisinin, çocuklarının fonolojik farkındalık becerileri için ön koşul beceriler olduğu söylenebilir.

Anahtar Kelimeler: Dikkat, dinlediğini anlama, fonolojik farkındalık, okul öncesi çocuklar, ilişkisel araştırma

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Introduction

Literacy is one of the most crucial skills in the modern world, following language acquisition (Fischer, 2015). Along with language acquisition, children's phonological awareness skills begin to develop implicitly. This is because phonological awareness involves recognizing that spoken language can be divided into smaller components in various ways and sounds can be manipulated (Chard & Dickson, 1999). Phonological awareness is an oral language skill and refers to "the understanding that sentences are made up of words, words are made up of groups of sounds (syllables), and syllables are made up of individual sounds, or phonemes" (Allor, 2002, p. 48). Phonological awareness is a prerequisite for understanding the relationships between sounds and letters (Torgesen & Wagner, 1998). To understand these relationships, the reading process needs to be coordinated by certain cognitive mechanisms, such as attention control (Conners, 2009). Children must attentively listen to and comprehend spoken language to develop phonological awareness skills. This idea underlies this research.

Early literacy skills lay the foundation for a child's later academic achievement and independent learning skills. The acquisition of reading skills is a complex process fed by various cognitive and environmental factors (Myrberg & Rosen, 2008). It is thus essential to explore the relationships between attention, listening comprehension, and phonological awareness, which all form the basis of reading skills. This is because deficiencies in attention (Plaza & Cohen, 2007) or listening comprehension skills (Li et al., 2012) can lead to problems in acquiring phonological awareness skills. Children who lack phonological awareness skills face difficulties in learning to read. The challenges encountered by children who have a poor start in the process of learning to read often persist in subsequent years, leading to broader academic failures (Cunningham & Stanovich, 1997). Juel (1988), for instance, found that 88 out of 100 children who failed in reading at the end of first grade also failed by the end of fourth grade. Similarly, in a longer longitudinal study, Cunningham and Stanovich (1997) reported striking results, demonstrating that children's reading success in the first grade was predictive of their vocabulary, general knowledge, and reading comprehension in the eleventh grade. Most notably, reading problems identified in the first grade persisted throughout their academic careers (Cunningham & Stanovich, 1997). Scarborough (2001) also found that most students who experienced difficulties with reading and writing skills in the fourth grade continued to face these challenges in high school, which often led to school dropouts. All these studies indicate that difficulties that children encounter during reading acquisition impact their entire academic trajectory. Therefore, a detailed examination of phonological awareness in connection with attention and listening comprehension will play a preventive role, ensuring that future diagnostic and intervention work for students with reading comprehension difficulties yield meaningful outcomes. Figure 1 below shows the rationale and purpose of this research.

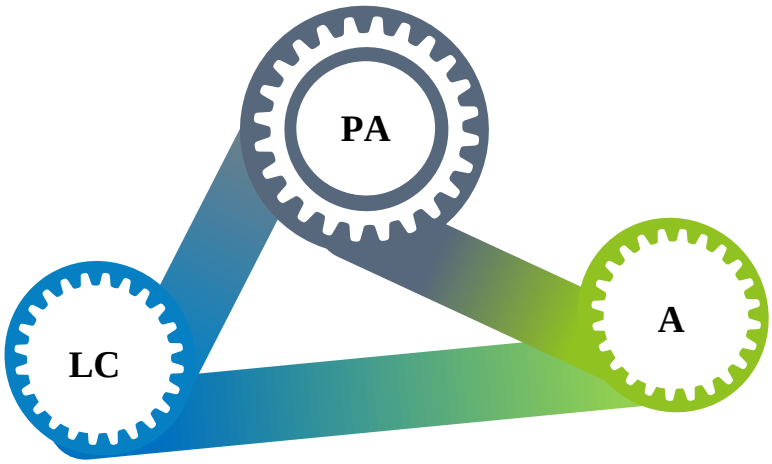

Figure 1. A Model for the Relationship between Attention, Listening Comprehension, and Phonological Awareness

As illustrated in Figure 1, the present research rests on the assumption that there is an interrelationship between attention, listening comprehension, and phonological awareness skills. This assumption is based on the fact that phonological awareness and listening comprehension skills are directly related to oral language experience and attention skills play a role in forming mental representations of oral language. In the model, phonological awareness refers to the ability to recognize, discriminate, and appropriately manipulate sounds that make up words in spoken language; listening comprehension is the ability to remember and make sense of spoken language to construct meaning; and attention represents the ability to consciously direct the mind to specific stimuli in the environment while disregarding other stimuli. The following sections elaborate on the roles of attention and listening comprehension skills in phonological awareness.

Relationship between Phonological Awareness and Attention

The reading rope model created by Scarborough (2001) is an important theory that explains the development of skilled reading. According to this model, children need to acquire phonological awareness skills as a prerequisite for reading acquisition. Phonological awareness develops hierarchically, progressing from larger to smaller units. Therefore, the acquisition of phonological awareness should be aligned with children's developmental stages (Anthony & Francis, 2005). Given the characteristics of developmental stages, the critical importance of fostering children's phonological awareness skills during the preschool years becomes evident. Phonological awareness is a significant predictor of reading ability, and deficits in phonological processing can lead to reading difficulties (Aalto et al., 2023; Nation & Snowling, 2004; Roepke & Brosseau-Lapré, 2023; Vellutino et al., 2004).

It is essential to focus on the acquisition of foundational skills, such as phonological awareness and the development of cognitive representations, during the preschool period (Derryberry & Reed, 1996). This emphasis is crucial because the cognitive development of children who can engage in focused reading differs significantly from those who cannot. Children who maintain focused attention have an enhanced learning capacity and can perceive environmental stimuli more quickly. This heightened perception contributes to their ability to establish relationships and solve problems by understanding the causes and consequences of events. This research focuses on attention skills which constitute a crucial component of executive functions involved

in the reading process. Executive functions refer to a set of cognitive skills such as working memory, inhibitory control, task switching, and attention (Röthlisberger et al., 2012). Attention skills play an active role in creating a mental representation of spoken language (Kintsch, 1998).

Attentional resources must be used effectively for automaticity in reading (Johnson, 2009). Automaticity or automatic processing, one of the cognitive processing theories in the science of reading, also emphasizes the importance of attention for reading. According to the theory of automaticity proposed by LaBerge and Samuels (1974), the duration of attentional resources is quite limited. If efforts are not made to enhance preschool children's ability to concentrate on tasks (such as colouring, doing an activity, or playing a game) for extended periods, it may be more challenging for them to keep their attention during reading. As the focus capacity of children with good attention skills increases, memory development and meaningful learning can be achieved (Öztürk et al., 2000). The difference between competent readers and struggling readers is also associated with the use of these limited attentional resources. Word recognition becomes automatic for readers who efficiently utilize their attentional resources. Considering phonological awareness as a component of word recognition skills, the theory of automaticity indirectly supports the relationship between attention and phonological awareness skills. As mentioned above, phonological awareness skills are connected to language acquisition and depend on the development of attention skills (Stewart, 2011). Given that listening begins with paying attention to speech (Ergin, 1990), phonological awareness requires the use of attention skills, as well as listening comprehension skills.

Why are listening comprehension skills important?

Starting primary school marks a significant milestone for children. Learning to read and write is one of the fundamental skills expected from children when they begin primary education. Reading skills are crucial to become successful in both social and academic life. From the initial years of primary school, reading proficiency predicts academic and social success (Cunningham & Stanovich, 1997). Reading involves seeking and attaining deep meaning beyond simple decoding, and comprehension is an indispensable part of the reading process (Beck et al., 1998).

Considering the significant impact of the reading process, the importance of listening comprehension skills acquired during the preschool period becomes evident. The strong relationship between listening comprehension and reading comprehension is grounded in the ‘simple view of reading’ put forward by Gough and Tumner (1986). The simple view of reading is one of the theories frequently referenced in the literature to elucidate reading comprehension skills and identify factors influencing their development. Gough and Tunmer (1986) posit that reading comprehension consists of two components: word decoding (phonological awareness, orthographic processing, and word recognition) and listening comprehension. They explained their view in the following formula: Word Decoding (WD) x Listening Comprehension (LC) = Reading Comprehension (RC). According to this formula, students’ reading comprehension performance can be predicted by their word decoding and listening comprehension skills. Students with strong word decoding and listening comprehension skills typically exhibit good reading comprehension, whereas those with poor skills usually fail to comprehend what they read. In essence, for a student to understand written text, they must also be able to understand spoken language (Farrell et al., 2010).

Particularly, children who are exposed to stories and listening activities from early childhood tend to have better listening comprehension, a more developed vocabulary, and an enhanced capacity to understand language (Joshi et al., 2012). Plenty of studies have demonstrated the influence of early-acquired listening comprehension skills on the development of reading

comprehension (Gernsbacher et al., Faust, 1990; Hagtvet, 2003; Kendeou et al., 2005; Mann, Shankweiler & Smith, 1984; Sinatra, 1990; Wise et al., 2007). The new developmental/instructional model proposed by Kendeou et al. (2005) also supports the view that early listening comprehension skills are crucial for later reading comprehension. The model emphasises that listening comprehension skills acquired in early childhood play a critical role in reading comprehension in subsequent years. According to this model, successful reading comprehension can only occur with the development of basic language skills and cognitive comprehension skills as early as possible. Otherwise, reading comprehension activities conducted without sufficient competence in these skills will be limited to decoding, and true comprehension will not be achieved. The primary reason why the researchers defined it as a new developmental model is that it demonstrates how children's future reading comprehension skills can be supported even before formal reading activities begin. Moreover, it helps identify potential difficulties in these skills at an early stage (Kendeou, 2005).

Based on the brief literature presented above, this research aimed to explore the relationship between attention, listening comprehension, and phonological awareness. Accordingly, the research question was formulated as follows:

1. What is the role of attention and listening comprehension in preschoolers' phonological awareness skills?

Method

Research Design

This research used a correlational survey design. It was preferred because it allows the correlations and predictive power between two or more variables to be investigated (Karasar, 2014). Phonological awareness skills were treated as the dependent variable, and attention and listening comprehension skills as the independent variables. The first stage of the research involved examining the relationship between attention, listening comprehension skills, and phonological awareness skills among 60- to 72-month-old preschoolers. The second stage involved investigating the extent to which preschoolers' attention and listening comprehension skills predict their phonological awareness skills.

Participants

This research was conducted with 110 preschoolers attending public kindergartens in the northern region of Turkey. Criterion sampling was used in the sample selection. It involves selecting participants or research objects based on predetermined criteria or characteristics (Büyüköztürk et al., 2020). The criteria for inclusion in this research were specified as follows: not having a diagnosed physical or mental disability, having Turkish as a native language, and being 60 to 72 months old. The parents of preschoolers were informed about the research beforehand, and they signed a consent form. Among 110 students, 57 (51.82%) were girls, and 53 (48.18%) were boys.

Data Collection

Phonological Awareness Scale: The Phonological Awareness Scale developed by Yangın et al. (2010) was used to measure preschoolers' phonological awareness skills. The original scale is in Turkish. It has five sub-scales: realising that sentences are made up of words, realising that words can rhyme, realising that words can start with the same sound, realising that words are made up of syllables, and realising that words can end with the same sound. Each sub-scale consists of seven items. Correct responses are scored with 1 point, and incorrect responses with

0 point. The highest possible score is 35. The reliability of the scale was found as KR-20 = 0.74 (Yangın et al., 2010).

Listening Comprehension Test: The Listening Comprehension Test designed by Ergin (2004) was used to measure preschoolers' listening comprehension skills The test was specifically developed for preschool children and is administered on a map with 11 pictures. In the test, children try to create a route on the map in line with the instructions that they hear from the practitioner. The instructions are told only once. Each correct route is worth 1 point, and the highest possible score is 9. The Cronbach's alpha reliability of the test was calculated as 0.71 (Ergin, 2004).

FTF-K Attention Test for Five-Year-Old Children: The test developed by Raatz and Möhling (1971) and adapted to Turkish by Kaymak (1995) was used to measure preschoolers' attention/concentration. The test consists of mixed shapes of pears and apples. In the test, children are asked to find and mark only pears within 90 seconds. Each pear marked is scored with 1 point. The total number of pears marked in the test constitutes the preschooler's raw score.

Data Collection Procedure

The data collection was conducted by one of the researchers for approximately one and a half months after ethical approval and parental consent were obtained. The data collection tools were administered in a room designated by school administrators. Each tool was administered separately by the researcher on different days.

Data Analysis

The normality of the data was tested using the Kolmogorov-Smirnov test because the number of participants was higher than 50. According to the test results, the data gathered from the three tools were not normally distributed ($p < .05$). However, given the assumption of normality stating that the skewness and kurtosis values should be between +1.5 and -1.5 (Tabachnick & Fidell, 2013), the data had a near-normal distribution according to the kurtosis and skewness values. Thus, statistical methods based on the assumption of normal distribution were used to analyse the data. The Pearson correlation coefficient was used to measure the correlation between the dependent and independent variables. Multiple linear regression analysis was used to model the relationship between the variables. Table 1 shows the analysis results.

Table 1. Normality Test

	Kolmogorov-Smirnov			$\bar{X}$	**Median**	**Skewness**	**Kurtosis**
	Statistic	**df**	**p**				
Attention Test	.095	110	.017	32.66	33.00	-0.324	-0.543
Listening Comprehension Test	.181	110	.000	6.91	7.00	-0.831	0.091
Phonological Awareness Scale	.199	110	.000	28.32	30.00	-1.015	0.380

Findings

Correlation Analysis

Correlation analysis was used to determine whether there was a significant relationship between the independent variables (i.e., attention and listening comprehension) and the dependent variable (i.e., phonological awareness). To this end, the Pearson correlation coefficients were computed. Tables 2 and 3 show the analysis results.

Table 2. Results for the Relationship between Preschoolers' Listening Comprehension and Phonological Awareness Skills

		Listening Comprehension Skills	Phonological Awareness Skills
Listening Comprehension Skills	r	1	.693**
	p		.000
Phonological Awareness Skills	r	.693**	1
	p	.000	

According to the results of the correlation analysis, there was a statistically significant moderate positive correlation between listening comprehension and phonological awareness skills (r = .693, p = .000, p < .05).

Table 3. Results for the Relationship Between Preschoolers' Attention and Phonological Awareness Skills

		Attention Skill	Phonological Awareness Skills
Attention Skill	r	1	.288**
	p		.002
Phonological Awareness Skills	r	.288**	1
	p	.002	

According to the results of the correlation analysis, there was a statistically significant weak positive correlation between attention and phonological awareness skills (r = .288, p = .002, p < .05).

Regression Analysis

Multiple linear regression analysis was run to determine the predictive value of attention and listening comprehension skills for phonological awareness skills. Table 4 shows the analysis results.

Table 4. Multiple Linear Regression Analysis Results for the Effect of Preschoolers' Attention and Listening Comprehension Skills on Phonological Awareness Skills

Variable	B	Standard error	B	t	p
Fix	15.206	1.735		8.766	.000
Attention Skill	.066	.050	.097	1.342	.182
Listening Comprehension Skill	1.583	0.172	.665	9.210	.000
R = .699 R2= .489 F(2,109)= 51.107 p = .000					

Before examining the results in Table 4, it would be useful to share the precondition analysis results of our model for multiple linear regression. Analysis showed that the Durbin-Watson test statistic of the model was 1.711. This value indicates that there is no autocorrelation in the model. In addition, VIF values for attention and listening comprehension variables were

calculated as 1.090. This indicates that there is no multicollinearity problem among the independent variables. These results indicate that the model works properly. Based on this, looking at the multiple regression results in Table 4, attention and listening comprehension jointly had a significant moderate effect on phonological awareness ($R = .699$; $R^2 = .489$; $p < .05$). Attention and listening comprehension skills explained approximately 48% of the total variance in phonological awareness skills. Looking at the standardised regression coefficients, the order of importance of the effect of the independent variables on the dependent variable was listening comprehension ($\beta = .665$) and attention ($\beta = .097$). According to the t-test results, only listening comprehension was a significant predictor of phonological awareness skills ($p < .05$). Attention was not a significant predictor of phonological awareness skills ($p > .05$). According to the results of the regression analysis, the regression equation for the prediction of phonological awareness skills by attention and listening comprehension is given below.

Phonological Awareness = 15.206 + 0.066*Attention + 1.583*Listening Comprehension

According to these results, attention and listening comprehension were variables that predict and explain phonological awareness skills. Although the contribution of both independent variables to the multiple regression model was positive, the contribution of listening comprehension to the model was greater than attention.

Conclusion and Discussion

This study set out to determine the predictive role of attention and listening comprehension in preschoolers' phonological awareness skills. This section discusses the research findings in relation to relevant literature.

First, the relationship between listening comprehension and phonological awareness was examined. The analysis results showed a significant moderate positive correlation between listening comprehension and phonological awareness skills. This finding is consistent with those of earlier studies (Cheung, 2007; Li et al., 2012; Solari, 2006). Listening comprehension refers to the ability to remember orally presented information and understand it by structuring it in the mind (Mayberry & Kelley, 2007). Phonological awareness refers to the ability to recognize that words in spoken language can be broken down into smaller phonetic units and consciously manipulate these units (Gillon, 2007). A close examination of the definitions of both skills reveals that they are fundamentally based on oral language experience. Therefore, the significant relationship between listening comprehension and phonological awareness skills can be attributed to their common foundation in oral language structures.

Second, the relationship between attention and phonological awareness was examined. The analysis results also showed a significant weak positive correlation between attention and phonological awareness skills. This finding was consistent with those reported in (Keser, 2020). However, when examining the literature from a broader perspective and considering attention as a component of executive functions and phonological awareness as a component of decoding, several studies have highlighted the relationships between executive functions, early literacy, reading, and comprehension skills (Miller et al., 2014; Öksüz & Akyol, 2023; Schmitt et al., 2017). Accordingly, the present result indirectly supports the relationship between attention and phonological awareness skills.

The ultimate goal of reading is comprehension (NRP, 2000). Thus, the science of reading has frequently been occupied with identifying factors affecting reading comprehension. Earlier research has shown that certain skills, such as phonological awareness and fluent reading are

prerequisites for comprehension and must be coordinated simultaneously (Perez, 2010). The coordination of skills involved in comprehension is also linked to the concept of executive functions. Executive functions refer to a set of cognitive skills like working memory, inhibition, task switching, and attention, which are essential for complex processes such as reasoning, planning, and organising (Röthlisberger et al., 2012).

Within the scope of this research, attention skills were considered a critical component of executive functions, which impact the reading process. Attention is the process by which an individual consciously directs their mental receptors towards specific stimuli in the environment while ignoring others (Irak & Karakaş, 2002). This process plays an active role in creating a mental representation of spoken language (Kintsch, 1998). Therefore, the acquisition of phonological awareness skills, which are related to spoken language, depends on the development of attention skills as part of executive functions (Stewart, 2011). The recognition, differentiation, and blending of phonetic units in spoken language inherently require the use of both listening comprehension and attention skills. The listening process begins with focusing attention on speech (Ergin, 1990). Moreover, the theory of automaticity, one of the cognitive processing theories in the science of reading, also emphasizes the importance of attention in reading skills. According to this theory developed by LaBerge and Samuels (1974), the duration of using attentional resources is highly limited. The difference between skilled and struggling readers is also related to the efficient use of these limited attentional resources. Readers who use their attentional resources efficiently turn word recognition into an automatic process. Considering phonological awareness as an aspect of word recognition skills, this theory indirectly supports the relationship between attention and phonological awareness skills.

Third, the research investigated whether attention and listening comprehension predicted phonological awareness skills. According to the analysis results, attention and listening comprehension jointly had a significant moderate effect on phonological awareness. Additionally, Attention and listening comprehension skills explained approximately 48% of the total variance in phonological awareness skills. These findings indicate that attention and listening comprehension are prerequisites for phonological awareness skills. These findings corroborate the findings of recent work (Cheung, 2007; Li et al., 2012).

The joint influential role of attention and listening comprehension on phonological awareness skills can be explained with reference to the ‘simple view of reading’, which is frequently referenced in the science of reading, and the ‘reading rope’ model, which is based on the principles of the former. The simple view of reading proposed by Gough and Tunmer (1986) explains that the process of comprehension, the primary goal of reading, is the outcome of two components: decoding and language comprehension. Accordingly, decoding consists of sub-skills such as phonological awareness, orthographic processing, and word recognition, while language comprehension is conceptualized as listening comprehension and includes the ability to make sense of spoken words or sentences in a text. According to the simple view of reading, any disruption in decoding or listening comprehension leads to difficulties in reading comprehension (Gough & Tunmer, 1986; Hoover & Gough, 1990). Several studies have so far contributed to the validity of this theory by demonstrating that phonological awareness as a component of decoding skills and listening comprehension are strong predictors of reading comprehension (Catts et al., 2006; Isbel et al., 2004; Kargın et al., 2017; Manyak, 2008; NRP, 2000). However, current research on reading comprehension has revealed that comprehension is not limited to decoding and listening comprehension alone, as indicated by the simple view of reading (Kocaarslan, 2019).

Scarborough (2001) advanced the assumptions of the simple view of reading, stating that the reading and comprehension process is much more complex. She created the 'reading rope' model that depicts the complex nature of proficiency reading. This model emphasises that task-specific processes like executive functions play an active role in this complex process, apart from the components of word recognition and listening comprehension, as presented in the simple view of reading. According to the reading rope model, executive functions including working memory, inhibition, task switching, and attention play a key role in directing cognitive resources and integrating various types of information during the reading process, thereby contributing to reading comprehension (Hudson et al., 2016). In this context, attention, as a component of executive functions underlined in the reading rope model, interacts with phonological awareness skills, a sub-dimension of decoding in the simple view of reading. Thus, the fundamental assumptions explained in the simple view of reading and the reading rope model support the notion that attention and listening comprehension are significant predictors of phonological awareness skills.

In conclusion, attention and listening comprehension skills are essential prerequisites for phonological awareness skills. The present findings support this view and indicate that improving attention and listening comprehension skills in preschool education is critical for students' future reading performance. The findings of the present research make several contributions to the current literature and have a number of important implications for future practice. First, the findings can broaden the perspectives of preschool teachers, encouraging them to devote more time to classroom activities aimed at developing attention and listening comprehension skills. Second, considering that phonological awareness is a significant predictor of reading skills (Snow et al., 1998; NRP, 2000), the findings can help teachers identify students' potential reading difficulties as early as the preschool years by looking at their attention and listening comprehension skills during these years. Third, since phonological awareness is a crucial predictor of component reading, identifying the factors influencing phonological awareness and understanding the relationships between these factors will provide a basis for intervention work. Effective intervention programs require the identification of factors affecting relevant skills. Therefore, the present results can guide researchers in designing intervention programs aimed at improving phonological awareness skills.

Limitations

Despite its contributions, this research has some important limitations. First, the research used a survey model. Therefore, the validity of the findings can only be interpreted within the framework of the positivist paradigm. There is a need for further studies that use qualitative or mixed-methods designs to better understand the role of attention and listening comprehension in phonological awareness skills. Second, the sample size was relatively small and consisted of preschoolers attending public kindergartens in a province in the northern region of Turkey. Therefore, future studies could be conducted with larger sample groups.

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