

Development of Early Literacy in Special Education in Türkiye: Current Challenges and Future Directions

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This study aims to examine the current situation and the literature on supporting the early literacy skills of children with special needs in Türkiye, to identify the challenges encountered, to suggest effective intervention strategies, and to develop practice recommendations to guide teachers and families. Within the scope of the research, the traditional review method was used. The study analyzed the general profiles of the studies conducted in the field of early literacy in Türkiye, common themes among the findings, difficulties encountered, and intervention methods. The study included 36 studies focusing on early literacy skills of preschool children between 2014 and 2024. These studies included hearing impairment, language/speech disorder, visual impairment, Down syndrome, learning disability, autism spectrum disorder, developmental disability, severe and multiple disabilities, intellectual disability, and gifted groups. The data were analyzed using the thematic analysis method, and content analysis was performed using NVivo 14 software. The findings of the studies were determined, and similar findings were grouped under themes and interpreted with an inductive approach. The research findings reveal the roles of teachers and families in supporting the early literacy skills of children with special needs in Türkiye, the lack of materials, and the limitations of the strategies used in education. In light of the findings, it is important to improve early literacy skills; among these strategies, interactive book reading, play-based activities, strengthening family involvement, and interventions that support phonological awareness are presented as examples.

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Keywords: Early literacy, special education, special needs, preschool, educational strategies

INTRODUCTION

Literacy teaching in the first grade assumes that children have essential reading and writing skills (Ergül et al., 2014). Findings from studies show that children who start school without having many skills included in early literacy exhibit low reading achievement when there is no intervention in the reading performances of students in the preschool period and the first years of primary school (Cunningham & Stanovich, 1997; Kargin et al., 2015). Early literacy skills enable preschool children to easily transition to literacy in primary education (Ergül et al., 2016). Early literacy skills preschool children are expected to acquire include the prerequisite knowledge, skills, and attitudes required for formal literacy (Lonigan & Shanahan, 2009; Sulzby & Teale, 1991).

Early literacy skills are generally classified as letter knowledge, vocabulary knowledge, phonological awareness, print awareness, and oral language (Aarnoutse et al., 2005; Lonigan & Shanahan, 2009; Rvachew & Savage, 2006; Scarborough, 1998; Spira et al., 2005). As one of these skills, vocabulary knowledge predicts reading success in later periods. Children's various reading experiences allow them to develop different vocabulary capacities (Badian, 1995; Cunningham & Stanovich, 1997). Children with a more extensive vocabulary show higher vocabulary learning performance than children with more limited vocabulary knowledge (Robbins & Ehri, 1994). Vocabulary knowledge contributes to reading comprehension by covering grammatical processes such as morphological awareness (written and spoken language rules) and syntactic knowledge (sentence construction rules) (Gottardo et al., 2018). Phonological awareness is the auditory perception and analysis skills such as recognizing, dividing, and changing words, syllables, and phonemes other than the meaning intended to be given in spoken language (Lonigan & Shanahan, 2009). Phonological awareness skills include recognizing rhymes in words, producing rhymes, and recognizing, separating, counting, adding, and subtracting syllables (Yopp, H. K., & Yopp, 2000). It is stated that phonological awareness predicts school-age reading performance on the way to reading (Johnston et al., 1996). Before receiving writing education at school, recognizing and using letters, numbers, and letter-like symbols instead of scribbles that make sense only in their world constitutes print awareness (Whitehurst & Lonigan, 1998). Children are expected to gain awareness about the shape and appearance of books and the order of the writing they contain (writing direction, line heads, etc.) and the ability to hold and use written materials appropriately at the print awareness stage (Justice & Ezell, 2004; Lesiak, 1997). Oral language, one of the important predictors of reading skills, should be supported by vocabulary, expressive language, and listening comprehension from early periods (Isreal, 2008). Listening comprehension, as one of the oral language skills, supports reading comprehension, like phonological awareness skills, by covering grammatical processes such as gaining new words and providing morphological awareness and syntactic knowledge (Gottardo et al., 2018).

Early Literacy Skills for Children with Special Needs

Research on early literacy skills in Türkiye has attracted attention in the recent past. It is stated that research on the early literacy skills of children with special needs has increased since 2016 and focuses primarily on

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children with hearing impairment (Yıkılmış & Özbey Gökçe, 2024). This situation shows that awareness of the early literacy skills of children with special needs is gradually increasing.

Children with special needs may have more difficulty learning literacy skills than their typically developing peers due to their learning characteristics. Developmental disabilities can affect children's cognitive and motor skills, making literacy processes challenge (Allor et al., 2020). For example, children with attention deficit hyperactivity disorder (ADHD) may experience problems such as the inability to sustain attention and low speed of processing information (DuPaul & Stoner, 2014). Children with autism spectrum disorder (ASD) may face obstacles in the acquisition of literacy skills due to difficulties in social communication and repetitive behaviors (Estes et al., 2011). Children with learning disabilities may experience significant difficulties in various components of literacy skills. These children need more support and intervention in acquiring reading skills, mainly due to specific learning difficulties such as dyslexia (Hebert et al., 2018). Children with speech and language disorders may have difficulty acquiring reading and writing skills due to delays in verbal language development (Anthony et al., 2011). In addition to cognitive processes, children may struggle to learn to read and write due to different sensory limitations. Children with hearing impairment may experience difficulties in literacy skills that require phonological awareness. Hearing loss can negatively affect phonological awareness development, making it challenging to acquire reading and writing skills (Lederberg et al., 2013). Children with visual impairment may encounter obstacles in reading and writing activities based on visual materials. For these children, using tactile and auditory materials plays an important role in developing literacy skills (Erickson et al., 2007).

While the challenges in acquiring early literacy skills are extensively discussed in the literature, their significance for individuals with special needs has not been sufficiently emphasized. However, fostering these skills from an early age is crucial for improving the academic achievement and overall well-being of all children, including those with special needs. In this context, examining the current situation and identifying the difficulties children with special needs face in early literacy skills is important for developing effective intervention programs. In addition, children with special needs have unique difficulties in learning processes due to their developmental characteristics and individual differences. Therefore, supporting early literacy skills is essential, as the literature states that they form a critical foundation for lifelong academic success and social adaptation. However, the studies conducted in this field in Türkiye mainly focus on children with typical development, and the needs of children with special needs are not sufficiently addressed. For this reason, it is thought that it is important to systematically examine the existing literature on supporting the early literacy skills of children with special needs, to identify gaps, to diversify research on children with special needs, and to develop effective strategies.

This study aims to examine the current situation regarding the development of early literacy skills in the field of special education in Türkiye, to identify the difficulties encountered by synthesizing current research findings, and to propose practical and applicable intervention strategies for the development of early literacy skills of children with special needs. In addition, the study aims to guide future related research. Within the scope of this purpose, answers to some research questions were sought:

1. What are the general profiles of the studies examining the early literacy skills of children with special needs in Türkiye in terms of distribution by years, methods used, participant groups, and skills examined?
2. What are the common themes among the findings obtained from studies focusing on the early literacy skills of children with special needs?
3. What are the main challenges in early literacy skills in special needs groups?
4. What are the strategies and intervention methods used to support the early literacy skills of children with special needs?
5. What studies and arrangements can be made to improve early literacy skills in special education?

METHOD

Research Design

The traditional review method was used in the study. The reviewed studies were obtained by searching academic databases and platforms including Google Scholar, ERIC, ScienceDirect, DergiPark, and Council of Higher Education National Thesis Centre databases with the keywords 'early literacy, special education, special needs, developmental disability, intellectual disability, visual impairment, autism spectrum disorder, hearing impairment, learning disability, language/speech disorder, Down syndrome, severe and multiple disabilities, special ability.' Keywords were determined by considering the terms frequently used in the literature and concepts specific to this field. The data collection process was carried out between 2023 and 2024, and the timeliness of the studies scanned in this process was carefully evaluated to cover the latest findings in the relevant research field.

Inclusion and Exclusion Criteria

The study focussed on early literacy skills and included studies that did not directly mention this term but addressed sub-skills. Studies on general education that did not address early literacy skills were excluded. Studies written in Turkish and English and conducted in the Turkish context were evaluated. However, studies conducted only in the international context and did not focus on the Turkish special education system were excluded.

This review examined studies focusing on the early literacy skills of preschool children in Türkiye, and the studies published between 2014 and 2024 were analyzed. The rationale for limiting the selection of studies according to the age ranges and disability types of the participant groups is that the preschool period has critical importance in developing early literacy skills, which the research focuses on. Since this age group is the period when the foundations of literacy skills are laid, the study's findings would contribute more directly to developing effective intervention strategies. In addition, the limitation according to the types of disability was made to allow a more in-depth analysis of the specific needs of different groups. These limitations aimed to increase the applicability of the findings in a specific context.

Articles published in peer-reviewed academic journals and master's and doctoral theses were evaluated, while papers and other publications were not included in the research. Within the scope of the research, total of 55 studies were reached, but only 36 studies were evaluated in line with the determined research criteria. The studies included in the analysis comprised 15 studies on hearing impairment and speech disorder, one on Down syndrome, two on visual impairment, two on learning disabilities, five on autism spectrum disorder, five on developmental disabilities, one on severe and multiple disabilities, two on giftedness, and three on intellectual disabilities.

Analysis

The analysis method used in the research focused on the thematic analysis of the studies included in the review. The thematic analysis involves dividing data into meaningful themes and systematically examining these themes (Nowell et al., 2017). The findings of the articles included in the study were analyzed in detail by content analysis method using the NVivo 14 program.

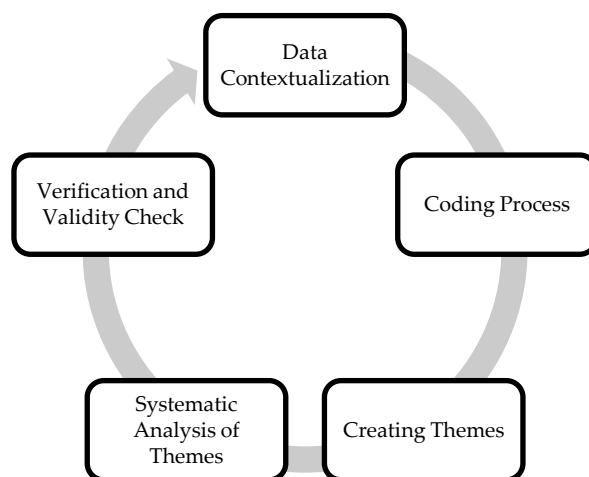


Figure 1. Thematic Analysis Process

The following steps were followed in the thematic analysis process:

- **Data Contextualization:** The primary texts of the studies were uploaded to NVivo 14 and organized appropriately for analysis. Primary texts from the studies were carefully prepared for analysis, including articles and theses. Each document was digitized and standardized in a format suitable for analysis. Relevant sections (e.g., abstract, methods, findings, discussion) were marked and labeled for targeted coding. In the first stage, a preliminary reading was conducted to gain a holistic understanding of the data and to identify preliminary patterns.
- **Coding Process:** The main findings of each study were determined, and similar findings were grouped and coded. By analyzing the studies line by line, the main findings related to the early literacy skills of children with special needs were extracted. The findings were divided into smaller units of meaning and coded systematically. Codes represented key elements, for example, 'phonological awareness difficulties/ challenges' 'interactive reading practices,' or 'the role of parental involvement.' A codebook was created to ensure coding consistency. The codebook included the definition and examples of each code and was constantly updated in light of new findings during the coding process.
- **Creating Themes:** The coded data were classified according to their content, and themes were created by grouping them under similar codes. The codes were grouped according to their similarities and underlying patterns. For example, codes related to 'phonological development' and 'difficulties in language acquisition' were combined under the theme 'Phonological Awareness and Challenges in Language Development.' Themes were reviewed for clarity, overlap, and completeness. Duplicate or overly broad themes were merged or redefined.
- **Systematic Analysis of Themes:** The generated themes were synthesized by inductive inferences in line with the study's objectives, and these themes were interpreted under headings. The themes were analyzed in line with the study's aims, and general trends and gaps in the literature were identified. The themes were synthesized with an inductive approach, and a comprehensive understanding of the development of early literacy skills was presented.
- **Verification and Validity Check:** The accuracy of the analyses made during the coding and theme-generation processes was ensured through systematic checks and thorough reviews. The coding process and the generated themes were repeatedly evaluated to maintain consistency and coherence. To increase the reliability of the findings, the coding and theme-generation processes were reviewed by an independent researcher. In case of discrepancies between coders, a consensus was reached through discussion.

FINDINGS

In this section, the findings obtained from the analyses conducted to answer the research questions are presented in detail under each question heading. The data within the scope of the research were analyzed using the thematic analysis method and categorized in a way that supported the primary purpose of the research.

1) *What are the general profiles of the studies examining the early literacy skills of children with special needs in Türkiye in terms of distribution by years, methods used, participant groups, and skills examined?*

Table 1. General Profile Of Studies Examining Early Literacy Skills Of Children With Special Needs

Disability Group	Research Code	Method	Participants	Skills	Year
Hearing Impairment/ Speech Sound Disorders	HI1	Case Study	Teachers	Early Literacy	2024
Hearing Impairment/ Speech Sound Disorders	HI2	Qualitative Research	Teachers	Early Literacy	2024
Hearing Impairment/ Speech Sound Disorders	HI3	Comparative Descriptive	Children With Hearing Impairment and Typically Developing Children	Early Literacy	2024
Hearing Impairment/ Speech Sound Disorders	HI4	Comparative Descriptive	Children With Hearing Impairment and Typically Developing Children	Phonological Awareness	2024
Hearing Impairment/ Speech Sound Disorders	HI5	Action Research	Teachers	Early Literacy	2023
Hearing Impairment /Speech Sound Disorders	HI6	Comparative Descriptive	Children With Hearing Impairment and Typically Developing Children	Phonological Awareness and Working Memory	2023
Hearing Impairment/ Speech Sound Disorders	HI7	Comparative Descriptive	Parents with and without children with speech and language disorders	Interactive Book Reading	2023

Disability Group	Research Code	Method	Participants	Skills	Year
Hearing Impairment/ Speech Sound Disorders	HI8	Comparative Descriptive	Children with Speech Sound Disorders and Typically Developing Children	Phonological Awareness and Home Literacy Environment	2023
Hearing Impairment/ Speech Sound Disorders	HI9	Comparative Descriptive	Children with Hearing Impairment and Typically Developing Children	Early Literacy	2022
Hearing Impairment/ Speech Sound Disorders	HI10	Causal Comparison	Children with Hearing Impairment and Typically Developing Children	Early Literacy	2019
Hearing Impairment/ Speech Sound Disorders	HI11	Comparative Descriptive	Children with Hearing Impairment and Typically Developing Children	Early Literacy	2019
Hearing Impairment/ Speech Sound Disorders	HI12	Action Research	Children with Hearing Impairment	Early Literacy	2018
Hearing Impairment/ Speech Sound Disorders	HI13	Comparative Descriptive	Children with Speech Sound Disorders and Typically Developing Children	Early Literacy	2018
Hearing Impairment/ Speech Sound Disorders	HI14	Case Study	Children with Hearing Impairment	Early Literacy	2018
Hearing Impairment/ Speech Sound Disorders	HI15	Case Study	Children with Hearing Impairment	Early Literacy	2014
Visual Impairment	VI1	Comparative Descriptive	Children with Visual Impairment and Typically Developing Children	Phonological Awareness and Listening Comprehension	2024
Visual Impairment	VI2	Experimental	Children with Visual Impairment and Parents	Early Literacy and Interactive Book Reading	2024

Disability Group	Research Code	Method	Participants	Skills	Year
Severe and Multiple Disabilities	SMD1	Single Subject Experimental Design	Children with Visual Impairment and Asd	Listening Comprehension	2018
Giftedness	G1	Comparative Descriptive	Gifted and Typically Developing Children	Early Literacy	2022
Giftedness	G2	Case Study	Gifted Children	Early Literacy	2018
Down Syndrome	DS1	Comparative Descriptive	Children with Down Syndrome and Typically Developing Children	Phonological Awareness Skills	2019
Learning Disabilities	LD1	Relational Screening	Children at Risk of Learning Disabilities	Early Literacy and Executive Function Skills	2023
Learning Disabilities	LD2	Experimental	Children at Risk of Learning Disabilities	Early Literacy, Working Memory, and Rapid Naming	2023
Autism Spectrum Disorder	ASD1	Single Subject Experimental Design	Children With ASD	Interactive Book Reading and Vocabulary	2023
Autism Spectrum Disorder	ASD2	Comparative Descriptive	Children with ASD and Typically Developing Children	Early Literacy and Home Literacy Environment	2023
Autism Spectrum Disorder	ASD3	Relational Screening	Children with ASD	Verbal Language Performance and Phonological Level	2022
Autism Spectrum Disorder	ASD4	Comparative Descriptive	Parents	Shared Book Reading Skills	2021
Autism Spectrum Disorder	ASD5	Comparative Descriptive	Parents	Home Literacy Environment	2021
Intellectual Disabilities	ID1	Comparative Descriptive	Children with Intellectual Disabilities	Interactive Book Reading	2018
Intellectual Disabilities	ID2	Single Subject Experimental Design	Children with Intellectual Disabilities	Print Awareness Skills	2018
Intellectual Disabilities	ID3	Comparative Descriptive Screening	Parents	Early Literacy	2014

Disability Group	Research Code	Method	Participants	Skills	Year
Developmental Disabilities	DD1	Relational Screening	Parents	Parenting Behaviors, Home Literacy Environment	2023
Developmental Disabilities	DD2	Phenomenological Research	Teachers	Interactive Book Reading	2023
Developmental Disabilities	DD3	Causal Descriptive	Teachers	Early Literacy	2022
Developmental Disabilities	DD4	Experimental	Children with Developmental Disabilities and Parents	Early Literacy	2022
Developmental Disabilities	DD5	Comparative Descriptive	Parents	Beliefs About Early Literacy and Home Literacy Environment	2020

Table 1, provides a comprehensive overview of research conducted across various disability groups, predominantly focusing on early literacy and related skills. Among these groups, hearing and speech impairments are the most extensively studied, with comparative descriptive screening and case studies frequently employed to explore areas like early literacy, phonological awareness, and interactive book reading. In contrast, research on groups with severe and multiple disabilities remains limited, often utilizing single-subject experimental designs. While an increase in studies focusing on developmental disabilities, ASD, and learning disabilities has been observed in recent years (2022-2024), it is important to interpret this trend cautiously, as it may reflect publication trends or research accessibility rather than a direct association with specific disability types. The methodologies primarily rely on comparative analyses to identify differences between children with special needs and their typically developing peers.

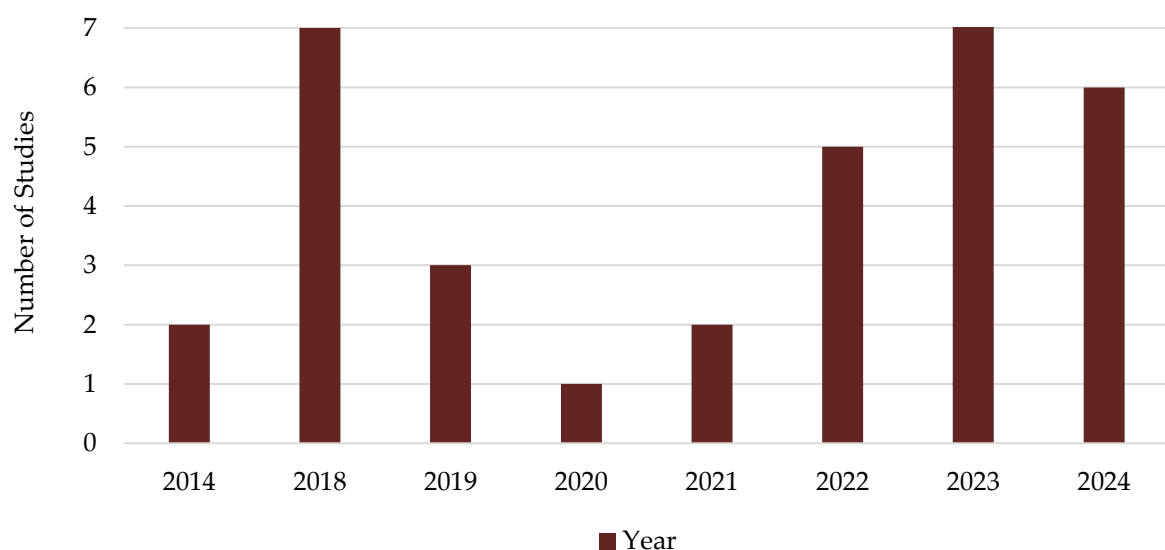


Figure 2. Number of Studies According to Year

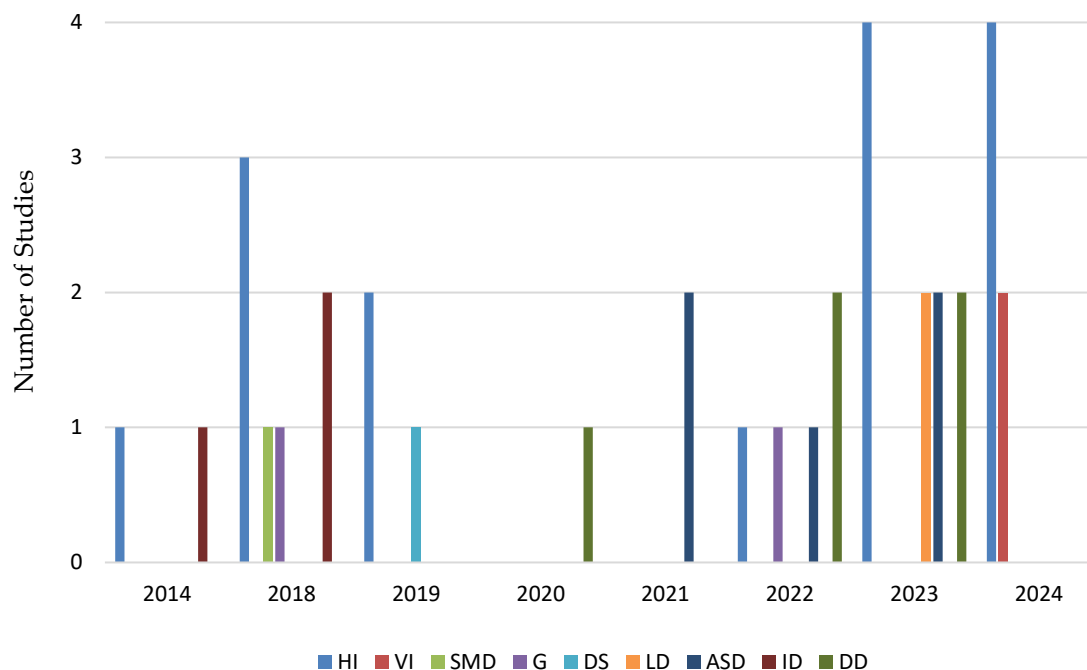


Figure 3. Special Needs Groups According to Year

2) *What are the common themes among the findings obtained from studies focusing on the early literacy skills of children with special needs?*

The findings obtained from research on the early literacy skills of children with special needs in Türkiye are organized around specific common themes. These themes emphasize the lack of education programs appropriate to children's individual development, the importance of family and teacher support, phonological awareness and language development difficulties, and the positive effects of sensory learning and interactive practices. According to the findings of the studies, children with special needs have more difficulties in early literacy skills than their peers, and individualized education and early intervention play a critical role in this process (Erfidan, 2022; Akin, 2022; Gülhan & Burak, 2023).

Individualized education and early intervention are one of the main themes frequently emphasized in research on the literacy development of children with special needs in Türkiye (Öztürk & Eratay, 2010). When the cognitive, linguistic, and social development of children with special needs is not structured considering individual differences, these children risk falling behind in reading and writing skills compared to their peers. For example, it should be taken into consideration that children with special needs such as learning disabilities, autism spectrum disorder, or intellectual disability have different learning styles and speeds than children with typical development. Individualized education plan (IEP) and early intervention programs tailored to the needs of these children are of great importance in ensuring that they progress in language development and literacy skills (Akin, 2022; Demir & Doğanay Bilgi, 2018).

Family and school support are another theme. Research in Türkiye shows that the active involvement of families and teachers in this process is important in increasing children's academic achievement. However, the same research also emphasizes that in many cases, this involvement is insufficient, and children are deprived of the support they need (Çopur & Tezel Şahin, 2022). Family support is the first step in developing children's literacy skills. Parents can provide their children with literacy experiences through activities such as reading books, telling stories, and writing at home. Through such activities, children develop an awareness of reading and writing, expand their vocabulary, and improve their language skills (Deitcher et al., 2024). The findings in Türkiye reveal that families, especially those from low socio-economic levels, struggle to provide

their children with adequate reading materials and create a literacy environment. In addition, parents' low level of education may cause them to be unable to transfer their reading habits to their children. This situation negatively affects children's language and literacy development and causes them to fall behind in education (Harmandar Ergül & Arıkan, 2024; Hiğde vd., 2020).

Phonological awareness and language development also stand out as important themes. Children with special needs lag behind their typically developing peers, especially in phonological awareness and language skills (İslamoğlu Külte, 2019; Öcü, 2024). Therefore, additional programs are needed to support these children's language and literacy skills. These children may underperform compared to their typically developing peers, especially in phonological awareness and language development. Phonological awareness is a critical skill for children to succeed in literacy. This skill helps children associate letters with sounds and understand written language. However, children with special needs may have difficulty acquiring these skills, leading to delays in developing literacy skills (Aslan & Acarlar, 2022; İşitan Kılıç, 2024).

Sensory and interaction-based learning is a practical approach to developing children's early literacy skills. Sensory experiences and interactive book reading significantly improve children's language and literacy skills. Sensory and interaction-based learning is one approach that strongly impacts children's early literacy skills development (Ruhaena & Moordiningsih, 2019). Sensory learning is a method that enables children to acquire information using their different senses, and it plays a critical role in the development of reading and writing skills (Zhang et al., 2020). Research shows that sensory learning processes increase the retention of information and enable children to remember what they have learned better. Sensory stimulation (visual, auditory, tactile, etc.) helps children make abstract skills such as reading and writing more concrete (Jasmine & Connolly, 2015). For example, using sensory materials such as tactile letters or audiobooks allows children to grasp the sounds of letters better and associate these sounds with letters (Bautista, 2023; Cullen & Metatla, 2020). These methods are particularly effective for children with vision or hearing loss.

3) *What are the main challenges in early literacy skills in special needs groups?*

Research question three identifies the primary challenges in early literacy skills among special needs groups. The studies included in the analysis revealed that a more significant number of research efforts have been directed toward groups such as intellectual disabilities, visual impairments, autism spectrum disorder (ASD), hearing impairments, learning disabilities, speech and language disorders, and Down syndrome. However, there is a notable lack of studies focusing on groups such as severe and multiple disabilities or giftedness. This discrepancy could be attributed to the limited research conducted in these areas or the existing studies not specifically addressing early literacy skills. Consequently, the response to the research question prioritizes more frequently studied groups, reflecting the availability of data and insights in these domains.

Early literacy challenges in hearing impairment: Hearing impairment, which occurs at birth or in the pre-linguistic period, can negatively affect the child's language development and cause various delays in their social, cognitive, literacy, and emotional development compared to their typically developing peers (Akmese et al., 2024). When the studies are examined, it is seen that children with hearing impairment have various problems in displaying early literacy skills. Children with hearing impairment have difficulty understanding the story due to their weak listening skills and need a picture explaining the events to understand them. In addition, since they have difficulty initiating the narration, they tend to repeat the words, sentences, or expressions in the text instead of telling the text they listen to (Gerek et al., 2018).

It has been observed that children with hearing impairments perform significantly lower than their hearing peers in terms of verbal and visual working memory. In addition, it has been observed that speech sound disorders in these children hurt phonological awareness compared to typically developing children. This situation may be due to insufficient experience in language and inadequate phonological representations (Bal, 2023). Children with mild and moderate hearing loss are at risk of starting school with inadequate phonological processing skills, which affects their readiness to read (Park & Lombardino, 2012). To effectively support the early literacy skills of children with hearing loss, it is recommended to ensure appropriate amplification, activate early diagnosis and intervention processes, and enhance the quality of hearing education programs (Erfidan, 2022).

According to a study (Köse et al., 2024), although the materials used by teachers support children's early literacy skills in various ways, it has been determined that the materials used are limited in terms of type, variety, and richness. The scarcity of materials suitable for children with hearing impairments can make providing the individualized support necessary for developing early literacy skills challenging. In another study conducted with teachers (Bağcı et al., 2024), it was observed that teachers generally considered early literacy only as preparation for primary school and used different methods and materials in a limited way other than reading interactive books. In addition, it was determined that inadequate family participation, material and technology deficiencies, and various problems related to device use were among the main challenges faced by teachers. It is also seen that teachers working with children with hearing impairment in institutions where support education services are provided in Türkiye have limited knowledge about early literacy development. These limitations also emerge in planning the lesson, determining the goals, implementing and evaluating the activities, and adapting the materials (Atlar & Uzuner, 2023; Köse et al., 2024). The lack of knowledge of parents with hearing impairments about early literacy can create limitations in supporting children in the home environment.

Early literacy challenges in visual impairment: Visual perception is critical for early literacy, and it should be noted that early literacy skills can be affected in various ways in the presence of visual impairment (VI) (Koenig & Farrenkopf, 1997). The development of early literacy skills may depend on a strong visual perception, as it involves activities that require visual processing, such as recognizing letters and words, sounding out, and writing (Koenig & Holbrook, 2000). Therefore, children with VI who will use printed text in particular may have challenges performing such activities, which may slow down the learning process of reading and writing (Ferrell, 2011). In the early periods when reading skills are rapidly developing, children with VI are at higher risk of showing poor reading performance than their sighted peers (Fellenius, 1999).

Children with severe VI may miss out on reading opportunities that occur accidentally in the home environment because they cannot model and imitate adults by observing them. While sighted children are exposed to written materials such as newspapers and books that their families have, children with LI may have challenges developing literacy awareness in the preschool period because this is limited (Fellenius, 1999).

Each child's early literacy experiences in the home environment may differ depending on factors such as the sociocultural environment, the child's needs, and the family's literacy knowledge (Gengeç et al., 2021). Therefore, acquiring these experiences, children with LI may differ from typical children and may need exceptional support (Koenig & Farrenkopf, 1997). While typical children develop literacy skills by interacting with written materials without needing constant guidance from an adult, children with LI have challenges gaining such experiences independently (Koenig, 1992). Since direct interaction with the environment is not achieved, incidental learning limitations in children with GI can affect children's language development and cause the subcomponents of literacy skills related to language development to be acquired incompletely or delayed (Kamei-Hannan & Ricci, 2015, p. 30). This limitation may arise from the risk of delayed verbal language development. Inadequate stimuli and the inability to establish eye contact through nonverbal communication methods such as gestures and facial expressions make this situation even more challenging (Preisler, 1995; Rogers & Puchalski, 1984). Typical children frequently encounter incidental learning opportunities outside the context of instruction through environmental written materials such as writings on walls, labels on food packages, and road signs, and these materials contribute to their continuous learning of new information. Since children with limited vision are excluded from these opportunities, they have less experience with written materials and cannot benefit sufficiently from incidental learning opportunities (Bosman et al., 2006). In this context it is important to develop material and environmental adaptations by taking into account the differences in children's visual characteristics (Işıtan-Kılıç & Aykut, 2024).

Early literacy challenges in ASD: The language profiles of children with ASD vary significantly, and many of these children experience delays in language acquisition (Wodka et al., 2013). Therefore, this heterogeneity in the language development of children with ASD significantly differentiates their early literacy performance (Kılıç-Tülü et al., 2023). Research findings on whether the phonological development challenges experienced by children with ASD are a common area of challenges do not indicate certainty. It is emphasized in the literature that further research on this topic is needed (Aslan & Acarlar, 2022). These challenges may be associated with problems in language and phonological development, insufficient environmental stimuli, and the limitations families face in participating in reading activities.

The study conducted by Aslan and Acarlar (2022) revealed that the verbal language performance of children with ASD is distributed across a broad spectrum. In evaluations conducted using TEDIL, it was found that many children had abysmal language performance, while some performed better than their peers. Additionally, while diversity was observed in the phonological skills of children with ASD, it was noted that many of them exhibited phonological difficulties. Other studies have reported similar results (Wu et al., 2019; Wolk & Brennan, 2013).

It has been observed that the early literacy environments of children with ASD are more limited compared to typically developing children. Research indicates that children with ASD show less interest in books, exhibit more negative behaviors, and spend more time disengaged from books (Fleury & Hugh, 2018). Furthermore, it has been determined that mothers of children with ASD and intellectual disabilities use limited interaction and language-support strategies during shared book reading (Çelik Şahin & Özmen, 2021). This suggests that children with ASD may be disadvantaged regarding environmental stimuli and literacy experiences (Yıldırım, 2021).

Studies on the early literacy skills of children with Autism Spectrum Disorder (ASD) demonstrate that these children generally exhibit different profiles in language and literacy compared to their typically developing (TD) peers. Research has revealed that children with ASD perform well in certain areas, such as letter knowledge, while showing lower performance in areas like phonological awareness, vocabulary, and print-concept knowledge (Kaya Döşlü & Aydın, 2020; Kılıç-Tülü et al., 2023; Dynia et al., 2014). Additionally, the academic development of children with ASD is often limited due to communication problems and behavioral challenges, which teachers frequently encounter (Uyanık & Sarı, 2021). However, academic studies on ASD have increased in recent years, particularly in 2018 and 2019, emphasizing the necessity of further research addressing the needs of these children (Kökmen & Vural, 2023).

Early literacy challenges in intellectual disabilities: Cognitive processes intertwine with literacy skills; without adequate cognitive skills, children struggle to acquire and reinforce literacy. Children with high cognitive skills generally exhibit strong literacy skills, while those with lower cognitive skills show weaker ones (Blair & Razza, 2007). For individuals with intellectual disabilities (ID), academic expectations are often limited to goals such as familiarity with the alphabet, simple counting, and reading a few essential words by sight. Limited opportunities for parents to engage with literate individuals with ID reinforce these low expectations. This may lead parents to view literacy as an unrealistic goal and not give sufficient importance to their children's reading and writing activities (Light & McNaughton, 1993). Consequently, when children with ID start school, they encounter limited exposure to literacy materials, making it challenging to learn to read and write (Erickson et al., 2009).

Children with intellectual disabilities often experience delays in language development. This manifests in their limited vocabulary, challenges forming sentences, and challenges establishing meaningful communication. These deficiencies in language development negatively impact their literacy skills (Abbeduto & Thurman, 2022). Intellectual disability can lead to limited attention span and memory capacity in these children. This creates difficulties in learning and recalling new information, posing challenges to developing literacy skills (Poloczek et al., 2014). Children with ID lag significantly behind typically developing children in early literacy skills. Low levels of vocabulary knowledge hinder children with ID from adequately benefiting from critical language skills such as phonological awareness. These children tend to rely on visual recognition strategies instead of word decoding, limiting early literacy development (van Tilborg et al., 2014).

Early literacy challenges in Down Syndrome: The language development of children with Down syndrome, particularly in terms of early literacy skills, includes significant delays compared to typically developing children. These children often produce their first words later and struggle to expand their vocabulary (Abbeduto et al., 2007). These delays are primarily associated with delays in overall cognitive development. Studies on early literacy development reveal that cognitive functions, attention skills, and verbal interactions are critical for language development (Colozzo et al., 2016; Filipe et al., 2022).

Children with Down syndrome have lower phonological awareness and phonemic sensitivity than their typically developing peers. Research highlights that individuals with Down syndrome require more support in literacy development (Külte, 2019). Speech production, hearing difficulties, and verbal memory issues in children with Down syndrome can negatively affect their early literacy skills. Despite considerable individual

differences, most individuals with Down syndrome experience significant expressive language delays and challenges in speech production, hearing, and verbal memory, which can hinder literacy development (Colozzo et al., 2016). Studies show that individuals with Down syndrome need more exposure to words to learn their meanings than typically developing children (Miolo et al., 2005).

Early literacy challenges in learning disabilities: As the risk of learning disabilities increases during the preschool period, children experience more significant difficulties in early literacy and executive function skills. This indicates a strong relationship between the risk of learning disabilities and these skills (Gülhan & Burak, 2023). This relationship highlights the importance of early intervention and support programs for children at risk of learning disabilities during the preschool period. Strategies aimed at improving early literacy and executive function skills should be implemented consciously by teachers and parents, particularly for children at risk. In terms of executive functions, deficiencies in task tracking, sustained attention, flexible thinking, and self-regulation in these children can negatively impact their academic and social development, increasing the need for additional support in advanced educational processes (Blair & Razza, 2007).

Early literacy skills refer to children's preparation for the reading and writing process, and learning disabilities can adversely affect the development of these skills. Children with learning disabilities may struggle with phonological awareness, letter knowledge, vocabulary, and narrative skills. Auditory memory problems can limit these children's ability to distinguish sounds, learn letter sounds, and correctly pronounce words (Bates-Brantley, 2023). Visual memory challenges can cause challenges in recognizing letters and words, negatively affecting the ability to recognize and understand letters and words during the reading process (Samuelsson et al., 2023). Learning which sounds correspond to which letters and using this relationship fluently can be a significant challenge for children with learning disabilities. Limited phonological awareness particularly hinders the acquisition of this skill. Translating letters into writing and reading words may require a more protracted process for children with learning disabilities (Snowling & Hulme, 2012; Torgesen, 2004). Deficiencies in language skills may limit a child's ability to tell stories, expand their vocabulary, and understand sentence structure (Jiménez et al., 2024). Motor coordination difficulties can affect writing skills; for example, problems may arise in correctly holding a pencil and writing letters (Sukma et al., 2019). Additionally, difficulties in the reading and writing skills of parents and the home environment can also impact children's literacy development (Salminen et al., 2021).

4) What strategies and intervention methods are used to support the early literacy skills of children with special needs?

When examining the studies included in the research, it is observed that shared/interactive reading activities (e.g., asking questions about the story and conducting activities aimed at improving narrative skills following the reading activity) (Akmeşe et al., 2023; Bağcı et al., 2024; Gerek et al., 2018), teacher training and workshop sessions (e.g., shared reading techniques, in-class applications, and strategies to improve children's language skills), group-based activities preparing children for reading and writing (e.g., various games and reading activities designed to improve group-based language skills) (Atlar & Uzuner, 2023), and multi-sensory stories (Şafak et al., 2018) have been utilized as intervention methods, particularly in studies involving hearing impairments.

Additionally, although not included within the scope of this research, some studies conducted in Türkiye (Erdoğan & Celep, 2019; Akoğlu & Turan, 2012) have employed phonological awareness training intervention approaches to enhance phonological awareness and reading skills to support the early literacy skills of children with special needs. It has been observed that research and interventions tend to focus on small sample groups due to the individualised nature of interventions for special needs groups. Although the generalisability of the findings to a wider population is limited, the studies that have been conducted are valuable.

5) What studies and arrangements can be made to develop early literacy skills in the field of special education?

Considering the developmental characteristics of children with special needs, early literacy in the preschool period can be regarded as an important tool to support the developmental areas these children lack (Laçın, 2019). In this context, while research on early literacy skills in Türkiye has recently begun to attract attention, there has been an increase in studies conducted with children with special needs; however, it is noteworthy that the number of intervention studies is limited (Atlar & Uzuner, 2018; Gerek et al., 2018; Akın, 2022; Işıtan

Kılıç, 2024). Therefore, it is essential to examine how early literacy interventions can contribute to the academic and language development of children with special needs. Based on the findings of the reviewed studies, three key areas of focus emerge: family engagement and supportive programs, teacher training and professional development, and enrichment of activities and materials.

Family engagement and supportive programs: The family is the basic structure of the child's earliest and most effective learning environment (Lamb, 2011). The concept of the natural learning environment is based on the idea that a child's daily life routines, social interactions, and domestic experiences are an important part of learning. Since the family environment is the safest and most familiar place for children, the learning experiences gained there tend to be more lasting and effective (Cuartas, 2022).

Research shows that parents need more information and guidance about reading to their children and supporting their language development (Karaahmetoğlu & Turan, 2020; Laçın & Doğan-Laçın, 2023). Parents' lack of knowledge in this process may lead to their inability to support their children's language development fully. Family education programs can come into play to overcome these deficiencies. These programs guide how families can effectively read books with their children and support their language development (Çelik Şahin & Özmen, 2021). Interactive reading strategies enable children to interact with books more meaningfully and in-depth. Such educational programs that guide families can help children develop their language and communication skills by encouraging active storytelling participation. Moreover, children's experiences during storytelling can help them expand their vocabulary and better understand the structure of language (İşitan Kılıç, 2024).

Teacher training and professional development: The acquisition of early literacy skills by children with special needs and children at risk in the preschool period is of great importance in minimizing the reading challenges they may encounter. Identifying these children at an early stage and including them in appropriate intervention programs will be effective in reducing performance differences. This process's effectiveness depends on increasing teachers' knowledge level and improving the quality of their classroom practices (Laçın, 2019).

It is seen that teachers working with children with special needs in early childhood generally do not have sufficient knowledge about early literacy. This situation shows that teachers are not sufficiently prepared to provide effective early literacy education and that these skills are not emphasized enough in education programs (Laçın & Güldenoğlu, 2022). Teachers are aware of the importance of early literacy but lack knowledge about what can be done to create a rich learning environment. They emphasize the necessity of practical in-service training, especially in supporting children's language and communication skills in early childhood (Piştav Akmeşe et al., 2023).

Enrichment of activities: Some teachers and parents report that the quality of the early literacy environment in inclusive early childhood special education programs is low to moderate. This suggests that the literacy environment may not be sufficient to promote children's literacy learning. Suggestions such as expanding the types of books available to children in schools, enriching the classroom regarding written resources, and increasing the instructional support teachers provide to students are noteworthy (Guo et al., 2013).

Enriching reading and writing activities in the classroom plays an important role in developing early literacy skills. Especially for children with severe and multiple disabilities, multisensory learning approaches can enrich the learning experience. These methods use a combination of senses, such as touch, hearing, and sight, enabling children to participate actively in the learning process (Şafak et al., 2018). Appropriate adaptations for audio-visual materials can be made for children with vision or hearing loss to make them accessible (Bağcı et al., 2024). Storytelling and dramatization methods can be used to support language development and vocabulary and attract children's interest. Phonological awareness activities that enable children to understand language structure by playing with sounds, syllables, and words can often be used (Karasu, 2014). Today's technology offers great opportunities to develop early literacy skills for children with special needs. Audiobooks, Braille displays, or large print materials can be used for children with visual impairments, and digital books with sign language support for children with hearing impairments.

RESULT and DISCUSSION

In this study, studies on early literacy skills in the field of special education in Türkiye were examined and aimed to synthesize current knowledge. The findings of the current study are supported by Alahmari et al. (2025), who identified key barriers to early literacy development in inclusive early childhood special education settings, such as insufficient teacher training, limited instructional materials, and minimal parental involvement. Within the scope of inclusive education, in the process of supporting early literacy skills, equal opportunities should be provided by considering each child's individual learning needs. For all children to successfully transition to primary school, supporting the priority skills they need to acquire in the preschool period is of great importance. In this process, teachers are expected to contribute to children's adaptation processes by providing the necessary support to families. Considering that children with special needs are slower in learning literacy skills and have difficulty in mentally processing stimuli, it is critical to provide literacy-related stimuli in both home environments and preschool education (Laçın & Doğan-Laçın, 2023).

The study's findings largely overlap with Çakıcı et al.'s (2022) systematic review study, primarily conducted with children with typical development. Especially in preschool settings, the lack of materials and materials draws attention as an important limitation in early literacy development. It has been observed that these deficiencies pose a more critical challenge for children with special needs. Therefore, it is thought that taking concrete steps to overcome these challenges can increase the positive effects on children's literacy development.

It has been determined that early literacy studies for children with special needs in Türkiye have diversified in recent years, and intervention methods have been used more. Strategies such as shared reading, phonological awareness training, and multisensory story use are effective methods to support mechanical literacy skills such as letter-sound relationship and phonological awareness, defined as inside-out skills (Whitehurst & Lonigan, 1998). As in Altun and Sari's (2018) study, it was stated that early literacy research in Türkiye mainly focuses on outside-in skills, that is, comprehension-based areas such as story comprehension, language skills, and vocabulary. However, research remains limited on foundational internal and external components of early literacy, such as phonological awareness, letter-sound relationships, handwriting, and print awareness. Similar to this study, early literacy research in special education has primarily focused on external-internal skills. This suggests that a more balanced approach should be adopted to develop early literacy skills.

Another key theme that emerged is the vital role of family engagement. Natural learning environments, such as the home, offer rich opportunities for fostering early literacy. Parents' involvement through regular reading activities, storytelling, and language games is pivotal in strengthening literacy and communication skills (Hannon et al., 2006). Strengthening family-school cooperation is essential, especially for children with special needs who require consistent support across contexts.

The study also underscores the importance of teacher training and professional development. Teachers must have theoretical knowledge and practical tools to implement literacy strategies effectively. Including comprehensive early literacy content in teacher education programs and offering continuous professional development are strongly recommended. For instance, in Dalga et al.'s (2025) study, an online early literacy training program significantly improved the knowledge levels of participating teachers.

In addition, preparing IEP that include literacy-related goals tailored to each child's developmental profile is vital. Teachers can ensure that instructional practices respond directly to individual needs by selecting appropriate materials and systematically monitoring student progress.

Integrating parents and teachers in early literacy suggests a multidimensional approach that values the interaction between individual and environmental factors. The emphasis on phonological awareness, home literacy environments, and inclusive instructional strategies suggests an evolving understanding of what adequate early literacy support should encompass. As the body of research grows, there is a pressing need to diversify intervention strategies further, expand teacher training opportunities, and develop comprehensive programs that promote meaningful family engagement.

Future research should prioritize longitudinal and individualized intervention studies to address current gaps in the literature. Moreover, examining the long-term effects of different approaches can guide evidence-based practices in inclusive education settings.

Declarations

Conflict of Interest

No potential conflicts of interest were disclosed by the author(s) with respect to the research, authorship, or publication of this article.

Ethics Approval

This study does not require ethics committee permission as a review research method was used in this study.

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This study does not require ethics committee permission as a review research method was used in this study. Hereby, I as the author consciously assure that for the manuscript the following is fulfilled:

- This material is the author's own original work, which has not been previously published elsewhere.
- The paper reflects the author's own research and analysis in a truthful and complete manner.
- The results are appropriately placed in the context of prior and existing research.
- All sources used are properly disclosed.

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Related Research

- HI1 - Bağcı, Ö. A., Köse, İ. E., Aksoy, A., Ekmekçi, N. H., & Topal, S. (2024). An investigation of early literacy practices with children with hearing impairment in preschool period. *Erzincan University Journal of Education Faculty*, 26(4), 620-635. <https://doi.org/10.17556/erziefd.1545008>
- HI2 - Köse, İ., Aksoy, A., Topal, S., Ekmekçi, N. H., & Bağcı, Ö. A. (2024). Investigation of the materials used by teachers for early literacy skills of hearing impaired children in preschool period. *Journal of Computer and Education Research*, 12(24), 823-848. <https://doi.org/10.18009/jcer.1530667>

- HI3 - Akmeşe, P. P., Küçük, D. S., & Kirazlı, G. (2024). Investigation of early literacy skills of preschool children with hearing loss. *Italian Journal of Pediatrics*, 50(1), 4. <https://doi.org/10.1186/s13052-024-01910-9>
- HI4 - Öcü, E. (2024). *Comparison of phonological awareness skills in children with hearing loss and normal hearing aged 48-72 months* [Master's thesis, Nevşehir]. <https://tez.yok.gov.tr/UlusalTezMerkezi>
- HI5 - Atlar, H., & Uzuner, Y. (2023). Supporting teacher development about early literacy in children with hearing loss: An action research in Turkey. *Online Submission*, 9(2), 92-121. <http://dx.doi.org/10.46827/ejse.v9i2.4832>
- HI6 - Bal, G. S. (2023). *Examination of verbal/visual working memory and phonological awareness skills in 5-7 year old children with speech sound disorders associated with hearing impairment* [Master's Thesis, Cappadocia University]. <https://tez.yok.gov.tr/UlusalTezMerkezi>
- HI7 - Göncü, F. M. (2023). *Determining the effect of interactive reading activities on the communication skills of preschool children with and without language and speech disorders, and the views and practices of their parents* [Master's thesis, Cappadocia University]. <https://tez.yok.gov.tr/UlusalTezMerkezi>
- HI8 - Derin, D., & Yeşilyurt, M. (2023). Comparison of phonological awareness skills and home early literacy environments of children with speech sound disorders. *Journal of Language, Speech and Swallowing Research*, 6(2), 150-177. <https://doi.org/10.58563/dkyad-2023.62.3>
- HI9 - Erfidan, G. (2022). *A comparative study of early literacy skills in preschool children with hearing loss compared to their hearing peers* [Master's thesis, Hasan Kalyoncu University]. <https://tez.yok.gov.tr/UlusalTezMerkezi>
- HI10 - Saatçı, F. Z. (2019). *Comparison of early literacy skills in children with and without hearing loss aged 60-72 months* [Master's thesis, KTO Karatay University]. <https://tez.yok.gov.tr/UlusalTezMerkezi>
- HI11 - Kahraman Evrenkaya, N. (2019). *Examination of early literacy skills in 5-6 year old children with hearing impairment* [Master's thesis, Ankara University]. <https://tez.yok.gov.tr/UlusalTezMerkezi>
- HI12 - Gerek, A., Karasu, H. P., & Girgin, U. (2018). Exploration of the process of supporting preschool reading readiness skills of a child with hearing loss via shared reading activity. *Mediterranean Journal of Educational Research*, 12(25), 203-229. <https://doi.org/10.29329/mjer.2018.153.12>
- HI13 - Gürel, Y. (2018). *Comparison of preschool children with speech disorders/a history of specific learning disorders in their siblings with healthy controls in terms of early literacy test scores* [Doctoral thesis, Ankara University]. <https://tez.yok.gov.tr/UlusalTezMerkezi>
- HI14 - Atlar, H., & Uzuner, Y. (2018). Examining the emergent literacy experiences of a preschool child with hearing loss. *Journal of Qualitative Research in Education*, 6(1), 54-89. <https://doi.org/10.14689/issn.2148-2624.1.6c1s3m>
- HI15 - Karasu, H. P. (2014). Pre-school reading and writing preparation group activities for hearing-impaired children. *Education and Science*, 39(174). <http://dx.doi.org/10.15390/EB.2014.2602>
- VI1 - İsitani, D., & Okyar, S. (2024). Comparison of phonological awareness and listening comprehension skills of visually impaired and sighted children in preschool period. *British Journal of Visual Impairment*. Onlinefirst. <https://doi.org/10.1177/02646196241267958>
- VI2 - Işıtan Kılıç, D. (2024). *The effect of family education programs on supporting early literacy skills in the home environment of visually impaired children* [Doctoral thesis, Gazi University]. <https://tez.yok.gov.tr/UlusalTezMerkezi>
- SMD1 - Şafak, P., Demiryürek, P., & Yılmaz, H. C. (2018). The effect of multisensory stories on listening comprehension of children who are blind with severe and multiple disabilities. *Ankara University Faculty of Educational Sciences Journal of Special Education*, 19(1), 129-153. <https://doi.org/10.21565/ozegitimdergisi.322391>
- G1 - Karadağ, F., & Yıldız Demirtaş, V. (2022). Early literacy skills of gifted children in preschool. *Buca Eğitim Fakültesi Dergisi*, 53, 212-223.
- G2 - Kadioğlu Ateş, H., & Afat, N. (2018). A case study investigating the language development process, early literacy experiences and educational problems of a gifted child. *Journal for the Education of Gifted Young Scientists*, 6(4), 36-71.
- DS1 - İslamoğlu Külte, Ş. (2019). *Comparison of phonological awareness levels between individuals with Down syndrome aged 2-6 and individuals with normal development* [Master's thesis, Necmettin Erbakan University]. <https://tez.yok.gov.tr/UlusalTezMerkezi>

- LD1 - Gülhan, N. Ş., & Burak, Y. (2023). Investigation of the relationship between early symptoms of learning disability of preschool children and early literacy and executive functioning skills. *Journal of Mother Tongue Education*, 11(3), 707-729. <http://dx.doi.org/10.16916/aded.1258552>
- LD2 - Özkan, S. (2023). *Examining the effect of early intervention programs on children aged 60-72 months at risk of specific learning difficulties* [Doctoral thesis, Marmara University]. <https://tez.yok.gov.tr/UlusalTezMerkezi>
- ASD1 - Yazıcı Çetin, D. (2023). *Examining the effectiveness of interactive book reading programs on vocabulary in children with autism spectrum disorder* [Master's thesis, Biruni University]. <https://tez.yok.gov.tr/UlusalTezMerkezi>
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- ASD4 - Çelik Şahin, A., & Özmen, E. R. (2021). Interaction and language scaffolding strategies used by mothers of children with typical development, autism spectrum disorder, and intellectual disability during shared book reading. *Hacettepe University Journal of Education*, 36(1), 38-52. <https://doi.org/10.16986/HUJE.2019057158>
- ASD5 - Yıldırım, G. (2021). *A study of early literacy environments in the homes of children diagnosed with autism spectrum disorder, developmental language disorder, and typical development* [Unpublished master's thesis, Üsküdar University]. <https://tez.yok.gov.tr/UlusalTezMerkezi>
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- ID2 - Demir, M., & Doğanay Bilgi, A. (2018). The effect of print enriched plays in development of print awareness of kindergarden students with mild intellectual disability. *İlköğretim Online*, 17(1), 450-468. <https://doi.org/10.17051/ilkonline.2018.413802>
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- DD1 - Laçın, E., & Güldenöğlü, B. (2022). Analysis of early literacy knowledge levels of preschool teachers who are children with special needs in their classes. *Pamukkale University Journal of Education*, 55, 100-128. <https://doi.org/10.9779/pauefd.975676>
- DD2 - Akın, A. (2022). *Investigation of the effect of shared book reading intervention on communication-language development, self-regulation and early literacy skills in preschool children with developmental disabilities* [Master's thesis, Hacettepe University]. <https://tez.yok.gov.tr/UlusalTezMerkezi>
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- DD5 - Piştav Akmeşe, P., Işıkdöğün Uğurlu, N., & Kayhan, N. (2023). Dialogic reading practices to support language development in inclusive education classrooms: Perspectives of preschool teachers. *Van Yüzyüncü Yıl University Journal of Education*, 20(3), 1017-1039. <https://doi.org/10.33711/yyuefd.1323390>