

Received : 02-01-2025

Accepted : 07-05-2025

## **Early Language-Based Interventions in Preschool Bilingual with Language Impairment: A Narrative Review of Evidence**

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### **Abstract**

**Background:** Language impairment (LI) and bilingualism are considered the most critical challenges for speech and language therapists and parents of preschool children. To provide language intervention in a bilingual and bicultural environment, it is necessary to investigate the most effective evidence for alleviating the symptoms of language impairment.

**Objectives:** To synthesize findings on early language intervention and its effects on preschool bilingual children with LI, and to investigate the effectiveness of early language interventions for language impairment and the skills targeted in speech and language therapy interventions.

**Methods & Procedures:** In 2024, an electronic database search on ScienceDirect, PubMed, Google Scholar, and Semantic Scholar was conducted to identify articles investigating Language-based intervention in preschool bilingual children with LI. Evidence investigating to early language interventions for preschool bilingual children with LI was selected according to inclusion and exclusion criteria. **Outcomes & Results:** The review found eight lines of evidence, most of which were vocabulary-based language intervention, home language intervention, and phonological intervention. The evidence targeted receptive and

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expressive vocabulary, grammatical skills, and conceptual vocabulary. Despite their limitations, the results showed positive effects of early language interventions on the comprehension and production of vocabulary in bilinguals with language impairment.

**Conclusions and implications:** The review results indicate limitations in language intervention programs directed at bilingual children with language impairment, despite the positive impact of intervention on vocabulary. The research needs to be extended to typical and atypical monolingual and bilingual children to understand the implications of diverse, language-based interventions on language domains such as phonology, grammar, narrative skills, literacy, and cross-language transfer.

**Keywords:** early language intervention, bilingual intervention, vocabulary, preschool bilingual, language impairment.

### **1. Introduction**

Communities around the world are encountering a rapidly growing number of bilingual speakers. Bilingualism is increasing in all countries due to globalization, the effects of colonialism, the need to open up to the world, and technological development. This has resulted in an increase in the number of multilingual speakers, for example in the European Union there are more than twenty official languages spoken by the inhabitants of the European Union. (EUC, 2016). With this development and the increase in bilingualism in the family environment among children, speech-language therapists confront the challenge of language and communication disorders faced by children with developmental difficulties. The challenge speech-language therapists with language and communication disorders in children with LI from diverse linguistic and cultural backgrounds is to prepare and deliver speech and language therapy services including diagnosis, examination, assessment, and rehabilitation. Improving and enhancing a child's early language skills enhances linguistic knowledge, cognitive development, and verbal and non-verbal communication. The language environment

contributes to improving language skills, including language, receptive and expressive vocabulary, and grammatical and narrative skills, especially in a bilingual environment where language exposure is rich and varied. Developmental disorders in bilingual children cause deficits and impairments in language, cognition, and communication that affect social interaction and later school skills. Preschool bilingual children with LI require special conditions for diagnosis and intervention, as speech and language therapists face difficulties in diagnosing language disorders in the first and second languages and providing therapeutic intervention in the context of linguistic and cultural diversity. Language-based interventions for preschool bilingual children with LI are a challenge for speech and language therapists, children, and their parents due to the linguistic situation, the differences in the two languages, the differences in competence, and the potential effects of bilingualism that range from advantage to disadvantage. Language interventions involve contributing to the improvement of language skills, including phonological, grammatical, morphological, lexical, and pragmatic skills. Language interventions involve contributing to the improvement of language skills, including phonological, morphological, lexical, and pragmatic skills, and consist of activities to strengthen vocabulary, grammatical sentence structure, narrative and conversational skills, and phonological and metalinguistic abilities. Bilingual LI is characterized by poor comprehension and production of spoken language in both the first and second languages, at the phonological, syntactic, morphological and pragmatic levels. Evidence has shown that bilinguals have LI such as errors in grammatical and morphological structures in both languages (Restrepo & Kruth, 2000). Bilingual children have similar patterns of language deficits in both languages. (Thordardottir et al., 2011). Difficulties in recognizing the tense of verbs. (Paradis et al., 2017). Grammatical errors and difficulty in determining grammatical gender and forming verbs in both languages. (Armon-Lotem et al., 2011; Restrepo & Kruth, 2000). Small and less vocabulary in languages. (Oller et al., 2007;

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Kohnert et al., 2005). Narrative impairment and narrative coherence deficit. (Gutiérrez-Clellen, 1996). Poor vocabulary skills, difficulties learning words, and poor words retrieval abilities in both languages (Bedore, 2008), and impairments of cognitive processing, working memory, and attention abilities (Kohnert, 2009; Ebert, 2012; Marinis, 2017; Talli, 2019). One of the most important factors in the diagnosis and training of LI disorders in preschool bilingual children with LI is bilingualism and its potential effects. Evidence (Kroll et al., 2012; Bobb, Hoshino, 2014; Craik, 2010; Byers, 2010; Morales, 2013) suggests advantages in cognitive processing in executive and attentional functions. Bilingualism trains the brain's neural networks through attention shifting, cognitive flexibility, and cognitive control. Other evidence (Pelham, 2014; Roberts et al., 2002) demonstrated disadvantages in phonological and lexical processing, verbal and semantic fluency. Less positive results were given for the effect of bilingualism on delayed lexical processing time, slower retrieval and access to the lexicon, lower verbal and semantic fluency, and weaker language representation resources. Language-based intervention is considered a therapeutic intervention directed at improving the language skills of children with LI. This therapeutic approach focuses on language domains such as phonology, grammar, morphology, lexicon, semantics, and pragmatics. It is based on organized sessions with specific objectives and targets language activities such as language awareness, word development, grammatical, and morphological comprehension, and production. Language-based intervention is considered part of evidence-based therapy because it is based on clinical evidence in randomized trials and practices and provides therapeutic interventions according to the needs of the language group and individuals according to specific goals. According to the American Speech-Language-Hearing Association, Evidence-based treatment is based on: 1) The therapist's experience is based on his knowledge and experiences with the disorder, critical analytical thinking, induction, and deduction in diagnosing and understanding pathological symptoms. 2) Access to reliable

evidence from experimental literature on the one hand and, on the other hand obtaining the greatest amount of information from the client through observation and data collection. 3) The patient and his family's perspective, environmental considerations, and choices align with his abilities, culture, and needs. Speech-language therapists are sometimes required to make therapeutic judgments for language intervention based on a few published research papers, the outcomes of which are frequently conflicting. Despite the significance of evidence-based treatment in speech-language therapy, there is a considerable lack in research on language intervention in multilingual children. (Thordardotir, 2010). Speech-language therapists need to make critical decisions regarding diagnosis, treatment, and rehabilitation for bilingual individuals, especially preschool children, to achieve positive outcomes. Early language-based interventions for early LI are challenging for speech-language therapists because of the two different languages, different language proficiencies, and potential negative effects of bilingualism. Preschool children are an additional challenge due to their language acquisition and cognitive abilities. In addition, with the development and increase of bilingualism in the family environment among preschool children, there are challenges for children with LI, their families, and speech and language therapists. There is ambiguity regarding therapeutic interventions for language disorders in bilingual preschool children, and how speech and language therapists contribute to training language abilities. The main aim of this study is to synthesize evidence and comprehensive, critical, and objective analysis of the current knowledge on early language intervention targeting language skills in preschool bilingual children with LI, investigating intervention evidence in impaired language skills and functions in children with LI, and the effectiveness of early intervention for LI. The review was conducted to answer the following questions:

How does early language-based interventions affect language skills in bilingual preschool children with LI?

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What language domains contribute most to evidence of language interventions for bilingual preschool children with LI?

### **2. Method**

#### **2.1 Search Strategy**

In 2024, an electronic search was performed using ScienceDirect /PubMed/Google Scholar/Semantic Scholar databases combining the following search terms:

“Early language interventions”, “Language training at home”, “Vocabulary intervention training”; “Second language impairment”, “Preschool bilingual with language impairment”, “Language-impaired children”, “Dual-language learners with language impairment”.

Databases were reviewed using search terms. We investigated all studies included in the review.

#### **2.2 Selection Criteria**

A search was conducted in the mentioned electronic databases, and we found more than one hundred and fifty articles in the first stage. After the initial screening of articles and removing duplicates, the articles were screened by evaluating the title and abstract and then evaluating the entire article for eligibility. Twenty articles were identified in this stage, twelve of which did not meet the inclusion criteria, and eight studies were selected for final review.

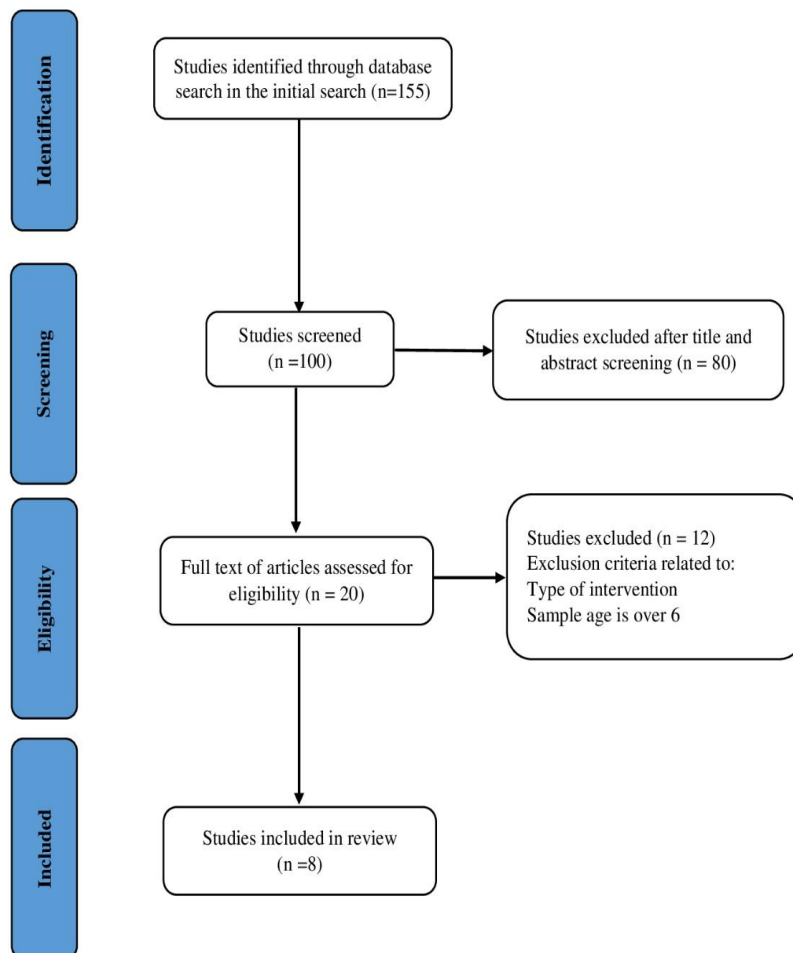
##### **2.2.1 Inclusion criteria**

Studies were included according to the following criteria: (a) published in a peer-reviewed journal, (b) English language paper, (c) reported data for Preschool children, (d) reported findings from Language-based intervention, (e) Diagnosis of developmental language disorder.

### 2.2.2 Exclusion criteria

Studies were excluded if they (a) focused on eldest children, (b) were Monolingual only, (c) All the studies were systematic reviews and meta-analyses, (d) Diagnosis of a disorder other than a developmental language disorder such as autism spectrum disorder, intellectual disability, Down syndrome, deafness, or other neurodevelopmental disorders such as cerebral palsy.

Figure 1: PRISMA flowchart showing the Search, inclusion, and screening process



### 3. Results

A comprehensive study was conducted utilizing five electronic databases to investigate the evidence for language intervention effects in preschool bilingual children with LI. The evaluation comprised eight studies with various intervention designs (e.g., single case, quasi-experimental designs). All studies have contributed to the field of language intervention for preschool bilingual children with LI at preschool age. Studies have varied between evaluating lexical intervention, the influence of home language, and predictive factors for second language acquisition in preschool bilingual children with LI. Interventions varied between receptive and expressive vocabulary, grammar, literacy, numeracy, and phonological skills.

**Table N°01: Data extraction from studies included in the review**

Study (year)	Age & number of participants	Language 1 & 2	Intervention type	Intervention duration	Diagnosis
Verbeek et al. (2023)	100 Monolingual 50 Bilinguals 42 months	Several languages	language and communication	39 weeks	Developmental LI
Thordardottir et al. (2015)	11 Monolingual 9 Bilingual 9 Control 59.56 months	Several languages	Vocabulary and syntax	16 weeks	LI
Ijalba (2015)	24 Bilingual 42.5 months	Spanish & English	Early literacy	16 weeks	Language delay
Restrepo et al. (2013)	52 Bilingual 45 English-only 53 Bilingual mathematics 52 English-only mathematics 54 Control 43–68 months	Spanish & English	Vocabulary and mathematics	12 weeks	LI
Gutiérrez-Ciellen et al. (2012)	90 Bilingual 95 English-only 53 months	Spanish & English	Academic enrichment programme	12 weeks	LI
Pham et al. (2011)	Single case 47 months	Vietnamese & English	Receptive vocabulary	2 times a day, 2 days a week	LI
Pihko et al. (2006)	18 Bilingual 62 months	Finnish, Swedish, English, Russian	Phonological and physical exercise	3 times weekly for 8 weeks	LI
Thordardottir et al. (1997)	Single subject 59 months	Icelandic & English	Vocabulary	2 times weekly for 7 weeks	LI

#### 3.1 Vocabulary-based language intervention for preschool bilinguals with LI

Thordardotir et al. (1997) conducted a case study investigating the effect of a vocabulary-based language intervention in English in a bilingual preschool with LI. Thordardotir et al. (1997) assumed that learning two languages for children with LI is a positive factor and an advantage in linguistic enrichment and a stimulating environment. Providing training activities that focus on targeting English vocabulary in a group of sessions. In vocabulary-based language intervention activities, the case was exposed to vocabulary according to a semantic and conceptual context from the child's environment according to his needs and interests. Language intervention sessions were provided in play activities and daily tasks and included nouns and verbs suitable for daily and repeated use. The study's results showed that vocabulary-based language intervention improves vocabulary production in the home and school domains and that bilingualism is a positive factor and an advantage in vocabulary for children with LI. Thordardotir et al. (1997) believe that the study is limited in terms of language intervention and sample individuals. Still, the result confirms that language intervention in the context of bilingualism is an advantage and positive for preschool bilingual children with LI.

Pham et al. (2011) examined language intervention based on receptive vocabulary therapy in both languages. The study used a vocabulary intervention for a bilingual preschool child with LI in a single-case experimental design. A language intervention was provided to improve vocabulary comprehension for a bilingual preschooler with LI. The vocabulary-based language intervention was provided in English only and in both languages. The study found a positive effect of bilingual language intervention on LI. The case results proved the effectiveness of bilingual vocabulary-based language interventions in learning receptive vocabulary in English, similar to the effect of monolingual language intervention on vocabulary in English. The results of the study reported the importance of linguistic interventions in vocabulary, indicating that they are a positive and enhancing factor for the

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development of language skills, communication, and linguistic enrichment. In addition, it is an enhancing factor for cognitive abilities, considering that learning two languages enhances skills in inhibition, switching, and flexibility. Although the study was limited to a single-case experimental design, the results provided insight into the importance of bilingual language intervention for developing receptive vocabulary in both languages among bilingual preschool with LI.

In a randomized controlled trial of 188 preschool bilinguals with LI, Gutiérrez-Clellen et al. (2012) investigated the effect of language intervention on L1 and L2 vocabulary improvement, as well as its prediction of L2 vocabulary. Two groups were randomly assigned to bilingual intervention in English and the mother tongue or monolingual intervention in English only to determine predictors of English vocabulary acquisition. The study found a significant positive effect of bilingual language intervention on the English vocabulary of bilinguals with LI. The bilingual language intervention group showed better and faster growth in English words and vocabulary compared to the monolingual language intervention group. The study was based on the idea of transferring skills across languages that are similar in phonology, grammar, morphology, semantics, lexicography, and pragmatics. There was a significant and positive effect and transfer of skills from the first language to the second language in phonology, grammar, morphology, semantics, lexical, pragmatics, and sentence structure for bilinguals.

Restrepo et al. (2013) evaluated the effectiveness of vocabulary-based language intervention in bilingual preschool children with LI. A bilingual vocabulary-based language intervention versus a monolingual language intervention for English vocabulary and mathematics was administered. The effects of language of instruction and vocabulary-based language intervention on expressive and receptive vocabulary in Spanish and English and conceptual vocabulary were investigated. The effects of bilingual language intervention on vocabulary

were compared to monolingual language and mathematics intervention based on reading, dialogue, vocabulary, and concepts. 200 bilinguals with LI were randomly assigned to the language intervention groups of bilingual vocabulary, English vocabulary only, bilingual mathematics, or English mathematics only. The effects of the language intervention on bilingual vocabulary were compared to a monolingual language and mathematics intervention based on reading, conversation, vocabulary, and concepts. The study found a significant positive effect of bilingual language intervention. Bilingual language intervention improved receptive and expressive vocabulary in English and Spanish, leading to more efficient vocabulary learning in the first and second languages than monolingual language intervention. Bilingual language intervention was effective in improving vocabulary comprehension and production. Intensive and regular language intervention proved effective in enhancing vocabulary in bilinguals with LI. In Spanish expressive vocabulary, bilingual preschool children with LI showed improvement and increased results in expressive vocabulary. The bilingual intervention group demonstrated superiority over other groups in receptive and expressive conceptual vocabulary. As for the intervention in English only, despite its positive effect on receptive and expressive English vocabulary, it did not reach the same level of effectiveness as the bilingual intervention, which confirms the positive role and advantage of bilingual language intervention. The study showed that bilingual language intervention was more effective than the intervention in English only and mathematics.

Verbeek et al. (2023) investigated the development of language skills (receptive and expressive vocabulary and grammatical skills) among bilingual preschool children with developmental language disorder and its relationship to behaviour. A monolingual (native Dutch language) and bilingual preschool group was recruited to investigate the effect of language intervention in Dutch (second language Dutch). The language intervention enriched Dutch language skills and included vocabulary and sentence structure. The study found that

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there was a deficit in language skills in preschool bilingual and monolingual children with developmental language disorder, but that they improved compared to pre intervention. The study was based on the fact that improvement in language skills in children with language disorders is greater during schooling than before schooling. Monolingual children improve more than bilingual children in vocabulary, sentence comprehension, and sentence structure. Overall, there was improvement for both groups. The bilinguals improved as much as the monolinguals in language comprehension and sentence production abilities during the intervention. In receptive vocabulary, the improvement was consistent, unlike expressive and grammatical skills, where monolinguals improved significantly more than bilinguals, and the study expected that the improvement would be later in school.

### **Phonological intervention for preschool bilinguals with LI**

Pihko et al. (2006) investigated the effectiveness of language-based phonological processing intervention on functional brain changes in preschool bilingual children with specific LI. Eighteen preschool bilingual children with specific LI were divided into a phonological intervention group and a motor intervention group. The language intervention program focused on the phonological aspect of phonemic discrimination, phonemic production, phonemic and linguistic awareness, and receptive and expressive language. The intervention program focused on motor skills, and motor activities such as dancing, fine motor movements, grasping, clapping, and balance. Auditory-induced magnetic fields were measured before and after the intervention. Behavioral discrimination testing was performed after brain measurements of the same stimuli. Children were exposed to language and motor intervention in 24 sessions. The study found positive effects of language intervention on preschool bilingual children with LI on the level of changes in brain plasticity in the auditory cortex and changes in induced magnetic fields. The effects of language intervention showed changes and improvements in the discrimination test and brain activity in both hemispheres of

the brain after a short period of exposure to language intervention, indicating that language intervention modified the functioning of the auditory cortex in both the left and right lobes. Children showed improvement in phoneme encoding, phoneme discrimination, and enhancing of responses.

## **2.2 The effectiveness of home and parental language intervention and prediction of Vocabulary in both languages**

Ijalba (2015) examined a literacy-based language intervention to enrich the vocabulary of bilingual preschool children with language difficulties. The study focused on the role of parents in managing language intervention at home and communicating with their children. The study was based on investigating the role of literacy in expressive vocabulary in the first language and the possibility of its transfer to the second language and whether the linguistic practices of parents change after participating in providing language intervention. Twenty-four bilingual preschool children with language difficulties were randomly assigned to a control and an experimental group and parents provided the language intervention with interactive reading and writing activities in the mother tongue. The study found a positive effect of language intervention parents provided and improved vocabulary in the first and second languages. Children in the experimental group who benefited from the language intervention at home by the mother improved their expressive and conceptual vocabulary in both languages, which indicates the transfer of skills between languages. In the intervention group, parents supported the practice and appreciation of the first language and provided a stimulating and interactive environment but not the second language.

Thordardottir et al. (2015) investigate the role and effectiveness of monolingual versus bilingual language intervention in bilingual preschool children with LI. Conducting language intervention at home with parents in coordination with the speech therapist. Twenty-nine children were randomly assigned to an experimental (Bilingual language intervention) and a

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control group (Monolingual language intervention), targeting vocabulary and grammatical skills. The study found that there was an improvement in the vocabulary of the first language as a result of the language intervention. There was an improvement in the grammatical skills of the first language, but not as a result of the language intervention, as there was an improvement in both groups. The study reported no effect of bilingual intervention and that monolingual intervention enhanced the language gains targeted by the intervention, which is not consistent with what Thordardottir et al. (1997) found.

### **4. Discussion**

The current narrative review aimed to synthesize and summarize the evidence on early language-based interventions targeting home and parental language and their impact on language skills in preschool bilingual children with LI. We considered eight studies with various intervention types (vocabulary, phonological processing, and literacy in home and educational care) and methodological approaches (for example, case study design and experimental method designs). Overall, the review concluded that the evidence was inadequate despite the findings of relevant language-based interventions targeting language domains. The amount of evidence and experience in each field is minimal; there is a lack of diversity in the contribution of skills, making it difficult to conclude the effectiveness of language-based interventions. The evidence found in the review focused on lexical skills including vocabulary and words in bilingual preschoolers with LI but is still insufficient to reach, investigate, and prove the actual role of vocabulary-based intervention. The review evidence indicated that a language intervention contributed to the development and improvement of vocabulary skills, direct word instruction, and assessment of receptive and expressive vocabulary skills in the first and second languages. The language interventions in the reviewed evidence varied between bilingual, second language only, home language, and phonological skills. The review findings showed a positive effect of bilingual language

intervention on the vocabulary skills of bilinguals in their first and second languages. Five studies provided a vocabulary-based language intervention, two studies provided a native language intervention, and one study provided a phonological processing-based language intervention. Most evidence indicate improvement in receptive and expressive vocabulary, grammar skills, sentence structure, language comprehension, and enhancement of the child's environment. Bilingual language interventions for children with early bilingual LI are beneficial and effective in first language and in promoting second language development. Language interventions provide reinforcement of social language communication and enhance the learning environment at home with parents or with peers. Vocabulary-based language intervention improved receptive and expressive language and enrichment of conceptual vocabulary. Evidence has responded that exposure to two languages is a load and deficit in the allocation of processing resources, as bilingual language intervention and bilingualism are effective in linguistic and conceptual knowledge of the two languages. Evidence-based interventions focused on vocabulary skills in bilingual preschoolers due to the need to develop mental lexicon and linguistic knowledge. Evidence of vocabulary-based language intervention has reported improvements in vocabulary comprehension and production skills, receptive and expressive language, and conceptual vocabulary related to terms and meanings. Bilingual language interventions showed lexical and conceptual enrichment in bilinguals with only a difference in the signifier and a commonality in the meaning due to learning two different words for the same concept. This is an advantage for bilinguals due to linguistic diversity. These results are considered a factor in favor of the advantage of bilingualism and a response to the idea of the disadvantages of bilingualism, which include that exposure to two languages, is a burden and a deficit in cognitive processing capacity and executive function, and dysfunction and allocation of cognitive processing resources to the two languages. This helps bilingual children with language impairment to improve and alleviate symptoms and

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learning. Bilingualism may be a positive factor in improving cognitive processing, although the evidence of vocabulary and lexical skills is less negative in bilinguals. The positive impact continued to include parents and their interaction in the home environment with their children, and providing an interactive environment that stimulates language skills, receptive and expressive vocabulary, and grammatical skills. One of the positive outcomes of bilingual language interventions is the extension of language skills development to the second language and the transfer of skills from the L1 to the L2. The most important factors influencing the development of a child's language are the environment and the family, due to their social and cultural impact on the formation of the child's language. The context of social interaction of language, dialogue, and communication with others contributes to learning new vocabulary and using it in a diverse semantic context and its gradual development. An environment rich in language stimuli encourages learning and contributes to developing and increasing the child's linguistic vocabulary. The review evidence has shown the positive impact of language interventions involving parents. This proves the effectiveness of language interaction in the family and home environment. The evidence has shown that parents provide an interactive environment that stimulates language skills such as vocabulary, grammar, syntax, and receptive and expressive language. One of the positive outcomes of bilingual language intervention with parental participation is the development of the languages of parents and children and the extension and transfer of first language skills to the second language in grammar, vocabulary, and morphology. Bilingual children with LI benefit from language intervention in the home environment by stimulating their vocabulary and the ability to create words and linking the signifier to the signified and different words in the two languages with the same meaning. This experience provides cognitive and linguistic training that improves executive abilities and language switching and reduces poor understanding and production of spoken language and syntactic disorders. Stimulating vocabulary contributes to the

development of mental lexicon, grammatical and morphological structures, the correct use of language in contextual and social situations, and the ability to narrate and dialogue. As Ijalba(2015); Thordardotir et al. (2015) found a positive conclusion about the role of parents, language practice, and communication at home with bilinguals with language impairment, improvement in vocabulary and transfer of skills between the two languages, and the effect of bilingual language intervention and attribution of language gains. Neurological evidence has shown that language intervention affects neural functioning, activity, and plasticity in the brain, as language intervention activities modify the functioning of the auditory cortex in both the left and right lobes. Language interventions varied in their contribution to language skills, including vocabulary, grammar, phonological processing, and literacy, although they were few. On the other hand, little evidence has shown bilingual language intervention is not effective compared to monolingual intervention, as the effect of the intervention was equal between monolinguals and bilinguals (Verbeek et al., 2023; Thordardottir et al., 2015). It is uncertain whether teaching vocabulary and words alone helps children use them in the context of pragmatic communication or improves their reading ability. Furthermore, it restricts multilingual children's capacity to use all accessible vocabulary in both languages to facilitate their speech. There is little evidence for language interventions at home and phonological processing. Despite the positive results about the effect of language intervention, this is not conclusive evidence. Thordardottir et al. (2015) found that bilingual language intervention targeting vocabulary and grammar skills was ineffective. This finding is inconsistent with the evidence included in the review; they believe that language intervention is effective with the target language and the benefits of bilingual language intervention appear later in school. Although Verbeek et al. (2023) found improved vocabulary and grammatical skills; they were not due to language intervention. In addition, they found significant language problems between receptive and expressive skills in bilinguals and a negative impact of LI diagnosis

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problems, as they cause language complications. Less exposure to language skills and cognitive processing load in bilinguals due to the presence of two language systems and the distribution of cognitive processing capacity may be one of the reasons for LI. Early language interventions for bilingual children with LI contribute positively to improving the understanding and production of oral language, but only if the therapeutic intervention is comprehensive, addressing all aspects of the language and extending to the ability to use the language in conversational situations and written contexts. Bilingual children with LI need to practice vocabulary, morphological and syntactic skills, word formation in sentences, sentence construction, linguistic awareness, and cognitive processing in both languages to achieve understanding and production of language. Proper oral language acquisition enables children with language impairment to easily transition to learning, reading, writing, and arithmetic skills, taking into account the nature of the two languages in terms of orthographic systems and socio-cultural aspects. Based on this, more research should be done in the field of language-based interventions for bilinguals with LI to further investigate the effectiveness and contribution to the areas of language and its functions. Bilingual language interventions and therapeutic services for multilingual and multicultural children are challenging for therapists and children due to the scarcity of specialists in multilingual speech and language pathology. It is not acceptable to use translators in therapeutic interventions or to target one language and suppress another. It is recommended to work with therapists from the children's environment and parents in the home environment. Given this situation and challenge, there remains much ambiguity and gaps regarding the linguistic declines of bilingual children with LI. There may be a gap in the effectiveness of language interventions for bilingual children with language impairment due to the challenge of bilingualism, language impairment, preschool age, and symptoms of language impairment. Rigorous interventions such as randomized control trials are needed to investigate the effectiveness of early language interventions and effective skills.

Further research is needed based on randomized controlled trials to investigate the impact of interventions on LI that are consistent with research and professional ethics, respect cultural differences, and make efforts in the context of the mother tongue and the second language to care for children with LI.

Limitations of the studies included in the review include the lack of experimental design and randomized controlled trials in most studies, only in three studies. In addition, there are few contributions to preschool bilingual children with LI, eight studies are a very small number. On the other hand, there was no consistency in sample size between studies. There was a variation in the number of people in each study. Most studies have provided vocabulary-based language intervention without taking into account other linguistic components such as grammar, morphology, dialogue, reading, and literacy. This is not sufficient to provide therapeutic intervention. Bilingual children with LI need a comprehensive therapeutic intervention that contributes to improving language comprehension and production. Speech and language therapists need evidence that justifies the effectiveness of language interventions. One of the most important challenges that studies must address is bilingualism and providing language intervention for first and second-language symptoms. Speech and language pathologists need to systematically adjust the diagnosis and rehabilitation of language impairment symptoms in bilinguals to ensure the provision of care and therapeutic intervention and respect for the mother tongue and cultural background.

## **5. Conclusion:**

The research findings included in the review indicate a gap and research limitation in the types of language interventions according to language domains and skills for preschool bilingual children with LI and the need for more evidence for language interventions. Most evidence suggests that language interventions focus on lexical skills and vocabulary as a language domain for the rehabilitation of preschool bilingual children with LI. Intervention

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findings reported some contribution in other language domains such as phonology, morphology, and grammar but are insufficient and need further investigation especially as skills develop with age. The effect of vocabulary intervention was positive and significant in the improvement of preschool bilingual children with LI. The use of word properties, word lexical features, and word types as training materials in training activities had a good effect. Data reported effects and difficulty factors of morphological and syntactic interventions on morphological and syntactic variation between languages in bilingual preschool children with LI. More evidence is needed on language interventions in the language domains of bilingual preschool children with LI. Investigating the impact of language differences and the transfer of language skills between languages and the potential impact of language transfer in another language to ensure and improve the rehabilitation and care of bilingual preschool children with LI.

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