



Speech Delay in Early Childhood: A Case Study of a 3.5-Year-Old Child

Neni Nurkhamidah¹, Fathiaty Mutadho², Zainal Rafli³

neni.nurkhamidah@mhs.unj.ac.id

^{1,2,3}Applied Linguistics, State University of Jakarta

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Abstract

This study examines the speech development of SY, a 3.5-year-old child with speech delay, living in a bilingual environment with early exposure to screen time. Through a case study approach, data was collected via observations, interviews with SY's mother and therapist, and therapy records. Initially, SY displayed significant speech limitations, including omitting sounds, using incomplete words, and having a limited vocabulary. Factors such as frequent screen exposure and reduced direct interaction were identified as potential contributors to SY's speech delay. After six months of Speech-Language Therapy (SLT) led by an experienced therapist, SY has shown improvements in word completion, clearer articulation, vocabulary expansion, and social engagement. However, challenges remain in maintaining SY's focus during therapy sessions, a common issue for children his age. The study underscores the importance of early intervention, reduced screen time, and increased face-to-face communication in managing speech delays. Findings suggest that a structured therapy approach combined with supportive family interactions can effectively foster language development in young children, even in bilingual settings, reinforcing the role of active parental involvement in enhancing communication outcomes.

Keywords: *Speech Delay; Early Childhood; Speech Development*

Introduction

One of the most vital milestones in a child's journey is the language development (Finders et al., 2023). When kids build strong language skills, they gain the confidence to express themselves clearly and engage in meaningful conversations that help them feel understood and valued. It sets them up to do better in school, share ideas and communicate easily with people from all walks of life (Roulstone et al., 2010). Therefore, supporting children in learning to express

themselves by creates a solid base for clear and effective communication that will benefit them throughout their lives (Pasaribu, 2021; Rivero et al., 2023)

As children move through different stages of language development, they gradually build the ability to understand and express increasingly complex thoughts (Feldman, 2019). While this development generally follows a sequence of milestones, delays can sometimes become noticeable if a child doesn't meet these benchmarks as expected. Persistent speech and language delays, especially as children enter school, can affect their learning, social connections, and overall communication skills (Liang et al., 2023). Speech delays can greatly affect a child's communication abilities. According to (Revita, 2022), a child is considered to have a speech delay if, by a certain age, their ability to produce sounds and communicate is below the expected level for their age group. Speaking is a crucial part of a child's developmental stages, starting from a very early age, even at birth.

A child is usually said to have a speech delay when his or her speaking skills are noticeably behind what is typical for children of the same age. When a child is diagnosed with a phonological delay, speech delay, phonological impairment, or a related condition, this assessment is typically based on how the child produces speech sounds, particularly consonants, and how this affects their ability to be understood (Stackhouse & Wells, 1997). There are different types of speech delay that can affect children, including expressive speech delay, receptive speech delay, speech sound disorder, childhood apraxia of speech, and phonological disorder (Hadiwijaya & Amalyasari, 2022). Children with speech delays tend to follow the usual steps of learning to talk, like babbling and saying their first words, but they reach each stage more slowly than other kids. Although they develop in the same order, their progress is slower, which may impact their ability to communicate at the same level as their peers (Shetty, 2012).

Speech delay in children can be influenced by various factors that impact their language development. Genetics often play a role as the cause (Cronin & Goodall, 2021; Habsad et al., 2024; Korpilahti et al., 2016). Children with a family history of speech or language disorders may be more prone to similar issues. The environment is equally important, as kids who lack regular interaction or exposure to rich language experiences may face delays in learning to (Baz et al., 2024; Wangke et al., 2021). Excessive screen time is another factor that can contribute to speech delay as it reduces valuable face-to-face communication and engagement that are essential for developing language skills (Abida, 2024; Dewi et al., 2023; Hosani et al., 2023). Other factor causing speech delay is medical conditions. Medical issue like hearing impairments, neurological disorders such as autism spectrum disorder or cerebral palsy, and oral-motor coordination challenges, including apraxia of speech, can also hinder speech development. Emotional and social influences, such as trauma, high stress levels, or lack of engagement due to neglect, can further contribute to speech delays (Ulfa et al., 2022). Parental

involvement is also crucial, as children who are spoken to, read to, and encouraged to communicate generally show stronger language development (Farrag et al., 2020). Addressing these factors through early intervention, supportive environments, and active engagement can greatly help children develop the speech and language skills they need for healthy growth and interaction.

Addressing speech delay in children requires a combination of professional and home-based strategies. Early intervention is essential, as it can greatly enhance outcomes for children experiencing speech delays. Speech therapy provided by certified speech-language pathologists (SLPs) is highly effective for supporting language development. These specialists can customize therapy sessions to meet the unique needs of each child, focusing on areas such as pronunciation, expanding vocabulary, and improving overall communication skills (Cronin & Goodall, 2021). There are various types of speech delay therapy designed to address different underlying causes and needs, including speech therapy conducted by speech-language pathologists, play-based therapy, parent-implemented therapy, and Augmentative and Alternative Communication (AAC) for more severe cases. Consistency and active participation from both parents and caregivers play a crucial role in reinforcing the progress made during therapy. By combining professional guidance with supportive home practices, children can develop stronger language skills and achieve better long-term communication outcomes.

The development of speech and language is shaped by a mix of genetic influences and the environment in which a child is raised (Badawieh & Al-Shamsi, 2023). During their first year, infants build essential skills that set the stage for future speech and language growth, much of which comes from listening to and engaging with the people around them. By the time they reach three years old, children typically understand far more than they can communicate. Speech development follows a natural progression, starting with cooing and babbling, then moving on to saying words and combining them. This detail milestones have been clearly divided by Berkowitz (2020) to outlines the normal stages of speech and language development in children.

Speech delay is a language issue that can affect any child. Data from the Indonesian Paediatric Society (IDAI) in 2023 showed that speech delay affects about 5-8% of preschool-aged children in Indonesia. This means that for every 100 preschoolers, 5 to 8 may face challenges in developing their speech. These statistics highlight the importance of early detection and support to help children overcome these difficulties and thrive in their communication and learning journeys. This prevalence also indicates that speech delay is a significant health concern that requires serious attention, especially from parents, teachers and healthcare professionals.

Based on the Indonesian Ministry of Education and Culture standards, by the ages of 3-4 years, children's language abilities grow significantly. They begin to engage in pretend play, such as reading a book by making up their own story. They can understand and follow two-part instructions, like pick up the toy and give it to the parents or teacher. At this stage, children start to express their needs and ideas using simple sentences of about six words. They also enjoy sharing their own experiences by telling short, personal stories. These skills represent key steps in understanding and expressing language, laying the groundwork for more advanced communication in the future. These milestones are fundamental for children's cognitive, emotional, and social growth as they build the skills needed for effective communication.

Moreover, according to the National Institute on Deafness and Other Communication Disorders (2014), children between the ages of 3 and 4 are expected to reach certain essential language and listening milestones. A child in this age range should be able to hear you when called from another room and hear the television or radio at the same volume level as other family members. They should also be able to answer simple questions like who, what, where, and why. Additionally, they typically talk about daily activities they experience at places like daycare, preschool, or friends' houses. In terms of sentence structure, children in this age group generally start using sentences with four or more words and can speak clearly without repeating syllables or words. These abilities are important markers of typical language development, helping children to communicate effectively and engage with those around them.

Liang et al (2023) identify several red flags can indicate potential speech delays in young children. By the age of 36 months, a child's speech should be mostly understandable, even if they are still developing clarity. If a child's speech is still largely unintelligible at this age, it may be a sign of delayed speech development. Additionally, hypernasality—a nasal quality in speech that can affect clarity—at any age is another indicator to watch for, as it might suggest an underlying issue with speech resonance. Moreover, if a child consistently exhibits an unusual vocal quality, pitch, or intensity that seems out of the norm, this could also signal a delay or disorder in their speech development. Recognizing these signs early is essential for addressing any potential speech challenges effectively.

To better understand the language development of young children with speech delay, researchers have been examining cases across different regions to explore how factors such as environment, family interactions, and access to resources influence language skills. One recent case study at *Griya Pintar Andara Terapi Tumbuh Kembang Anak*, a therapy center located in a smaller city in Central Java, focused on a 3.5-year-old child experiencing speech delay. Studying speech delay in young children is crucial, as early intervention can significantly impact their future communication skills and social development. Therefore

Method

The research aimed to explore the language performance of a 3.5 -year-old child with speech delay. To collect data, the researcher chose a qualitative methodology, which is particularly useful when the research problem or variables require exploration. This approach is ideal when the variables involved cannot be easily measured with specific units (Creswell, 2013). Furthermore, the researcher adopted a case study method to gather detailed information. There were two main reasons for selecting a case study. As McKay (2006) points out, one purpose of a case study is to examine causal relationships in real-world situations. This method was therefore well-suited for investigating the specific variables of this study, such as the challenges and underlying causes, which align with the aims of a case study. Additionally, the issue explored in this research is considered a "bounded case," meaning it is confined within a particular time frame and setting (Creswell, 2012). To collect the data, the researcher combined observations, interviews with parents and speech therapist, and document analysis to gather a comprehensive view of the case.

The participant, referred to as SY, was a 3.5-year-old child selected as a representative case of speech delay in a typical urban context. SY's case was chosen due to its alignment with common characteristics of speech delays observed in children of a similar age, such as delayed expressive language and challenges with articulation, making the findings potentially transferable to similar contexts. To provide a holistic understanding, the study also involved SY's mother, Mrs. S, and a speech delay therapist, AN, who provided insights into the child's language development and interventions. Ethical standards were carefully upheld throughout the study. Prior to data collection, informed consent was obtained from all participants, including SY's parents, who provided written approval for their child's involvement. Participants were assured of confidentiality, and pseudonyms were used to protect their identities. The researcher also adhered to ethical guidelines regarding research with minors, ensuring minimal disruption to SY's routine and prioritizing the child's well-being.

The instruments used included semi-structured interviews with parents and speech delay therapist, observation notes, and document analysis of SY's therapy records to evaluate the structure and focus of the interventions. Data were analyzed using qualitative techniques proposed by Bingham (2023). This model outlines a five-step approach to qualitative data analysis, combining deductive and inductive methods for a balanced investigation. It begins by organizing data with attribute coding to make it searchable and capture initial insights. Next, it categorizes data in line with research questions, refining the coding process. Then, open coding is used to reveal emerging ideas, setting up a foundation for deeper analysis. Patterns

and themes are interpreted to address research questions and produce key findings, and, finally, the findings are connected to literature and theory, resulting in a well-rounded, context-rich explanation.

Results

SY lives in a small city in Central Java called Wonosobo. SY's parents, Mr. S, a homemaker, and Mr. X, who works in the shipping industry, primarily communicate with SY in Indonesian, although they also occasionally use Javanese. SY's parents first noticed his speech delay by comparing his progress to that of other children which led them to consult a medical professional. Interviews with SY's mother provided insights into the reasons behind her child's speech delay. She noticed that around 1.5 years old, SY wasn't speaking like other children of the same age. SY was unable to say full words and could only pronounce single syllables from common daily words, although the child could understand and follow simple instructions, which showed good listening skills. Concerned, SY's mother took the child to a doctor, who confirmed that SY had a speech delay but found no physical issues, such as hearing problems. Since no one else in the family had speech delays, it was likely not due to genetics. A significant environmental factor identified was SY's early exposure to gadgets as it is shown in this table 1.

Table 1. Excerpt of Interview with SY's Mother

When my child was about 1.5 years old, I started introducing a smartphone. From then on, whenever SY cried, giving the phone to watch YouTube or YouTube would calm SY down. Soon, the phone became part of every activity

One major factor seemed to be SY's early use of a smartphone. SY's mother shared that she started giving SY a smartphone around 1.5 years old to help calm the child when upset. Over time, the phone became a regular part of SY's day, mainly used to watch YouTube videos. This heavy screen time may have limited SY's chances to interact with people and practice speaking, which are important for learning language skills. This situation shows how too much screen time at an early age might affect language development, emphasizing the need to balance gadget use with face-to-face interactions to support children's communication skills.

According to SY's speech therapy progress notes, as well as interviews with his mother and therapist, SY initially showed significant challenges with his speech. He had difficulty forming complete words, often simplifying them to single syllables or vowel sounds. While he could understand and follow simple directions, his ability to express himself verbally was very limited, indicating a clear delay in

language development. To illustrate SY's progress before and after six months of Speech-Language Therapy (SLT), Table 2 summarizes the changes in his speech development.

Table 2. SY's Speech Progress Before and After Therapy

Speech Aspects	Before Therapy	After Therapy (6 Months)
Word Completion	Omitted consonants; only vowel sounds (e.g., "ka" for <i>makan</i>).	Attempts fuller words with consonants (e.g., "aka" for <i>makan</i>).
Articulation Clarity	Words mostly unintelligible; simplified sounds.	Improved clarity; simpler words are recognizable (e.g., "atu" for <i>baju</i>).
Vocabulary Size	Limited; used 10-15 simple syllables or single words.	Expanded vocabulary with 2-word phrases (e.g., "au pe" for <i>mau hape</i>).
Social Engagement	Poor eye contact; limited responsiveness.	Improved attention, eye contact, and engagement in conversations.
Expressive Language	Relied on gestures; minimal verbal attempts.	Attempts simple verbal phrases to communicate needs.

The explanation of SY's speech progress is described in the following section.

- a. Omission of Sounds in Basic Words.
SY frequently left out consonants, often saying only vowel sounds. For example, he would simplify "makan" (eat) to "ka", "bobok" (sleep) to "oo", "bunda" (mother) to "ua" and "susu" (milk) to "uu," leaving his speech mostly composed of isolated vowels rather than full words.
- b. Difficulty Forming Complete Words
SY was only able to pronounce single syllables or fragments of words. Instead of "baju" (clothes), he would say "u," and for "kaki" (foot), he might only say "ai." This made his speech hard to understand, especially for people outside his immediate family.

c. Limited Vocabulary and Short Phrases

SY's vocabulary was very restricted, and he mainly used short, incomplete phrases. For example, he would say "we" instead of "mau main hape" (want to play on the phone), limiting his ability to express himself fully and clearly.

To support SY's speech development, he has been receiving Speech-Language Therapy (SLT) for six months, with sessions held two to three times a week under the guidance of a therapist known as "AN." AN, with a strong educational background from Poltekkes Jakarta and years of hands-on experience, combines formal training with practical skills to assist children with speech delays. Over time, SY has shown notable progress in his speech abilities. After consistent therapy, SY has made encouraging strides in several areas:

a. Improved Word Completion

SY now attempts to pronounce more complete words. Instead of reducing words to single vowel sounds, he has started including consonants, such as saying "aka" for "makan" (eat) and "utu" for "susu" (milk). While some sounds may still be missing, his efforts toward fuller word formation mark a positive shift.

b. Better Articulation

SY's clarity in forming words has noticeably improved. For instance, he now says "atu" instead of "u" for "baju" (clothes) and "ati" instead of "i" for "kaki" (foot). Though still simplified, his speech is becoming clearer, making it easier for family members and familiar adults to understand him.

c. Expanded Vocabulary and Longer Phrases

SY's vocabulary has grown, and he is now able to put together simple two-word phrases. Instead of saying only "we" for "mau main hape" (want to play on the phone), he now attempts "au pe." This expanded phrasing helps him express his needs and thoughts more effectively.

d. Greater Responsiveness and Engagement:

SY is now more engaged in conversations and more responsive to questions and interactions. His eye contact and attention during conversations have improved, reflecting growth in his social communication skills.

e. Enhanced Speech Clarity

While not completely clear, SY's speech is now more understandable, especially to those familiar with him. His progress in articulation has made his communication more effective overall.

In summary, SY's progress shows meaningful improvement in vocabulary, pronunciation, and social interaction, allowing him to communicate more confidently. Continued therapy is anticipated to further strengthen his speech and language abilities. Despite improvements in consonant usage, SY continues to struggle with word completion, particularly with forming complete, multi-syllabic

words. This ongoing challenge highlights the need for continued practice and tailored strategies to help SY achieve clearer and more complex speech patterns. The therapist working with SY has encountered several challenges during the therapy process. SY's speech delay impacts not only his ability to articulate words but also his focus and consistent engagement in sessions. The therapist has noticed that SY sometimes has difficulty staying attentive, which can slow down progress and demands added patience and creative strategies to keep him involved. As the therapist explained that SY tends to lose focus during exercises, especially when they are challenging as it shown in this following table.

Table 3. Excerpt of Interview with SY's Speech Therapist

I've had to adjust our sessions to incorporate more interactive and playful activities to capture his attention. While progress is steady, it requires flexibility and plenty of repetition

Overall, SY's progress reflects meaningful improvements in vocabulary, pronunciation, and engagement, helping him communicate more confidently and effectively. Further therapy is expected to continue supporting his speech and language development. The study's findings are case-specific and based on a small sample size involving only one child. While the results demonstrate SY's progress, they may not be fully generalizable to all children experiencing speech delays. Furthermore, the cultural, linguistic, and environmental variables observed in this study are unique to SY's family and setting, which may limit the applicability of the findings to broader contexts.

Discussion

When the researcher compares SY's speech development to typical milestones and warning signs for 3- to 4-year-olds, it becomes clear that SY is lagging, suggesting underlying developmental issues. At this age, children are generally expected to respond when called from another room, understand simple questions, and communicate using sentences of four or more words. They should also be able to speak clearly without unnecessary repetition, which helps them interact effectively with others. However, SY has not yet reached these milestones, underscoring the need for continued support in his language development.

SY's progress falls short of expected developmental milestones, reflecting the impact of his speech delay despite ongoing speech therapy efforts. Although he made significant progress in forming more complete words, he still tends to simplify words. Instead of fully articulated words, he produces simpler forms indicating that he is on a positive trajectory but has not yet reached typical clarity for his age. Although SY's speech has become more understandable, he does not yet demonstrate the consistent clarity that children without speech delay would typically achieve by this stage.

In terms of vocabulary and phrasing, SY's development reflects gains in expanded vocabulary and longer phrases. He has progressed to using two-word phrases showing an improved ability to communicate needs and thoughts. However, this is still less complex than the four-word sentences expected in typically developing children of his age. His expanded vocabulary marks a positive step forward but suggests ongoing work to reach age-appropriate sentence length and structure.

SY's progress also includes greater responsiveness and engagement and enhanced speech clarity, which show growth in his social communication skills. He has become more attentive during conversations and now responds to interactions with eye contact and focus, which are important aspects of social engagement. However, his speech clarity, though improved, still needs further enhancement to reach the level of clarity and intelligibility typically expected by age 4. His efforts in articulation are clear, but the complete clarity of speech may take additional time and continued therapy to fully develop.

In contrast to red flags that suggest a possible delay, such as speech that remains unintelligible by 36 months or unusual vocal quality, SY has shown measurable improvements that counter these concerns. His speech has become more intelligible to familiar listeners, which suggests that ongoing therapy is effectively addressing these red flags. Additionally, his enhanced responsiveness and engagement reflect positive changes that are helping him overcome the communication challenges associated with his early screen exposure and limited initial vocabulary.

SY's case highlights how environmental factors, particularly early exposure to screens, can heavily influence speech development. This high reliance on screen time may have limited his chances for face-to-face interactions, which are crucial in early childhood for developing essential language skills ((Abida, 2024; Visser-Bochane et al., 2019). Direct interactions with caregivers play a critical role in language growth by encouraging responsive communication, expanding vocabulary, and supporting pronunciation skills (Swanson, 2020). The communication with family members is also crucial. When children communicate directly with family members, they receive immediate feedback on their speech, learn new words within meaningful exchanges, and are encouraged to express

themselves verbally. These face-to-face conversations also help children develop vital social communication skills, like turn-taking, listening, and appropriate responding. Without regular opportunities for these types of interactions, children might miss out on important language-building experiences, impacting their speaking (expressive) and understanding (receptive) language skills (Klatte et al., 2024; Nandy et al., 2021; Weisleder & Fernald, 2013).

In SY's situation, his screen time may have reduced his exposure to these essential conversations, limiting his access to the rich language input and social exchanges needed for language growth. Studies show that too much screen time in early childhood is associated with slower language development, as it reduces the time spent on social interactions and exploring the (Liang et al., 2023). When children are primarily engaged with screens instead of people, they miss out on crucial social cues, facial expressions, and responses that help shape their language abilities.

Additionally, research suggests that extended screen use can encourage a passive mode of engagement, where children receive language input without active participation or response, missing the back-and-forth interaction that is key for language practice (Baz et al., 2024). For SY, screens may have provided entertainment but lacked the interactive engagement needed to encourage speaking and language practice. This aligns with studies linking excessive screen use to speech delays, stressing the need to balance screen time with direct, interactive communication to support language development in young children.

SY's parents primarily speak Indonesian with him, occasionally incorporating Javanese, creating a bilingual environment that exposes him to both languages. While growing up in a bilingual setting can enrich a child's linguistic experience by enhancing adaptability and broadening vocabulary, it can sometimes pose challenges for young children in learning to express themselves verbally. This is especially true if the language models they are exposed to are inconsistent or if one language is used less frequently.

However, research shows that bilingualism itself is generally not a direct cause of speech delays (Callan, 2008; Sami, 2024). In SY's case, it is likely that other factors, such as limited interaction with his parents and frequent screen time, may have had a more substantial impact on his early language development than the bilingual environment. Children in bilingual households typically develop language skills effectively when they are consistently exposed to each language in natural, interactive ways. Studies suggest that children who are regularly spoken to, read to, and encouraged to engage in conversations tend to develop stronger language skills and experience fewer communication challenges (Farrag et al., 2020).

The tailored Speech-Language Therapy (SLT) sessions led by AN have been highly effective in aiding SY's speech progress. After six months of therapy, SY has shown notable improvements in several key areas, such as completing words, improving articulation, expanding vocabulary, and engaging more during sessions. His newfound ability to include consonants and form simple two-word phrases marks a meaningful step forward in his expressive language skills. This progress demonstrates the value of interventions that are carefully tailored to address a child's specific needs, resulting in measurable gains in clarity and vocabulary (Cronin & Goodall, 2021). These findings are consistent with research that highlights early intervention as essential for enhancing communication skills in children with speech delays.

One of the main challenges in SY's therapy has been keeping him focused and engaged, a common difficulty with young children in speech therapy. To address this, the therapist incorporated interactive and playful methods that were adapted to fit SY's attention span and developmental stage. This approach aligns with best practices for early childhood intervention, where play-based therapy (Afriany et al., 2022; Hadiwijaya & Amalyasari, 2022) and active parental involvement (Roulstone et al., 2010) have been effective in reinforcing language skills. These findings underscore the importance of flexible, child-centered strategies when working with young children who may find it difficult to stay focused in traditional session formats.

To help address speech delays more effectively, several practical recommendations can guide parents and caregivers. First, reducing screen time is crucial. This means balancing or minimizing gadget use and prioritizing more interactive, face-to-face communication. Instead of relying on passive screen activities, parents can introduce engaging alternatives like storytelling, singing, or playing word games that encourage children to actively participate and practice language. Second, fostering direct interaction through simple, regular conversations is key. By listening attentively, responding thoughtfully, and consistently using clear and simple language, caregivers can create a supportive environment for language growth. Third, for children growing up in bilingual households, it's important to ensure that both languages are used regularly and naturally. Activities like playtime, reading together, and incorporating both languages into daily routines can help children navigate and develop both languages effectively. Finally, seeking early intervention is essential. Parents are encouraged to consult with speech therapists as soon as they notice any signs of delay so that tailored strategies can be implemented early to support the child's progress.

Conclusion

Speech delay in early childhood represents a significant developmental challenge with implications for communication, social skills, and academic readiness. It can arise due to various factors, including environmental influences, limited verbal interaction, and, in some cases, excessive screen time. Studies indicate that children with speech delays benefit immensely from early detection and tailored interventions, which enable them to gradually bridge gaps in expressive and receptive language skills. Before therapy SY very struggle to form complete words, omit sounds, and rely on single syllables, making his speech difficult to understand. Their vocabulary tends to be limited, and they may communicate primarily through gestures or short phrases. After consistent therapy sessions he typically shows progress, beginning to include more consonants, form simple two-word phrases, and expand their vocabulary. Speech becomes clearer, with improved articulation, making it easier for familiar listeners to understand and engage with them effectively.

The findings underscore the importance of early and ongoing support for children facing speech delays. Families, educators, and therapists play a vital role in fostering language skills that enable children to communicate effectively and confidently. Moving forward, further research should continue to explore the influence of environmental factors and intervention strategies across different socio-cultural settings, ensuring that effective support is accessible to children everywhere.

Looking ahead, there are several areas where future research could build on these findings. Long-term studies would be especially valuable in examining how children with speech delays progress after therapy, providing insight into the lasting effects of early intervention. Additionally, comparative research could explore how bilingual and monolingual environments influence speech development, offering a clearer understanding of language exposure's role. Lastly, studying the effectiveness of specific therapy approaches, such as play-based techniques or visual aids, across diverse populations could help identify strategies that are universally effective or culturally adaptable for children with speech delays.

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