Pulchra Lingua: A Journal of Language Study, Literature, & Linguistics, 4(1), 2025
https://doi.org/10.58989/plj.v4i1.61

Bilingualism and Language Disorders in Early Childhood: An Exploratory Case Study on Toddlers

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ABSTRACT

In early childhood, inadequate parenting and excessive smartphone use are frequently linked to delays in first language acquisition. Additionally, growing up in a bilingual environment is believed to contribute to this condition. If not addressed, these factors may lead to language development disorders, including speech delays and symptoms associated with autism. This study employed an exploratory case study approach involving two children, aged four and five, who were raised in bilingual households. Data were collected through observations and interviews with their parents. Findings indicated that both children exhibited speech delays and signs of autism, which were influenced by inconsistent parenting practices and the complexities of bilingual language exposure. Furthermore, health issues such as dental caries and premature tooth loss negatively impacted their speech abilities. The study highlights the critical role of consistent parenting in fostering healthy language development.

KEYWORDS

Bilingualism;
Speech Delay;
Early Childhood Development;
Language Acquisition;
Parenting.

ABSTRAK

Pada masa kanak-kanak, pola asuh yang kurang memadai dan penggunaan smartphone berlebihan sering dikaitkan dengan keterlambatan bahasa pertama. Lingkungan bilingual juga diduga turut memengaruhi kondisi ini. Jika tidak ditangani, faktor-faktor tersebut dapat menyebabkan gangguan perkembangan bahasa, seperti keterlambatan bicara (speech delay) dan gejala autisme. Penelitian ini menggunakan pendekatan studi kasus eksploratif terhadap dua anak usia 4 dan 5 tahun yang tumbuh dalam lingkungan bilingual. Data diperoleh melalui observasi dan wawancara dengan orang tua. Hasil menunjukkan bahwa keduanya mengalami keterlambatan bicara dan tanda-tanda autisme, dipengaruhi oleh pola asuh tidak konsisten serta kompleksitas penggunaan dua bahasa. Masalah kesehatan seperti karies dan pencabutan gigi dini juga turut memengaruhi kemampuan bicara. Studi ini menunjukkan pentingnya pola asuh yang konsisten dalam mendukung perkembangan bahasa.

KATAKUNCI

Bilingualisme;
Keterlambatan Berbicara;
Perkembangan Anak Usia Dini;
Pemerolehan Bahasa;
Pola Asuh.

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How to cite:
Putra, R. A., Syamsuddin, S., Suparni, S., & Pakaya, U. (2025). Bilingualism and Language Disorders in Early Childhood: An Exploratory Case Study on Toddlers. *Pulchra Lingua: A Journal of Language Study, Literature, & Linguistics*, 4(1), 1-14. https://doi.org/10.58989/plj.v4i1.61

1. Introduction

First language acquisition is generally understood as a natural process where children learn their mother tongue without formal instruction. This process typically occurs unconsciously and begins at birth, marked by crying, cooing, and babbling. This indicates that from the beginning of life, children already strive to communicate with their surroundings, even though their speech organs have not fully developed (Purba et al., 2022). One of the most prominent aspects of first language acquisition is the child's tendency to imitate speech and understand the meaning of utterances they hear from their parents or caregivers, as well as the linguistic environment around them (Florit et al., 2021). Therefore, the role of parents and the surrounding language environment is crucial in determining the speed of first language acquisition. Caregivers or parents need to be good and consistent role models in supporting children to acquire their first language so that they receive meaningful language exposure.

Unlike language acquisition in adults, which typically occurs through formal learning, children acquire their first language naturally through social interaction with their environment. This process heavily relies on the quality of communication between the child and the people around them. Children tend to master a language more quickly if they grow up in an environment that provides sufficient linguistic stimulation and supports their communicative development. In this regard, the role of parents is essential, particularly in creating parenting patterns that encourage children's involvement in everyday language activities. Parental support through intensive and responsive interactions helps strengthen a child's language skills from an early age.

Language acquisition in adults has different mechanisms compared to children. In the context of Second Language Acquisition (SLA), adults tend to rely on cognitive approaches and critical thinking skills. This often leads them to use their first language (L1) framework when forming a second language, which can affect their production and comprehension of the second language (Arifin, 2020; Wardani & Kepirianto, 2023). As a result, adults generally face more challenges in mastering a second language compared to children, who are in the golden period of language acquisition. On the other hand, adults are believed to encounter greater obstacles in language learning due to their lower brain plasticity compared to children, making it more difficult to achieve fluency equivalent to native speakers (Li & Zhao, 2023; Wardani & Kepirianto, 2023).

Meanwhile, children acquire their first language primarily through interaction with their social environment, rather than through formal learning in school. This is because children have an innate drive to communicate and meet their needs. Language is used as a tool to bridge these desires and needs. Additionally, children naturally absorb linguistic patterns from interactions with their caregivers, including understanding the

pragmatic nuances and social context of the language used by those around them(Budi et al., 2024).

The internal process supporting language acquisition in children can also be linked to the existence of the Language Acquisition Device (LAD) introduced by Noam Chomsky. This theory posits that children have an inborn capacity to recognize and form grammatical structures naturally (Meliana, 2024). However, no less important is the role of external mechanisms, such as socialization and engagement with the surrounding environment, which is explained through the concept of the Language Acquisition Support System (LASS) (Dłużewska-Owczarek & Kaźmierczak, 2020). Children's language acquisition heavily depends on communication practices within their social environment, which combine innate abilities with social interaction. Formal education often fails to provide a rich enough context to effectively support language development. This emphasizes that language development is more influenced by direct experience than by traditional instructional learning approaches.

However, it is important to note that not all children navigate the language acquisition process smoothly. Currently, there is an increase in cases of speech delay and language disorders such as Specific Language Impairment (SLI) in children. Several studies suggest that one of the primary causes of this phenomenon is the use of digital devices, particularly smartphones, without adequate parental supervision (Putra et al., 2022). This situation becomes more concerning, especially when children are exposed to these devices from an early age, which is a crucial period for first language development. When children spend more time in front of screens than engaging in meaningful social interactions, their opportunities to develop language skills through conversation, emotional responses, and verbal stimulation become limited.

Bilingualism in the family environment can indeed be a factor that triggers speech delays and language disorders in children. Children exposed to two languages simultaneously often face challenges in adjusting and coordinating pronunciation between the two languages. Karademir & Yılmaz (2023) revealed that children can experience language barriers when they struggle to distinguish phonological rules from two different sound systems. Moreover, children raised in bilingual environments are prone to language interference, which affects their phonological, lexical, and grammatical aspects. As a result, the child's language ability tends to be dominated by the language most frequently used in daily life. Based on this, it can be assumed that children growing up in bilingual environments may face obstacles in the first language acquisition process. Therefore, the researcher is interested in further investigating the forms of language disorders experienced by children in bilingual environments. To address this question, the researcher conducted a case study on two children who

experienced speech disorders, with different parenting and language environment backgrounds.

1.1. Speech Delay

Speech delay refers to a condition in which a child does not reach typical speech and language milestones at the expected ages. Normally, by around 12 months, children begin to babble and may say their first words, while by the age of 24 months, they are generally able to form simple phrases. When a child shows slower progress in developing communication abilities than what is developmentally appropriate, it could be a sign of a speech delay (Nouraey et al., 2021). Children with speech delay often face difficulties in expressing themselves verbally. This can be seen in limited vocabulary, difficulty forming sentences, or inability to pronounce words correctly. These communication limitations can lead to frustration in the child, which may trigger behavioral problems and hinder their ability to socialize while effective communication is an important aspect of building relationships and expressing needs (Cohn et al., 2022). Furthermore, language development delays in early childhood can have long-term effects on a child's academic performance and social skills in the future. Speech delays in children can be influenced by a variety of interconnected factors. One common cause is excessive smartphone use, particularly when screen time exceeds recommended limits, reducing the frequency of direct verbal interactions between the child and their surroundings. Additionally, neurological conditions such as autism spectrum disorder are significant factors that can impede language development, as children with autism tend to have difficulties with social communication and expressive language. Environmental factors, such as limited language stimulation at home and poor-quality interactions between the child and their parents, further exacerbate the situation. Equally important, socioeconomic factors also play a role, where families with limited access to education, information, or healthcare services are less likely to provide optimal support for the child's growth and development (Karani et al., 2022; Lase et al., 2024; Mei et al., 2020; Putra et al., 2022). The combination of these factors can cause significant barriers in first language acquisition if not addressed early and appropriately.

In this study, the paper focuses on how speech disorders occur in toddlers raised in bilingual environments. This refers to the findings by Karademir & Yılmaz (2023), which state that children growing up in bilingual environments are at risk of facing difficulties in mastering and acquiring language optimally. These difficulties are caused by the higher complexity of verbal interactions compared to children raised in monolingual environments, as also supported by findings from (Kumar et al., 2022). The findings from this case study will be further discussed in the results and discussion section.

2. Method

This study adopts a qualitative approach to explore the phenomenon of language disorders in children raised in bilingual environments. Within this framework, the study uses a case study method. The case study allows the researcher to conduct an intensive exploration of individuals, groups, or specific situations in order to understand the complex dynamics of a phenomenon. This approach is considered appropriate as it provides an opportunity to delve deeply into personal experiences in this context, including the experiences of children with language disorders and the perspectives of their parents (O'Shea et al., 2024). Therefore, case studies are highly beneficial for understanding language disorders, particularly because they can reveal subtle details that might not be accessible through quantitative approaches.

In its implementation, this study involves two male children, aged 4 and 5, from different family backgrounds. The 4-year-old child (R1) is raised in a family with a high level of education, while the 5-year-old child (R2) comes from a family with a lower level of education. Both children exhibit signs of language development disorders, such as speech delay and traits within the autism spectrum. R1's parents come from two different ethnic groups, so in their daily life at home, R1 is exposed to two languages, namely Indonesian and Buginese. Meanwhile, R2's parents, who are also from different ethnic backgrounds, actively use three languages in interactions with their child: Indonesian, *Buginese*, and *Kailinese*.

To collect relevant data to answer the research questions, this study employs observation and interviews with the parents of each child. The children were observed for 2 months to assess their communication patterns, followed by interviews with the parents to confirm their parenting practices and other aspects that might not be visible during observation. This technique aims to provide a comprehensive understanding of the children's conditions, daily experiences, and language development processes. The data obtained from the interviews and observations were then analyzed using thematic analysis to identify emerging patterns. This analysis also helps compare the two subjects in terms of language disorder symptoms and the factors that may contribute to these conditions. In general, thematic analysis is an effective approach for examining complex and multidimensional issues, such as individual experiences within healthcare systems, societal views on social issues, or challenges faced by specific groups (O'Toole et al., 2020).

3. Results and Discussion

This section presents data obtained through observations and interviews with the parents of two children from different bilingual backgrounds. The information relates to the characteristics of the language disorders experienced by the children, the parenting patterns applied by their

parents, and various other factors suspected to contribute to the emergence of these language disorders. In the table below presents the observation results for two toddlers aged 4 and 5. For ease of identification, the 4-year-old child is labeled as R1, while the 5-year-old child is labeled as R2.

Table 1. Observation Results of R1 and R2

R	Social Withdrawal	Receptive Language Disorder	Expressive Language Disorder	Comorbid Factors	Apraxia	Speech Delay
1	No symptoms	No	Yes	None	Symptoms of apraxia; inconsistent pronunciation	Symptoms present; unable to consistently produce complete sentences
2	Symptoms present	Yes	Yes	Early childhood dental damage/caries	No	Avoids interaction with others except through gadgets

Based on the observation results, R1 did not exhibit signs of social withdrawal. The researcher noted that R1 showed a strong interest in interacting, both with peers and with unfamiliar individuals. His curiosity often led him to initiate greetings using simple expressions like “hey” and “hello.” However, R1 has not yet been able to produce true speech optimally and more frequently uses nouns and demonstrative pronouns such as “this” and “that” to express his needs or desires.

The researcher also observed that R1 was able to comprehend some simple commands. For example, he could follow instructions from his parents such as pointing to specific objects, sitting down, eating, closing the door, or retrieving something. When introduced to new objects and asked to name them, R1 appeared enthusiastic. However, inconsistencies in pronunciation were observed when he attempted to imitate the names of these objects. For instance, when saying the word “*rumput*” (grass), R1 would pronounce it as “ruku” or “ru’u.” This pattern indicates variation in pronouncing the same word, which may be a sign of childhood apraxia of speech. Additionally, R1 had difficulty pronouncing words that contained more than two syllables. These findings will be further illustrated in the following table.

Table 2. R1’s Speech Patterns

No	Words	Meaning	R1 Utterances	Phonological Transcriptions
1	Lampu	Lamp	“Pu”	/pu/
2	Menyanyi	Sing	“Nai”	/nai/
3	Terimakasih	Thank you	“Acu”	/aʧu/
4	Menonton	Watch	“Noton”	/noton/
5	Makanan	Food	“Nyam-nyam”	/ɲyam- ɲyam/

The data in Table 2 illustrates how R1 pronounces several words, most of which contain phonotactically heavy syllables. R1 encounters difficulty in articulating or imitating the correct pronunciation of these words. As a compensatory strategy to maintain mutual understanding, R1 tends to pronounce only one of the more easily accessible syllables. For instance, in the word *lampu* (lamp), R1 only says “pu” because the bilabial stop /p/ is easier to produce than the

liquid sound, which requires more oral-motor flexibility. A similar issue occurs with the word *menyanyi* (to sing), where R1 struggles with the palatal nasal /ɲ/ and opts to omit complex phonemes. Unlike the two previous examples, the word *terimakasih* (thank you) is pronounced as "acu." According to R1's parents, this is an attempt to imitate the English expression "thank you," which is frequently used by R1's mother. R1 has already associated the meaning of *terimakasih* with the phrase *thank you*, but prefers the English version as it consists of only two syllables, making it easier to pronounce.

R1 still finds it challenging to pronounce words with heavy, three-syllable structures, yet he is able to understand and associate the meaning of such words with concrete objects. Interestingly, R1 also demonstrates comprehension of abstract concepts, such as commands, prohibitions, and object permanence. What stands out about R1 is that despite his speech delay, he is very enthusiastic about verbal interaction with others and shows a strong curiosity toward people. R1 remains attentive and responsive to speech directed at him, even though he struggles to associate certain words with their meanings. This issue is likely due to the limited verbal stimulation provided by his parents, which will be elaborated on in the parenting section.

In contrast, R2 shows no interest in the presence of others. He is primarily focused on solitary play activities, indicating signs of social withdrawal. However, when R2 needs something he cannot do on his own, he will attempt to guide someone using gestures or by pulling their hand for assistance. Apart from these instances, he tends to engage in repetitive activities such as running back and forth across a room or repeatedly jumping on a bed. There is no verbal output from R2 during interaction attempts, as R2 showed no response to instructions and avoided eye contact, indicating a receptive language disorder. In terms of expressive language, R2 also showed no attempts to produce speech to express his wants or feelings. He remained silent and focused solely on his activities.

Additionally, R2's speech development was further hindered by dental issues. He suffered from severe tooth decay and caries, which led to pain and the eventual need to extract all of his teeth. Nutritionally, R2 consumed only sweet foods like chocolate and sugar, while refusing other types of food, which exacerbated the dental condition. Interestingly, R2 showed a surprising preference for and responsiveness to English-language content from gadgets. He appeared to understand and engage with this content—such as counting to ten or mimicking children's songs from the device. The researcher observed that R2 is actually capable of imitating some words, but due to inconsistent exposure to three languages in his home environment, he struggles to associate meaning with specific words. The lack of consistent linguistic input and minimal parental stimulation further worsened his condition.

3.1. Parenting Style of R1

One of the key factors influencing the success of first language acquisition in children is the parenting style applied by their caregivers. R1 and R2 come from families with differing economic, educational, and cultural backgrounds. However, both share a common issue: low levels of language stimulation and inconsistency in language use within their bilingual households. In the following quote, "P" refers to the parent:

> "I rarely interact with my child due to work. Sometimes I speak in the local language, and other times I use Indonesian when communicating with my child."
>
> – P1

The lack of time allocated for interaction with the child has had a significant impact on the slow pace of language acquisition. This issue is compounded by P1's habit of allowing R1 to use a smartphone for more than three hours a day when busy. The inconsistency between the use of Indonesian and the local language further complicates the child's ability to associate meaning with words accurately. Despite P1's higher educational background and awareness of the risks of speech delay, they still allowed unsupervised and unrestricted access to digital devices. In fact, during the critical period of language development, children need dynamic linguistic interactions to support optimal verbal communication growth.

Moreover, P1 realized that their child was experiencing a speech delay when R1 reached the age of two and had not spoken a single word, while peers had already begun speaking. Recognizing this, P1 sought help from a speech pathologist and began to make adjustments to their parenting approach. As the quality of parent-child interactions improved and screen time was reduced, P1 reported notable progress in the child's language skills by age four. The child, who previously could not say a word, was now able to produce words with up to two syllables. However, the researcher observed that P1 still occasionally allowed R1 access to digital devices.

> "At least our child still wants to communicate in his own way..."
>
> – P1

For P1, the child's willingness to communicate was a positive sign, as it indicated the potential for the child to continue receiving linguistic input from their social environment, including peers. Interestingly, R1 actually showed a greater interest in playing and interacting with other children than in using digital devices. As a result, P1 expressed gratitude for the presence of neighborhood children and allowed R1 to play with them freely. The researcher assessed that these social interactions were a crucial factor contributing to R1's linguistic progress. A child who initially could not utter a single word began to show notable improvement after being given the opportunity to engage in active communication with peers. The parent's early recognition of speech delay symptoms and P1's openness to feedback regarding their parenting style played a significant role in supporting this positive development in the child's language acquisition.

3.2. Parenting Style of R2's Parents

In contrast to P1, the parents of R2 were late in recognizing that their child was experiencing speech delays or language disorders. P2 was also found to have made several decisions that potentially harmed the child's language development, such as opting to have all of R2's decayed teeth extracted. One major contributing factor was P2's limited understanding of the risks of speech delay and the importance of early detection.

> "I believe every child develops at their own pace."

– P2

This statement reflects P2's belief that developmental variation is normal, which led them to delay seeking professional help. As a result, R2's condition was left untreated until the signs of speech delay became more apparent. Additionally, P2 perceived R2's repetitive behaviors and social withdrawal as amusing rather than concerning. However, such behaviors are actually early indicators of autism spectrum disorder (ASD), which requires early evaluation and intervention. Furthermore, P2 exhibited a tendency toward denial regarding the child's condition. This was evident in their lack of effort to seek information or professional assistance, and their inclination to normalize behaviors that actually pointed to developmental challenges. Delayed recognition and response to these signs adversely impacted R2's potential for optimal language acquisition.

P2 also had a habit of handing over a smartphone to R2 whenever the child cried or became fussy. The goal was to gain uninterrupted time for rest or personal activities. While this strategy may seem effective in the short term, it negatively affects the child's development, especially in communication and social interaction. As a result, R2 became accustomed to unsupervised smartphone use for over eight hours per day. This situation was further exacerbated by a parenting pattern in which P2 always fulfilled R2's requests for sugary foods as a way to stop tantrums. Excessive sugar consumption causes quick energy spikes—commonly known as a sugar rush—due to the rapid absorption of simple carbohydrates into the bloodstream (Schiltz & Witte, 20212). This condition may lead to heightened physical activity and potentially worsen symptoms of hyperactivity, particularly in children showing signs of autism spectrum disorder. As a consequence, R2 frequently stayed up late, engaging in repetitive activities for extended periods. The high sugar intake led to severe dental damage, causing significant pain.

"My husband and I decided to have all of our child's teeth because it was painful for him."

– P2

This decision resulted in R2 experiencing oral function issues, making it difficult for the child to produce meaningful speech. Additionally, early tooth loss—especially of the front teeth—can disrupt oral structural development and alter speech patterns. This may lead to difficulties in articulating certain sounds, thereby hindering effective communication (Kusuma et al., 2023). Moreover, after consulting a pediatrician, R2 was diagnosed with autism spectrum disorder. One of the most prominent features was the lack of social responsiveness, including the absence of eye contact even when parents attempted to engage. R2 rarely made eye contact and showed minimal response to their name—occasionally glancing briefly before returning to repetitive activity. This behavior reinforced the indication of impaired social interaction and joint attention, both of which are common in children with autism.

In addition, R2's parents come from different ethnic backgrounds. From an early age, R2 was exposed to multiple local languages from each parent, along with Indonesian. However, the lack of consistency in language use at home became a major obstacle in acquiring a first language. R2's mother often engaged in code-switching during interactions, which made it

difficult for R2 to grasp stable linguistic structure and meaning. This condition was further worsened by excessive screen time, with R2 spending more than eight hours daily on a smartphone. Through this device, the child was exposed to various languages, including foreign ones, that were not aligned with their stage of language development. This diverse, unfiltered input contributed to linguistic confusion and hindered the effective establishment of R2's first language foundation.

Case study results of the two toddlers indicate that both children experienced language development disorders, specifically in the form of speech delay, with bilingual home environments identified as a contributing factor. In line with the findings of Putra et al. (2022), this study reveals that excessive, unsupervised use of smartphones is a major cause of speech delay in both cases. A lack of parental supervision during digital device use significantly reduces the frequency of direct verbal interaction, which should be a primary source of language stimulation during a child's early developmental period.

Moreover, parental education and socioeconomic conditions—as discussed by (Lase et al., 2024)—also play a role in determining how well parents can identify and respond to speech and language delays in a timely manner. Lower levels of education and limited economic resources often restrict access to information and professional services, leading to delays in the identification and treatment of speech disorders. Family background also plays a crucial role in language acquisition. Children from lower socioeconomic families typically have limited access to environments that support optimal language development. The lack of high-quality verbal interaction in everyday life results in reduced exposure to vocabulary, sentence structures, and communication patterns necessary for language learning (Karani et al., 2022). However, the findings of this study suggest that economic status is not always the determining factor. For example, R1—who comes from a middle to upper-income family—still experienced language development challenges. This was largely due to suboptimal parenting practices, as the parents' work commitments limited the amount of interaction and attention given to the child's language needs.

On the other hand, parents with higher levels of education and knowledge are generally more aware, attentive, and responsive to their child's developmental needs—both physical and cognitive. These parents are more likely to recognize early signs of speech delay and, with better parenting literacy, are typically more proactive in seeking information, consulting professionals, and providing supportive interventions to aid their child's language development. Another major contributing factor is the lack of stimulation from parents who are preoccupied with daily routines and personal activities. In fact, children are generally expected to begin producing their first words within the first 18 months of life. The absence of rich linguistic interaction from caregivers deprives the child of the critical language input needed during this sensitive developmental window.

Furthermore, exposure to fast-paced digital media with little linguistic context—such as rapidly shifting videos without meaningful narration—can worsen the problem. This kind of content not only reduces opportunities for children to naturally acquire the structure of language, but also increases the risk of cognitive overload, ultimately hindering optimal language acquisition (Karani et al., 2022). In addition, digital content consumed by young

children is often in different languages, which creates a complex verbal environment during a stage when consistent linguistic input is essential. As noted by Kumar et al. (2022), this complexity can hinder the optimal progression of language acquisition in children.

On one hand, some studies suggest that bilingual environments may contribute to delayed speech in children. For instance, Sukanadi et al. (2022) observed that using more than one language within the family setting can negatively impact a child's receptive language ability, potentially causing delays in auditory responsiveness and language acquisition. Similarly, Demir & Özcan (2021) reported that constant language mixing in bilingual households can be one of the factors contributing to speech delays. Additionally, Kalashnikova & Carreiras (2021) found that bilingual infants may experience delays in distinguishing certain phonetic contrasts, indicating that early language processing may become more complex due to bilingual exposure. However, further experimental research is still needed to determine whether bilingualism itself is a primary factor contributing to speech delays, or whether other variables—such as those discussed above—play a more significant role. Therefore, more comprehensive statistical analyses and experimental studies are strongly recommended to gain a clearer understanding of this phenomenon.

4. Conclusion

This study aims to identify the forms of speech disorders in early childhood. Through a case study of two toddlers raised in bilingual environments, this article finds that both children experienced speech delays as well as symptoms associated with autism. While the bilingual environment appears to be one of the contributing factors, the findings of this study indicate that bilingualism is not the sole or primary cause. Other factors such as socioeconomic conditions, parents' educational background, and comorbidities related to speech organ health also play significant roles in contributing to language development disorders. These findings underscore the critical role of parents in providing sufficient time and attention, as children acquire language not through formal instruction but through interaction and exposure to linguistically rich environments. Therefore, prompt parental response and a sound understanding of child development processes are essential to prevent delays in language, cognitive, and psychomotor development. The researcher also acknowledges the limitations of this case study. There is room for further exploration, particularly in examining the relationship between bilingualism and speech delay through experimental approaches. The results of such future research are expected to make broader contributions—not only for parents but also for scholars in the fields of psycholinguistics and child development.

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