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SPEECH DELAY IN EARLY CHILDHOOD: A CASE STUDY OF KINDERGARTEN CHILDREN IN CENTRAL KALIMANTAN

Yulia Fariza[1], Adisty Vanalestari[2]

yuliaspd875@admin.paud.belajar.id[1]
adisty.vlestari@gmail.com[2]

Universitas Negeri Jakarta, Jakarta

ABSTRACT

Language development plays an important role in early childhood, as it supports children's communication, social interaction, and readiness for formal education. However, some children experience delays in speech development, commonly referred to as speech delay. This study aimed to identify factors contributing to speech delay in early childhood and to explore the challenges faced by teachers and the strategies they use in early childhood education settings. This qualitative case study involved three young children with speech delay. Data were collected through semi-structured interviews with the classroom teachers and parents of the three children, and were analyzed using thematic analysis. The findings indicate that speech delay was influenced by several factors, including early and excessive exposure to digital devices, limited language stimulation from parents, limited social interaction, psychological factors such as shyness and anxiety, and oral-motor limitations that affect speech clarity. Teachers faced challenges such as minimal verbal responses, children's reliance on nonverbal communication, individual developmental differences, limited instructional time, and restricted access to speech-language professionals. To address these challenges, teachers implemented gradual and individualized language stimulation, play-based activities, peer-supported interactions, tongue articulation exercises, focus and attention training, and positive reinforcement. These findings suggest that close collaboration among teachers, parents, and related professionals is essential to support children's speech and language development effectively.

Keywords: *early childhood education, language development, speech delay, teacher strategies*

INTRODUCTION

Language plays a central role in human communication, social interaction, and early learning. In early childhood, speech development is significant because it influences

children's ability to communicate, interact socially, and prepare for formal education (Emelyanova et al., 2018; Sainain et al., 2020). When speech development is delayed, children may experience difficulties that extend beyond communication, affecting their academic readiness, social participation, and emotional well-being.

Children's speech development emerges through continuous interaction with their surrounding environments. Daily verbal exchanges with caregivers, peers, and teachers provide essential opportunities for vocabulary growth and communicative competence. Research has consistently shown that responsive interactions, such as turn-taking and meaningful conversational engagement, support stronger speech and language outcomes in early childhood (Rowe, 2020; Preza & Hadley, 2022). Similarly, in early childhood education settings, the quality of teacher–child interaction contributes significantly to children's speech and language development (Yang et al., 2021).

Some children develop speech more slowly than expected for their age. This condition, commonly referred to as speech delay, is characterized by delayed speech production relative to developmental norms (Abugharsa, 2024; Sunderajan & Kanhere, 2019). Speech delay may limit children's ability to express themselves effectively and to engage in social interactions. It has been associated with later challenges in learning, emotional regulation, and social development (Ulfa et al., 2022).

Previous studies suggest that a range of interacting factors influences speech delay. Environmental influences play a prominent role, particularly when children experience limited language stimulation at home, infrequent verbal interaction, or exposure to inappropriate speech models during critical developmental periods. In recent years, increased exposure to digital devices has become a growing concern, as excessive screen time may reduce opportunities for direct verbal interaction and is associated with poorer speech outcomes in young children (Panjeti-Madan & Ranganathan, 2023; Patel et al., 2025; Wan et al., 2025).

In addition to environmental influences, speech delay may be associated with biological and developmental factors, including hearing difficulties, nutritional problems, genetic predispositions, and broader neurodevelopmental vulnerabilities (Korpilahti et al., 2016; Duncan & Matthews, 2018; Aripirala et al., 2023). These factors often interact with children's social environments, highlighting the complexity of speech delay and underscoring the importance of early identification and appropriate support.

However, in early childhood education settings, teachers often encounter practical challenges in supporting children with speech delays. These challenges include minimal verbal responses from children, low self-confidence, individual differences in development, limited instructional time, and restricted access to speech-

language professionals. Such challenges may be particularly evident in under-resourced regions such as Central Kalimantan, where empirical evidence on speech delay in kindergarten contexts remains limited. Accordingly, this study aims to identify factors contributing to speech delay in early childhood and to explore the challenges faced by teachers and the strategies they use in early childhood education settings.

LITERATURE REVIEW

Speech Delay in Early Childhood

Speech delay refers to a condition in which children's speech development progresses more slowly than expected according to age-related milestones. Children with speech delay often show limited vocabulary, unclear articulation, or difficulty combining words compared to their peers (Sunderajan & Kanhere, 2019; Abugharsa, 2024). If not identified early, speech delay may interfere with children's ability to communicate effectively in both social and educational contexts.

Research indicates that early childhood speech delay is associated with later difficulties in academic learning, social interaction, and emotion regulation (Hobson et al., 2022). In some cases, speech delay may also be related to oral-motor limitations that affect daily functioning. These findings highlight the importance of early identification and appropriate support for children experiencing speech delay.

In addition to communication difficulties, early childhood speech delay may affect children's participation in classroom activities and peer interactions. Children with limited speech abilities often exhibit low confidence in speaking and may avoid verbal engagement during learning and play activities, thereby further limiting opportunities for speech practice. Previous studies have shown that early speech difficulties are associated with reduced classroom participation and an increased risk of social withdrawal, particularly in early childhood education settings (McCormack et al., 2020; Wallace et al., 2021). As these challenges are closely connected to children's daily environments and interactions, speech delay cannot be viewed solely as an individual developmental issue. However, it must also be understood in relation to environmental influences and educational contexts, highlighting the need to examine the factors contributing to speech delay and the role of early childhood education settings in supporting affected children.

Factors Influencing Speech Delay

Previous studies suggest that multiple interacting factors influence speech delay. Environmental factors, particularly the quality and frequency of verbal interaction between children and caregivers, play a central role in early speech development. Children who receive limited language stimulation at home are at greater risk of

experiencing speech delay (Rowe, 2020; Preza & Hadley, 2022).

In addition, increased exposure to digital devices has become a growing concern in early childhood. Excessive screen time may reduce opportunities for direct verbal interaction, which is essential for speech development (Panjeti-Madan & Ranganathan, 2023). Recent studies indicate that higher levels of parental and child screen time are associated with an increased risk of speech delay, particularly when digital media replace interactive communication (Patel et al., 2025; Wan et al., 2025). Biological and developmental factors, including hearing difficulties, nutritional issues, and neurodevelopmental vulnerabilities, may further contribute to speech delay and often interact with environmental conditions (Korpilahti, 2016; Boerma et al., 2023).

The Role of Teachers in Early Childhood Education

In early childhood education settings, teachers play a crucial role in identifying children with speech delays and providing daily language stimulation. Through classroom interactions and play-based activities, teachers support children's speech development by modeling language use and encouraging peer communication in natural learning contexts (Yang et al., 2021). As children spend a significant amount of time in early childhood classrooms, teachers are well-positioned to observe language difficulties and to implement responsive support during routine activities.

However, teachers face persistent challenges in implementing these strategies, such as limited instructional time, children's low speaking confidence, developmental variability, and limited access to speech-language professionals (Hartini, 2025; Mufidah & Hayati, 2023), particularly in under-resourced and regional contexts. Despite the acknowledged importance of teachers' roles, qualitative research on teachers' experiences in implementing strategies to support children with speech delays remains limited (Fitri et al., 2025), highlighting the significance of the present study and informing the second research question.

To support children with speech delays, teachers employ various classroom-based strategies to promote language development. Previous studies report that teachers commonly use strategies such as language modeling, repetition, and expansion of children's utterances to help children produce more complex speech. Play-based strategies, including role-play, storytelling, and interactive games, are also frequently used to create a low-pressure environment that encourages verbal interaction and peer communication (Yang et al., 2021; Mufidah & Hayati, 2023; Fitri et al., 2025). In addition, teachers may provide individualized support by allowing extra response time, using visual cues, and offering positive reinforcement to build children's confidence in speaking.

METHODS

This study adopted a qualitative case study approach to obtain an in-depth understanding of speech delay in early childhood and the challenges faced by teachers in early childhood education settings. A case study design was considered appropriate because it allows

detailed exploration of complex phenomena in real-world contexts (Creswell, 2014). The research was conducted at TK Raudhatul Ilmi, an early childhood education institution, and involved three kindergarten children identified as having speech delays, three classroom teachers, and the children's parents. The participants were selected based on teachers' and parents' recognition of the children's speech delay and parents' efforts to seek speech therapy, ensuring informed and relevant perspectives.

Data were collected through semi-structured interviews. Semi-structured interviews were conducted with three classroom teachers and three parents to explore factors contributing to speech delay, challenges encountered in supporting children's speech development, and strategies used in early childhood education settings. Interviews were conducted at participants' convenience and in Indonesian to ensure comfort and effective communication. Field notes were taken during interviews to capture contextual information and support data interpretation.

Table 1. Speech Delay Identification Indicators Based on Teachers' and Parents' Reports

No	Assessment Aspect	Behavioral Indicator	✓	✕
1	Expressive Language	The child rarely speaks spontaneously		
2	Expressive Language	The child uses a very limited vocabulary		
3	Expressive Language	The child is unable to combine two words		
4	Expressive Language	One word is used to express multiple meanings (e.g., "want")		
5	Receptive Language	The child understands simple instructions		
6	Speech Initiative	The child rarely initiates verbal communication		
7	Speech Initiative	The child speaks only when it is necessary		
8	Social Interaction	The child prefers interacting with only one specific		

		person		
9	Social Interaction	The child shows limited interaction with peers		
10	Social Interaction	The child avoids verbal communication in group activities		
11	Psychological Aspect	The child appears anxious or lacks confidence when speaking		
12	Psychological Aspect	The child prefers to remain silent rather than attempt to speak		
13	Articulation	The child's speech is unclear or difficult to understand		
14	Oral Motor Skills	The child shows limited or stiff mouth/tongue movements		
15	Environmental Factor	The child has high exposure to digital devices (passive viewing)		

Data were analyzed using thematic analysis, informed by Miles and Huberman's (1994) interactive model of qualitative data analysis, which consists of data reduction, data display, and conclusion drawing. During data reduction, interview transcripts and field notes were systematically organized and coded to identify meaningful patterns. The data were then presented in a structured table to facilitate interpretation and comparison across cases. Finally, conclusions were drawn from recurring themes regarding factors influencing speech delay and the challenges teachers face in early childhood education settings.

RESULTS

Based on semi-structured interviews with teachers and parents, this study identified several factors associated with speech delay among three children in an early childhood education setting. The results describe observable patterns in children's communication behaviors, learning participation, and instructional responses across both home and classroom contexts.

Digital Device Exposure

All three children were exposed to digital devices at an early age. Two children began using gadgets at around two years old, while one child started using a gadget at the age of one. The children primarily used devices for passive activities, such as

watching videos, often for extended periods. Parents reported little verbal interaction during gadget use, and in some cases, they were also using their own devices. As a result, opportunities for face- to-face communication were limited. In several cases, parents explained that they rarely encouraged children to speak clearly because they already understood what the children wanted to say. Gadgets were also used to keep children calm, which reduced opportunities for children to start talking on their own. Consequently, children tended to use gestures or short words rather than longer verbal interactions.

Both parents and teachers described similar observations regarding children's communication habits. One parent explained:

P1: *"My child often watches videos on the phone, and during that time, we rarely talk. I already understand what my child wants, so I do not always ask them to say it clearly."*

A teacher shared a related observation from the classroom:

T1 (Teacher): *"The child is more used to watching and listening. When asked to talk, the child often answers with only one word or stays quiet."*

Another parent described using gadgets to manage children's behavior:

P2 (Parent): *"I give the phone to keep my child calm, especially when the child becomes restless."*

Teachers also noticed differences in children's attention during verbal activities:

T2 (Teacher): *"The child can focus well when looking at pictures or screens, but when it is time to talk, the child quickly loses attention."*

Overall, both parents and teachers consistently reported that frequent use of gadgets was accompanied by limited verbal interaction. This condition reduced children's opportunities to practice spoken communication in both home and classroom settings.

Limited Social Interaction

The results indicate that the children experienced limited social interaction during early developmental stages. Student A and Student B had reduced interaction with peers and non-family members during the COVID-19 pandemic, while Student C experienced minimal verbal engagement while being cared for by a grandparent. Teachers reported that the children often preferred solitary activities and had difficulty

participating in group learning, which limited their exposure to peer communication. In the classroom, Student A and Student B were frequently observed withdrawing during group activities and choosing to engage in individual play rather than interacting verbally with peers. Student A required repeated meetings with the same peers before feeling comfortable engaging in social interaction, while Student C was more socially adaptive but still showed limited verbal participation during play. Consequently, opportunities for the children to practice expressive language in natural peer contexts were restricted.

Parents also reported similar experiences of limited social interaction. One parent explained:

P1: *"During the pandemic, my child rarely met other children. Most of the time, my child stayed at home and did not have many chances to talk with others."*

Another parent shared their experience when the child was cared for by another family member:

P3: *"When my child stayed with the grandmother, the child was rarely invited to talk, only spoken to for important things."*

Across cases, reports from both parents and teachers indicated limited opportunities for children to interact verbally with peers and adults. These conditions reduced children's exposure to varied communicative situations that support expressive language development.

Psychological and Emotional Factors

Psychological factors were evident in the children's communication behaviors. Student A demonstrated shyness and discomfort when interacting with unfamiliar individuals and required repeated exposure before feeling comfortable speaking. Teachers observed that some children remained silent in group settings and avoided verbal participation in new or crowded environments. These behaviors reduced the frequency of spontaneous verbal expression in classroom settings. In contrast, Student B and Student C did not show fear toward new people but still experienced difficulties expressing themselves verbally despite appearing socially confident. Teachers reported that Student B often expressed needs through shouting or physical gestures rather than clear speech, which sometimes led to misunderstandings with peers. Meanwhile, Student C appeared confident and socially active but frequently spoke

in an unclear manner, reducing the effectiveness of verbal interaction.

Teachers and parents described these emotional and behavioral patterns during daily interactions. One teacher stated:

T2: *"The child is not afraid to be around others, but when asked to speak, the words do not come out clearly, or the child stays silent."*

A parent also shared a similar concern:

P3: *"My child is confident and likes to meet people, but often cannot explain what they want using words."*

Taken together, these findings indicate that emotional comfort and confidence alone did not guarantee effective verbal communication. Difficulties with speech expression continued to limit both the frequency and the clarity of children's spoken interactions in classroom contexts.

Oral Motor and Articulatory Limitations

All three children showed persistent difficulties in speech clarity. Teachers reported unclear articulation across cases, and Student C was specifically observed to have a short tongue. Parents reported that articulation or oral-motor exercises were not generally practiced at home. As a result, teachers frequently experienced difficulty understanding the children's speech, and the children often relied on gestures, body movements, or single- word utterances to express their needs. In Student A, speech production was described as loud but unclear, making it difficult for teachers to understand the intended message. Student B showed difficulty producing speech sounds and often used shouting instead of clear verbal articulation to express needs. Although Student C appeared confident in social interactions, articulation difficulties persisted, limiting speech intelligibility. These articulation challenges affected the effectiveness of verbal communication both in classroom interactions and daily activities.

Teachers and parents provided further descriptions of these articulation difficulties. One teacher explained:

T1 (Teacher): *"The child tries to speak, but the pronunciation is not clear, so I often have to ask the child to repeat several times."*

A parent also shared a similar observation:

P2: *"My child wants to talk, but the words sound unclear, so sometimes I just guess what my child means."*

In daily interactions, these articulation difficulties frequently led to misunderstandings between children and communication partners. As a result, children tended to rely more on nonverbal strategies than on extended verbal expression.

Classroom Challenges and Instructional Strategies

Teachers reported multiple challenges in addressing speech delay in the classroom. These challenges included minimal verbal output, reliance on non-verbal communication, selective peer interaction, and difficulty participating in group learning activities. Some children produced only single words or vocalizations to express a variety of needs, while others avoided verbal interaction altogether in group settings. One teacher explained:

T1: *"The child wants to talk and often tries to ask questions, but the words are not clear, so sometimes I do not understand what the child is saying."*

Another teacher highlighted children's tendency to avoid group interaction:

T2: *"During group activities, the child often prefers to play alone and does not want to join friends, especially when verbal communication is needed."*

Teachers also noted reliance on non-verbal communication:

T3: *"The child rarely uses words and mostly communicates through gestures, touching, or body movements to express needs."*

In response to these classroom challenges, teachers described several instructional strategies used to support children's speech development. These strategies included individualized verbal stimulation through one-on-one interaction, frequent verbal modeling, articulation exercises, and the use of simple and repeated instructions. Teachers emphasized that verbal stimulation was provided gradually and without pressure to reduce children's anxiety.

T3: *"I usually talk to the child one-on-one, repeat simple words, and encourage the child to try speaking without forcing."*

Teachers also employed play-based activities, such as singing, storytelling, and interactive games, to foster a relaxed learning environment and encourage verbal expression.

T2**:** *"We use songs, stories, and simple games so the child feels relaxed and more comfortable speaking."*

In addition, teachers implemented strategies to improve children's focus and attention during learning activities. These included providing short, structured tasks, giving clear instructions, and repeatedly redirecting children's attention when they became distracted before encouraging verbal responses.

T3: *"I help the child focus by giving short tasks and reminding them again and again to pay attention before asking them to speak."*

To enhance social communication, teachers also employed peer-mediated approaches, pairing children with familiar classmates to gradually increase comfort with peer interaction. Furthermore, teachers described efforts to collaborate with parents by encouraging consistent communication practices at home and reducing children's use of digital devices.

T7: *"I often ask parents to talk more with their child at home and reduce gadget use, so the child can practice speaking more often."*

The level of parent–teacher collaboration varied across cases: consistent cooperation was reported in two cases, whereas minimal parental involvement was reported in one. In cases with active collaboration, parents supported communication practices at home in line with teachers' strategies. In contrast, limited parental involvement reduced the continuity of speech stimulation beyond the classroom.

DISCUSSION

The findings of this study demonstrate that speech delay in early childhood is a multifactorial condition influenced by environmental, social, psychological, and physiological factors. Early and excessive exposure to digital devices emerged as a prominent environmental influence. Consistent with prior research, passive screen use was associated with reduced reciprocal interaction, which is essential for early language development (Madigan et al., 2019; Madigan et al., 2020). When screen-based activities replace interactive communication, children receive fewer conversational turns, which limits expressive language development.

Limited social interaction further contributed to speech delay. Reduced opportunities for peer and adult interaction, particularly during the COVID-19 pandemic, align with recent findings indicating that restricted social environments negatively affect early language acquisition (Charney et al., 2022; Zuniga-Montanez, 2025). Language

development is inherently social; therefore, limited interaction constrains opportunities for practicing vocabulary, sentence construction, and pragmatic communication skills.

Psychological and emotional factors also contributed to children's communication behaviors. Shyness, discomfort in unfamiliar environments, and avoidance of group interaction reduced children's willingness to speak. These findings are consistent with studies suggesting that emotional insecurity and communication anxiety can suppress verbal output and increase reliance on non-verbal communication, particularly in early childhood classroom contexts (Hartati et al., 2024).

Physiological factors, particularly oral motor and articulatory limitations, further affected speech clarity and intelligibility. Observations of unclear articulation and restricted tongue movement are consistent with previous research indicating that oral- motor constraints may interfere with speech-sound production and require targeted intervention (Wang et al., 2022). When articulation difficulties are not addressed early, children may experience repeated communication breakdowns, which can negatively affect motivation to speak.

Regarding teacher challenges, the findings highlight the complexity of classroom tasks early childhood teachers face when supporting children with speech delays. Limited verbal output, selective social interaction, and individual developmental differences make it difficult to provide intensive language support within group-based learning environments. Nevertheless, the instructional strategies employed by teachers, such as individualized verbal stimulation, articulation practice, play-based learning, and peer- mediated interaction, are consistent with evidence-based approaches shown to support early language development (Amalia & Nurlina, 2024; Foster et al., 2024).

Importantly, parent-teacher collaboration emerged as a critical factor in support. Children whose parents actively reinforced communication practices at home demonstrated more consistent engagement in classroom language activities (Alfira & Siregar, 2024). In contrast, limited parental involvement appeared to hinder continuity of intervention. This finding aligns with recent research emphasizing the importance of consistent language stimulation across home and school contexts to support children with speech delay (Wan et al., 2025).

Overall, this study underscores the importance of integrated, patient, and collaborative approaches in addressing speech delay in early childhood. Aligning instructional strategies with children's emotional readiness, social context, and physiological needs is essential for fostering effective speech and language development.

CONCLUSION

This study aimed to identify the factors contributing to speech delay in early childhood and to examine the challenges faced by teachers as well as the strategies used to support children with speech delay in early childhood education settings. The findings indicate that speech delay is influenced by a combination of environmental, social, psychological, and physiological factors, including early and excessive exposure to digital devices, limited language stimulation at home, reduced social interaction, emotional factors such as shyness and anxiety, and oral motor limitations.

Teachers encountered challenges such as minimal verbal responses, children's reliance on non-verbal communication, individual developmental differences, limited instructional time, and restricted access to specialized professionals. To address these challenges, teachers applied gradual and individualized language stimulation, play-based activities, peer-supported interactions, tongue articulation exercises, focus and attention training, and positive reinforcement. From the authors' perspective, effective support for children with speech delay requires early identification, close collaboration between teachers and parents, and consultation with child therapy professionals, such as speech-language therapists, to ensure consistent and comprehensive intervention across home and school environments in early childhood education.

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