

# Digital Exposure and Its Impact on Early Childhood Language Development: A Study on the Role of Family Communication in the Digital Era

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**Abstract.** This study examines the impact of digital exposure on early childhood language development, with a focus on the role of family communication in the digital era. As screen time and gadget use become increasingly prevalent in children's daily lives, concerns arise about the quality of verbal interaction within families. Using a qualitative descriptive approach, this research involved in-depth interviews with five parents of children aged 1–6 years who show signs of speech delay in Jakarta and Depok. The findings reveal that digital exposure, when not accompanied by adequate verbal interaction, can hinder children's ability to acquire language effectively. Family communication plays a pivotal role in mediating these effects; children who receive consistent verbal stimulation tend to develop stronger language skills despite digital exposure. The study highlights the importance of parental awareness, emotional involvement, and balanced screen use in fostering healthy language development. This research contributes to the understanding of how modern technological habits intersect with early language acquisition and emphasizes the need for active and responsive family communication in the context of the digital era.

**Keywords:** Early Childhood, Digital Exposure, Language Development, Family Communication, Speech Delay.

## Introduction

Language development in early childhood is an important foundation in supporting children's cognitive, social, and emotional abilities. Language is a symbolic system used by humans to communicate, convey thoughts, ideas, and emotions, as well as an important means of adapting to the social environment (Fono et al., 2023). Language expression is not limited to verbal symbols in spoken form but can also be conveyed through writing, body movements (gestures), or other media such as music and pantomime (Ayunda, 2024). In the context of child development, language ability is an important indicator of the maturity of cognitive and social functions.

The period from infancy to childhood is a crucial stage in an individual's growth and development. In addition to physical growth, the development of the nervous system and brain during this period also progresses rapidly and is closely interrelated with the development of other basic skills, such as gross motor skills, fine motor skills, socialization abilities, cognitive abilities, and language. Every child has innate potential for language development, but not all children are able to follow these

developmental stages optimally (Etnawati, 2022). According to Vygotsky's Sociocultural Development Theory (1978), child's language development is greatly influenced by social interaction and the surrounding environment, particularly through the role of adults as scaffolding in the language learning process. Therefore, a lack of verbal interaction and limited two-way communication within the family can hinder optimal language development. Among children who develop according to their stage, there are also those who experience obstacles, one of which is speech delay.

Speech delay is defined as a condition in which a child has speaking and communication abilities that are not in line with their developmental age. The causes are diverse, ranging from biological factors such as hearing impairments and neurological disorders, to environmental factors such as lack of stimulation, parenting styles with minimal verbal interaction, and excessive use of electronic devices (Yuniari & Juliari, 2020). Children with speech delay typically exhibit characteristics such as difficulty pronouncing certain vowels or consonants, inappropriate speech duration, improper use of tone or voice pressure, and limited vocabulary. If not promptly addressed with appropriate professional intervention, this condition can escalate into more serious disorders and negatively impact various aspects of the child's life.

Speech delay not only affects communication skills but can also hinder a child's social and emotional development. Children with speech delay often struggle to understand instructions, express their desires verbally, or interact with peers (Nabila et al., 2024). In the long term, this condition risks lowering self-confidence, affecting academic achievement, and disrupting the adaptation process in formal educational environments. Speech delay is often caused by a lack of optimal language stimulation, excessive use of gadgets, and minimal attention to verbal interaction within the family (Ulfa et al., 2022). This is further supported by research by Hasanah et al., (2025) which emphasizes that the use of digital media without supervision is one of the risk factors for language development delays.

This issue becomes even more urgent when aligned with Sustainable Development Goal (SDG) 4, which targets inclusive and equitable quality education for all. Early language development is a foundational skill for achieving learning outcomes, and speech delay can serve as an early barrier to lifelong learning and social inclusion (McKean & Reilly, 2023). The rapid expansion of digital technology, while beneficial in many aspects, has created new challenges in the parenting process, particularly in maintaining balanced communication practices in the household. Several recent studies have highlighted the urgent need for more effective parental education and early screening to address language development issues in the digital age.

However, despite growing awareness, empirical studies focusing on the combination of digital exposure and the quality of family communication remain limited, especially in the context of Indonesian urban families. Most existing research tends to isolate either gadget use or parenting style without exploring the integrated influence on children's language development.

Therefore, this study aims to analyze how digital exposure and family communication patterns contribute to speech delay in early childhood. By examining the biological, psychological, and environmental aspects holistically, this research intends to fill the gap in the existing literature and provide practical insights for families, educators, and health professionals dealing with early childhood development challenges in the digital era.

## Methods

This study examines the issue of speech delay in early childhood by identifying three key factors – biological, psychological, and environmental – and their influence on the overall development of the child. The research employed a descriptive qualitative method with an intrinsic case study design, which allows for in-depth exploration of the phenomenon within the real-life context of children and their families (Pahleviannur et al., 2022).

The participants consisted of five parents who have children aged 1–6 years showing symptoms of speech delay. These participants reside in urban areas of Jakarta and Depok and were selected using purposive sampling. This approach was chosen to ensure that the participants had direct, relevant experience related to the research focus (Suriani et al., 2023). All participants met specific criteria: having a child formally or informally identified with delayed speech and being willing to engage in open and reflective dialogue with the researcher.

Data collection was carried out over a six-month period, from January to June. This process included the preparatory phase, fieldwork, and report compilation. In-depth interviews were

conducted using a semi-structured interview guide, allowing flexibility to explore parents' perspectives on child-rearing, their children's exposure to digital devices, and patterns of verbal interaction within the family. Interviews were held both face-to-face and virtually, depending on participants' availability. To enrich the primary data, the researcher also conducted a literature review, examining peer-reviewed journal articles, academic books, and other relevant research (Verdianto & Muspawi, 2025).

The main research instrument which consisted of open-ended questions designed to elicit rich and detailed responses. The collected data were processed using thematic analysis, which included transcription, coding, categorization, and the identification of recurring themes related to the causes and consequences of speech delay (Hidayati, 2023). To ensure credibility and rigor, a reflective analysis approach was adopted as demonstrated in the research by Najmah et al., (2023), allowing the researcher to stay grounded in the participants' narratives. Data validity was supported through source triangulation, which involved cross-verifying interview responses with each other and with existing literature (Harahap, 2016).

## Result and Discussion

This study explores the factors contributing to speech delay in early childhood, with findings categorized into three main aspects: biological, psychological, and environmental. Data were collected through interviews with five parents (coded AM, YW, CU, SS, and FR) whose children exhibit symptoms of speech delay. These findings were further reinforced with existing literature to enhance the analysis.

These findings confirm that the role of digital exposure cannot be separated from the quality of daily communication between children and their caregivers. Biologically, most parents stated that their children did not have a history of serious illness or developmental complications. AM mentioned that the child only had common fevers, while CU stated that the child was generally healthy. However, the absence of visible medical conditions does not eliminate the potential presence of undiagnosed biological risks, such as mild hearing impairment or subtle neurological delays. According to Nugraha et al., (2022), speech delay can be triggered by auditory processing disorders, brain injuries, or structural abnormalities of the speech organs. In the context of this study, while biological factors were not predominant, they remain relevant considerations in a comprehensive developmental assessment.

Psychological factors appeared more prominent. Several parents observed that their children showed low responsiveness during verbal communication. AM reported that the child often ignored attempts to converse, preferring toys instead. YW noted wandering eye contact, and CU found that the child often required repetition before responding. These signs reflect barriers in receptive communication and may be indicative of developmental lags in social cognition. Furthermore, parenting style contributed significantly to these issues. CU admitted that the child was often left with a nanny due to work commitments, while SS said the child was typically occupied with educational videos. This aligns with Damanik et al., (2024), who suggest that speech development is highly dependent on two-way interaction and consistent verbal stimulation. Moreover, Qotrunnada & Darmiyanti, (2024) emphasize the influence of parental stress on communication patterns at home, which may indirectly affect children's language acquisition.

Environmental aspects also played a critical role. AM acknowledged efforts to communicate with the child at home, but the child preferred solitary play. YW shared that the child had been exposed to digital devices from a young age and rarely engaged in outdoor activities due to neighborhood safety concerns. FR explained that limited peer interaction led the child to often play alone. Excessive gadget use and social isolation are widely recognized as contributing to speech delay, as supported by Ulfa et al., (2022) and Hasanah et al., (2025), who both highlight the risks of unsupervised digital media exposure in impeding children's verbal development. Almaghfiroh et al., (2024) also underline that communication frequency and verbal engagement at home significantly affect children's speech abilities.

The impact of these delays was also evident. AM stated that their child struggled to socialize due to underdeveloped communication skills. FR observed delayed comprehension and expression, particularly when the child was given simple verbal instructions. SS noted frequent tantrums when the child was unable to express wants, which often led to emotional outbursts. These consequences are in line with findings by Septyani et al., (2023) and Zulkarnaini et al., (2023), who describe how speech

delay not only hampers verbal skills but also affects emotional resilience, social confidence, and future academic readiness.

Taken together, the findings illustrate that speech delay in early childhood is shaped by an interplay of biological predispositions, psychological dynamics, and environmental conditions. These insights reinforce the need for early detection programs, comprehensive parent education, and reduced dependency on digital media in early years. Most importantly, speech development must be viewed as a holistic process, necessitating collaboration between parents, caregivers, educators, and healthcare providers to ensure optimal language outcomes for children. This emphasizes the urgency of integrating responsive parenting strategies into early childhood development programs.

## Conclusion

This study concludes that speech delay in early childhood is a multifactorial issue arising from the interaction of biological, psychological, and environmental factors. While most participants' children did not present with significant health problems, the findings reveal that limited verbal stimulation at home, high exposure to digital devices, and minimal social interaction are the dominant contributors to delayed language development. These factors significantly impact children's ability to comprehend instructions, express thoughts, and engage socially with others.

The research offers empirical contributions to the field of early childhood education, particularly by highlighting the crucial role of family communication and home environment in supporting optimal language acquisition. Furthermore, the study enriches the local discourse on how uncontrolled digital exposure can negatively influence early language development.

Future research is encouraged to adopt a longitudinal approach to monitor children's speech progress over time and explore the influence of socio-cultural variations, especially in non-urban settings, on early childhood communication development.

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