

# The Impact of Gadget Use and Parenting Styles on Speech Delays in Early Childhood: A Literature Review

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## Abstract

The case of speech delay in Indonesia is still very high with a percentage of 9.54% of the population in 2014. The prevalence data of speech delay in Indonesia is 5-10% in early childhood. Many factors cause the incidence of speech delay in Indonesia to increase, one of which is the use of gadgets. This study aims to describe and find evidence regarding the effect of gadget use on speech delays. This study uses a literature review study approach method using research sources that have been selected according to the inclusion criteria. The results of the literature analysis found that there is 1 journal that states that there is a relationship between parenting styles and speech delays, 1 journal says that there is no relationship between parenting styles and speech delays, and 8 journals reveal a relationship between the intensity of use and speech delays. Based on parenting styles, generally permissive parenting styles have a major influence on children's language development. The duration of gadget use can trigger speech delays if children use gadgets for more than 2 hours/day. Parenting styles and the intensity of gadget use following guidelines can reduce the incidence of speech delays in children. The use of gadgets in early childhood has a significant relationship with speech delays, which is influenced by parenting styles and the intensity of gadget use.

**Keywords:** Children, Gadgets, Growth and Development, Speech Delay

## Introduction

The development of technology in Indonesia has experienced very rapid progress. According to data from the Central Statistics Agency, the results of the 2022 SUSENAS

data collection showed that 66.48% of the population in Indonesia could access the internet and in 2021 around 62.10% of the Indonesian population could access the internet while in 2023 about 190 million Indonesians used mobile phones <sup>1</sup>. Based on this data, internet usage in Indonesia has increased significantly from year to year, where the high internet usage can reflect a large number of gadget users in Indonesia. Technological advances are a huge challenge for children's development. The National Association for the Education of Young Children (NAEYC) states that early childhood is in the age range around 0 to 8 years. Children at this age are experiencing a gradual process of growth, development and refinement <sup>2</sup>.

Language development is one of the developments that occurs when children are able to respond to sounds and sights and can communicate with other people. Language development has 4 stages, including the pre-linguistic stage (0 to 1 year old), linguistic (1 to 2 years old who already has 30-100 vocabularies), grammar development (3 to 5 years old who can construct a simple sentence), and grammar skills (6 to 8 years old who can construct complex sentences). Children who do not have development appropriate to their developmental stage and age can be said to have deviations <sup>3</sup>.

Speech delay is one of the growth and development disorders that occurs in children if it is not appropriate for their age. Speech delay occurs when children tend to have difficulty expressing themselves according to their wishes <sup>4</sup>. According to the Indonesian Ministry of Health in 2022, the prevalence of speech delay in children is around 5-10% at the developmental stage <sup>5</sup>. Research by Medise (2013) states that around 1-3% of speech delays occur in toddlers or children under the age of 5 years. Speech delays in children can occur due to the influence of external and internal factors.

The use of gadgets in early childhood is one of the factors that can cause delays in speech development in children. This is due to the influence of parental parenting styles and the intensity of device use. Parenting styles play an important role in children's conditions. Parents should accompany and supervise children when playing with devices, because if they are not supervised, children can choose what features they want <sup>7</sup>. Children who are exposed to gadgets before going to school will have a risk of language development disorders 6 times faster than children who have provisions for the duration of playing gadgets <sup>8,9</sup>. This indicates that there is a relationship between parenting styles and the intensity of gadget use on speech delays. Based on the problems

and research that has been done, the author wants to conduct a study entitled "The Influence of Communication Tools (Gadgets) on Speech Delay in Early Childhood: A Literature Review ". This study aims to describe and find evidence regarding the effect of gadget use on speech delays.

## Method

### *Design*

The type of research conducted is the literature review method.

### *Inclusion and Exclusion Criteria*

**Table 1. Inclusion and Exclusion Criteria**

Criteria	Inclusion	Exclusion
Source	Indexed scientific journals such as Google Scholar	Reports, magazines
Year	August 2018 – November 2023	-
Language	Indonesian and English	Other than Indonesian and English
<b>P</b> (Population)	Early childhood / toddler (0-6 years)	Newborns, adolescents, and adults
<b>E</b> (Exposure)	Factors that influence gadget use on speech delay	-
<b>O</b> (Outcome)	Speech delay and language delay	-
<b>S</b> (Study design)	Case control, descriptive, cross-sectional, analytical	Other than included studies
Publication Type	Open and indexed	Other than included

### *Search strategy*

The database used is Google Scholar indexed by SINTA with published articles in the last 10 years. The keywords used in the article search are speech delay, gadgets, and growth and development.

### *Study selection*

The sample that matches the number of articles analyzed is the category of early childhood (0-6 years) of both male and female gender. The intervention consists of limiting the duration of gadget use and implementing good parenting styles. The article has a case control, descriptive, cross-sectional, and analytical study design.

### *Data extraction*

In this literature review, data extraction was carried out by examining all selected articles that met the inclusion criteria and then writing down the important findings from the articles.

*Data analysis*

Researchers reviewed selected studies and the expected result of the study search is a relationship between gadget use and speech delay.

**Results**

The research ranges from 2018 to 2023. Geographically, the research is generally conducted on the island of Java. In this study, the authors are generally students from health majors at universities. Respondents in the study were children aged 2-6 years. The place used is generally a school with a sample size of at least 2 people and a maximum of 254 people. General characteristics based on the research method in the table above, 8 journals use quantitative methods, and 2 journals use qualitative methods. Generally, the instruments in the study use questionnaires. In the journals, there are similarities in the contents of the journals, namely discussing the effect of the use of communication tools (gadgets) on speech delay. Based on the causal factors of the main contents of the journals above, 2 journals discuss the relationship between parenting styles and speech delays, and 8 journals discuss the relationship between the intensity of gadget use and speech delays. Based on the results, there is 1 journal that states that there is a relationship between parenting styles and speech delays, 1 journal that says that there is no relationship between parenting styles and speech delays, and 8 journals that reveal a relationship between the intensity of use and speech delays.

**Table 2**  
**Article Search Results**

No	Author	Place & Sample	Design, Instrument, Statistical Test	Research Results
1.	Kamilah et al., (2020)	Place: Kindergarten in Sedati sub-district, Sidoarjo Regency, East Java.  Sample: Children from Dharma Wanita Kindergarten, Khoirul Huda Kindergarten, and Ar-Rahman Kindergarten with 153 respondents.	Design: Quantitative.  Statistical test: Simple regression test.  Instrument: Questionnaire with Likert scale.	The following study obtained a p-value of 0.000 (<0.05) which means that gadget addiction affects language development in early childhood. Gadget addiction in early childhood has a negative effect on children's language development in Sedati District, Sidoarjo Regency with a percentage of 20.7%. This value is included in the moderate level.

2.	Herpiyana et al., (2022)	<p>Place: PAUD Terpadu Tarbiyatul Athfal, Banjarmasin, South Kalimantan.</p> <p>Sample: Twins (Child Y and child H) with speech delays with their parents and two A1 group teachers.</p>	<p>Design: Qualitative research.</p> <p>Statistical test: Case study approach.</p> <p>Instrument: Observation sheet.</p>	<p>Speech delay in children from this research is caused by watching cartoons through communication tools or gadgets without supervision. Both children are known to have different social interaction developments. Child Y tends to be more developed in interacting than child H. The teacher handles the child by providing stimulation such as: asking questions, inviting conversations, teaching to make choices, and so on.</p>
3.	Fernandez & Lestari, (2019)	<p>Place: Childcare facilities in Manado.</p> <p>Sample: The sample was children aged 15-36 months with a total of 51 respondents. The study was conducted from February to April 2018.</p>	<p>Design: Analytical study.</p> <p>Statistical test: Chi-Square test.</p> <p>Instrument: Self-made questionnaire.</p>	<p>The study showed that there were 3 children with language delays (5.8%), 10 children (19.6%) used gadgets for more than 2 hours/day, and 36 children used gadgets for more than 2 days per week (70.5%). The results of the analysis showed that the intensity of gadget use for more than 2 hours/day was significantly related to language delays in children (<math>p=0.034</math>), but the frequency of gadget use for 2 days/week was not significantly related to speech delays in children (<math>p=0.144</math>).</p>
4.	Rohana & Hartini, (2020)	<p>Place: SDN 02 Banyuurip, Margorejo, Pati, Central Java.</p> <p>Sample: The total number of respondents was 39 children.</p>	<p>Design: Qualitative study.</p> <p>Statistical test: Cross sectional approach.</p> <p>Instrument: Questionnaire.</p>	<p>There are 23 children (59.0%) who use gadgets with high intensity and 6 children (15.4%) who use gadgets with low intensity and 10 children (25.6%) who use gadgets with moderate intensity. A p-value of 0.000 (<math>&lt;0.05</math>) was obtained, indicating a significant relationship between gadget use and social interaction.</p>
5.	Novianti & Garzia, (2020)	<p>Place: Pekanbaru.</p> <p>Sample: The total number of respondents was 254, namely parents with children aged 2-7 years.</p>	<p>Design: Quantitative descriptive approach.</p> <p>Statistical test: Survey method.</p> <p>Instrument: Questionnaire.</p>	<p>The study found that 40% of children throw tantrums if they are not given gadgets. There are several reasons why parents give gadgets to their children, including so that the child becomes smart (22%), so that the child does not fuss (21%), and other reasons as much as 34%. Parents allow</p>

				their children to use gadgets because the child asks for them (42%) and there are 1% of parents who allow the use of gadgets when the child excels at school. This shows that parenting styles greatly influence children's development in the use of gadgets, so supervision and restrictions on the duration of use are needed.
6.	Fajariyah et al., (2018)	Place: Simomulyo Village, Surabaya.  Sample: Children aged 24-60 months with a total of 66 respondents.	Design: Analytical observation.  Statistical test: Cross sectional approach.  Instrument: Questionnaire.	Children with low intensity of gadget use have normal development with a percentage of 87.5%. While in children with high intensity of gadget use (75%), they experience questionable development. The results of the analysis show that the intensity of gadget use is significantly related to the development of children aged 24 to 60 months, where the higher intensity of gadget use will increase the chances of children experiencing deviations and vice versa.
7.	Oktaviani et al., (2019)	Place: Pendawa Pandawa, Lebaksiu District, Tegal Regency, Central Java.  Sample: There were a total of 45 respondents in the categories of children aged 24 months, 30-48 months, and 50-60 months.	Design: Analytical survey.  Statistical test: Cross sectional approach.  Instrument: KPSP.	The study found that the majority of toddlers used gadgets (55.6%) and most toddlers used 1 application (72.0%). Based on child development, it was found that 31.1% of toddlers experienced questionable development and 24.5% of toddlers experienced abnormal development. The results of the analysis in the study showed that the use of gadgets was significantly related to toddler development (p-value = 0.000) where giving gadgets to toddlers would affect the child's fine and gross motor skills.
8.	Yunalia et al., (2023)	Place: Trimulia Physiotherapy Clinic, Kediri, East Java.  Sample: The total number of respondents was 70 children.	Design: Correlational analysis method.  Statistical test: Chi-Square test and Spearman rank test.  Instrument: Questionnaire.	Based on the study, 51 respondents (73%) were male, 37 respondents (53%) had low gadget usage duration and 58 respondents (83%) experienced speech delay. Analysis with the chi square test showed a significant relationship between the duration of gadget use and

				speech delay ( $p = 0.003$ ). The correlation coefficient ( $r$ ) of 0.354 has a strong relationship between the duration of gadget use and speech delay. The higher the use of gadgets, the higher the incidence of speech delay.
9.	Rukmana et al., (2021)	Place: Al-Furqon Kindergarten School and Bunda Ghifari Kindergarten, Surabaya.  Sample: Children aged 48-72 months with a total of 126 respondents.	Design: Analytical observational study with Cross-Sectional.  Statistical test: Spearman's non-parametric statistical test.  Instrument: Questionnaire.	The study shows a significant relationship between the intensity of gadget use and children's emotional and social development ( $p = 0.000$ ). There are 69.6% of children with high gadget use intensity who have social and emotional development that requires referral to the hospital. This shows that excessive use of gadgets in early childhood affects children's emotional and social development.
10.	Meriyani et al., (2023)	Place: Tinga-Tinga Village, Buleleng, Bali.  Sample: Toddlers aged 2-5 years with 68 toddler samples.	Design: Quantitative research with cross sectional.  Statistical test: Chi-Square test.  Instrument: DDST/questionnaire/KPSP.	The study obtained a p-value of 0.000 ( $p$ value $< 0.05$ ) which indicates that the intensity of gadget use is significantly related to the delay in children's speech development. A total of 35 respondents (51.4%) had a high intensity of gadget use.

## Discussion

8 journals discuss the relationship between the intensity of gadget use and speech delay. According to research by Kamilah et al. (2020), gadget addiction hurts language development in early childhood, with a percentage of 20.7%, and is at a moderate level in Sedate District, Sidoarjo Regency. Playing with gadgets without any limits on the duration of use and supervision from parents tends to make children addicted to gadgets. This is in line with the opinion of KPAI (2018) which stated that gadget addiction in children is a fairly serious obstacle, it's just that not all parents realize that their children may be indicated as experiencing gadget addiction.

Research by Rohana & Hartini (2020) and Rukmana et al. (2021) revealed that there is a relationship between the intensity of gadget use and social interactions that are

influenced by speech delay. Study by Fajariyah et al. (2018) and Yunalia et al. (2023) also found a relationship between gadget use and speech delays. This study is in line with the study of Sofiyah et al. (2024) which stated that there was a relationship between the duration of gadget use and the incidence of speech delays in children aged 3 to 5 years at the Ikhlas Medika 2 Clinic ( $p = 0.025$ ). These results were reinforced by the American Paediatric Society in 2010 which published screen time guidelines, as follows (22):

Children under 2 years of age are not recommended to play gadgets alone, including televisions, smartphones or tablets. At this age range, the role of parents is needed to supervise whatever is played or watched by children.

Children aged between 2 and 4 years are advised to use gadgets with a time limit of no more than 1 hour a day. This is important to maintain their development.

Children aged 5 years and above should limit their gadget playing time to a maximum of 2 hours per day. This restriction aims to ensure that children still have time to be physically active and interact directly with their environment.

Research by Herpiyana et al. (2022) and Novianti & Garzia (2020) stated that parenting styles have a huge influence on the inhibition of speech development in early childhood. This is in line with research by Krisdiantini et al. (2020) and Sofiyah et al. (2024) which obtained a p-value of 0.00 which indicates a significant relationship between parenting styles and gadget use and speech development in children. Fernandez and Lestari (2019) showed that as many as 66.7% of children used gadgets under parental control and as many as 33.3% of children used gadgets without parental supervision. Parenting styles are something that must be considered because they can affect children to experience speech delays, generally, the type of permissive parenting styles has a major influence on child development (24). Parenting styles according to Hasanah and Sugito (2020) for children are divided into 3 types, namely:

1. Democratic: parents give their children the right to express their opinions and arguments freely under parental supervision.
2. Authoritarian: parents raise their children by restraining, demanding, and punishing them so that they always obey their parents' wishes.
3. Permissive: parents with this type of parenting style are not always involved in their children's lives and tend to give them full freedom while imposing some restrictions.



### **Limitation**

Research is not conducted systematically and is more in the Asian region

### **Conclusion**

After reviewing the article on the influence of communication devices (gadgets) on speech delays in early childhood, researchers concluded that there is a significant relationship between gadget use and speech delays, which are influenced by parenting styles and the intensity of gadget use. The time spent using gadgets is one of the factors causing speech delays in children. If children play with electronic devices for more than 2 hours/day, it can increase the risk of speech and language delays. The duration of gadget use in children must be according to the screen time guidelines published by The American Paediatric Society. Parenting styles, intensity, and duration of gadget use by the guidelines can reduce the incidence of speech delays, so parents are expected to pay attention to their children's growth and development. It can be concluded that these two causal factors will trigger developmental delays in children.

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### **Conflict of Interest**

The author declares that there is no conflict of interest.

### **Data Availability**

The datasets obtained during this research, whether generated or analyzed, are accessible from the corresponding author upon reasonable request.

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