



The Impact of Digital Devices on The Development of Speech Delay for Children Aged 3-4 Years

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Abstract. In the era of globalization, digital devices are developing rapidly to make it easier to establish more efficient communication and have reached all groups, including toddlers. Nowadays, many toddlers are familiar with digital devices, but there are quite a few negative impacts, one of which is delays in children's speech. Delays in speaking in children are a serious concern for parents. If it is not addressed immediately, it will become a fatal problem for the child's verbal development. Therefore, delays in speaking in children must be carefully considered. The aim of this research is to analyze more deeply the negative impact of digital devices on speech delays in children and the differences between children who receive therapy treatment and those who do not receive therapy. The research method used is a qualitative case study type of research. The data sources for this research were obtained from observations and interviews. The research subjects were parents of children with speech delays, Integrated Health Service Center at Cadres, Wetan Hamlet Midwives, Jatiyoso District, Karanganyar Regency. From this research, it was found that the problem of children's speech delays tends to be influenced by external factors (environmental factors), namely not interacting with peers or other people in their home environment, parenting patterns that allow children to use digital devices more often without limiting the intensity of use, and lack of parents in paying attention to children's development. Apart from that, there is a difference in that children who receive speech therapy treatment can stimulate speech delay so that the child's speech development can develop according to their age, whereas children who do not receive speech therapy treatment cannot develop their language development optimally.

Keywords: Early childhood, the impact of digital devices, speech delay.

1 INTRODUCTION

growth of children begins at an early age very quickly, so it is referred to as (age 3-4 years). Period is a very important time for child growth because at this time the provision of stimulation or simulation for all aspects of development has an important role in early childhood. Learning in the future is a vehicle to facilitate growth and development [1].

According to Hurlock early childhood language development occurs systematically and develops with age. Children experience the same stages of development but the differences include: family social, intelligence, health, encouragement, relationships, and friends also affect it, this means the environment also affects the child's language development, and the child will grow better in a good environment, but if the environment is bad, the child will grow according to his environment [2][3]. This is the reference or basis for why children at a certain age can or cannot speak at a certain age

[4]. Language development is an important part of communicating with others in early childhood. Language makes it easier for children to communicate with others through speech, gestures, or writing. The development of technology is getting more advanced, communication tools are also increasing, one of which is the use of digital devices [5]. According to the theory of language acquisition, behaviorism states that reinforcement and imitation are the ways language is learned. Children gradually learn by imitating the voices of those around them, such as parents, home environment, school, and so on.

Technological developments are now increasingly advanced, especially in the use of digital devices. Digital devices are a set of sophisticated electronics that have many features and have certain functions, such as computers, laptops, tabs, and smartphones [6]. Today, digital devices are not only used to communicate but also to entertain, as provided by the availability of video, game, and spectacle applications that attract everyone, including children. Along with the times, children's play activities with digital devices become difficult to separate, often parents assume that children feel happy, comfortable, and make parents calm down to do other activities. This causes parents to rarely accompany their children to play, even though parental participation in playing can be a stimulus in their growth and development. However, the use of digital devices in early childhood has become a major concern in recent years. Children who are too focused on using digital devices will tend to interact less, rarely play with their friends, and communicate less so that it can cause children to experience delays in aspects of speech and language.

Speech delay is a condition in which children have difficulty speaking or pronouncing words correctly at an age that should already be able to speak. These causative factors are caused by two factors, namely internal factors and external factors. Internal factors include: perception (response), cognition (understanding of knowledge) and prematurity (birth of a baby before or earlier than the expected day of birth). According external factors include knowledge, parenting and socio economics [7].

Based on research with one of the parents of children who experience speech delay, when the child is 36 months old the child prefers to play digital devices rather than explore with other games. The child can accept and understand language or commands from his parents, but he cannot comment with words. He also pays less attention to others, even his peers. The child uses his body movements to communicate. For example, he takes a milk bottle and gives it to his parents with the intention of wanting to drink milk, and if it is not to the liking of the child. will cry as hard as possible. Even when the child is 10 months old, the child has been given intensive digital devices to see animated videos in it. The reason why his parents give digital devices so that the child can be quiet when his parents are working outside. If this is not addressed and happens to every child, it will interfere with children's language development, which should allow them to communicate well with others according to their age stage but with the digital devices a communication will experience problems. In order for children's language development to run well and in accordance with the stages of growth and development, people around, especially parents, must encourage children's language development. Children begin to be able to talk for a long time and take turns with others by the age of two [8] and able to interpret two-word speech and respond to others [9]. By the age of three, they also begin to be able to speak in short conversations [10].

Research conducted [11] entitled "Speech Therapist Strategies That Can Be Applied by Parents of Speech Delay Sufferers", entitled (Speech Delay Handling Strategy for Early Childhood Social Interaction in Surabaya Pembina State Kindergarten), [12] entitled "The Use of Singing to Improve Children's Language Development Speech Delay", by [13] entitled "Early Language and Speech Intervention of Children's Speech Delay" [14] intitulé Strategies for Handling Language Development Disorders (Speech Delay) for Children's Interpersonal Communication", entitled "Analysis of Parental Stimulation Strategies in Improving Children's *Speech Delay*", [15] entitled Parents' Knowledge of Speech Delay Developmental Disorders in Children Aged 1-5 Years at Integrated Health Service Center at Cadres Working Area of Sidomulyo Pekanbaru Health Center, [16], entitled Social Interaction of Children who have *speech delay*, [17] entitled "The relationship of prematurity with speech delay in children aged two to five years" [18].

Indeed, there has been a lot of research examining speech delay in children, but in previous research the majority discussed the negative impacts and factors causing speech delay due to excessive use of digital devices [19]. In contrast to this research, the focus is not only on negative impacts but is also related to the differences between children who receive speech therapy to treat speech delay and children who do not receive speech therapy. It's just that from some of these studies there are various strategies carried out to deal with children who have speech delay disorders. In addition, there is also research on parents' knowledge of speech delay, then there are several factors that cause speech delay in early childhood. Therefore, researchers aim to further examine the impact of digital devices as a factor causing speech delay or there are still other factors in children aged 3-4 years at the Beruk Wetan Hamlet Integrated Health Service Center at Cadres. Then to find out the difference between speech delay children who have existing speech therapy treatment and those who have no treatment.

Based on the description of the problem above, this research is expected to be useful, especially for parents who have children who have speech delay and can be motivated in providing education and parenting science to limit the use of digital devices and perform an early check to detect this speech delay problem. Able to help the Integrated Health Service Center at Cadres environment in socializing the impact of digital devices use on increasing speech delay for children aged 3-4 years.

2 RESEARCH METHOD

This research study uses a qualitative approach with a case study research design. Case study research is in-depth qualitative research about individuals, groups, institutions in a given time. This research was conducted at Integrated Health Service Center at Cadres Beruk Wetan Hamlet, Rt 001 / Rw 004, Beruk Village, Jatiyoso District, Karanganyar Regency. The research study was conducted in May 2023.

The subjects of the study were parents of speech delay children, Integrated Health Service Center at Cadres cadres, village midwives. Data collection techniques in this study are through observation and interviews. In observation techniques using observation guidelines for speech delay children. The interview used interview guidelines to parents, Integrated Health Service Center at Cadres cadres, and village midwives about

the causes of speech delay in children and distinguish children who have been treated with speech therapy and those who have not.

The data analysis technique is descriptive qualitative using the Miles and Huberman model [20]. Among them are data reduction, data presentation, and verification or conclusions. Data triangulation used in this research is source triangulation which is carried out by examining data that has been obtained during the research, both observation and interviews from informants [21].

3 RESULTS AND DISCUSSION

Based on observations and interviews about the impact of digital devices on the increasing development of speech delay for children aged 3-4 years at the Integrated Health Service Center at Cadres of Beruk Wetan Hamlet, Rt 001/Rw 004, Beruk Village, Jatiyoso District, Karanganyar Regency. The results of the interview influenced speech delay, one of which was caused by children who often play digital devices without being controlled by parents. But the child is different, there are some parents who have made efforts to deal with children who have speech delay through therapy delay. While some of these children are parents just leave it alone without providing treatment or care about speech delay problems. The opinion of parents is that the child is indeed given digital devices every day so that the child is silent so as not to interfere with his work. If the child holds a digital devices and watches shows such as Youtube, Tik Tok, and others. Every time he focuses on watching the child's digital devices, if the video he is watching is dead or jammed, he will scream and cry even when called, he ignores anything around him. If the child delays speech when asking for something, just shout and show what he wants to ask. Children who are too focused on using digital devices will tend to interact less, rarely play with friends, and communicate less so that it can cause children to experience delays in aspects of speech and language.

The most visible developmental delay is in the development of language or speech in children. Language skills are an indicator of all child development because language skills are sensitive to other systems such as cognitive, sensory-motor, psychological, emotional and environmental delays. The results of observations of child development conducted by researchers can be seen in table 1.

Table 1. Observation result

NO	Sector	Child response	Conclusion
1.	Social personality	<ul style="list-style-type: none"> ● Able to prepare and take food independently ● Not yet able to shower independently ● Unable to brush teeth independently ● Not yet able to dress independently ● Not yet able to mention the names of family members and peers 	The development of social personal aspects experienced delays

	<ul style="list-style-type: none"> ● Able to wash and dry hands 	
2. Rough motoric	<ul style="list-style-type: none"> ● Able to stand on 1 foot for 3 seconds ● Able to jump on one leg ● Able to jump far ● Able to throw a handball up ● Able to jump ● Kick the ball forward ● Able to walk up stairs 	The development of normal gross motor aspects
3. Fine motor	<ul style="list-style-type: none"> ● Unable to imitate the behavior of others ● Not yet able to put small objects in the bottle ● Not yet able to imitate the circle ● Able to wiggle fingers 	The development of fine motor aspects is delayed
4. Language	<ul style="list-style-type: none"> ● Can't name 4 colors yet ● Able to name 1 color ● When he spoke, his words could not be understood by others ● Can't even name a picture ● Haven't understood the two orders given at the same time 	The development of language aspects experienced delays

Based on the results of observations on aspects of personal social development, fine motor and language experience delays while gross motor aspects are normal. The identification results are used to conduct an assessment to obtain further information. The level of developmental readiness indicates the expected development and growth through the integration of elements of understanding of social-emotional, physical, cognitive, linguistic, and religious and moral values. Language development achievement assessment instruments are prepared based on 10 development indicators revealing languages aged 3-4 years in Permendikbud number 137 of 2014.

Table 2. Language development indicators

No Development Scope	Developmental Achievement Level of 3-4 years old children
1. Understanding Language	<ol style="list-style-type: none"> a. Pretend to read a picture story in a book in your own words. b. Begins to understand two commands given simultaneously, such as picking up a toy from the table and giving it to the babysitter or teacher
2. Reveal Language	<ol style="list-style-type: none"> a. Begin to express wishes by saying simple sentences (6 words) b. Begin to tell the experience experienced with a simple story

Based on the development indicators in table 2, revealing the language of 3-4 years old in Permendikbud number 137 of 2014. Children It experiences language and speech barriers. Language and speech difficulties will have an impact on the next learning process. With that, there are some parents of children who have done delay therapy, have limited and even no longer give digital devices to their children. These parents replace digital devices by providing a variety of interesting games for their children such as legos, puzzles, balls and many more interesting games that parents give. From the change in parenting style, the child has now begun to say one to two words, although it is still not very clear what he said. But in contrast to parents who assume that their children do not have any problems. He considers that his son is not yet the time to speak, he still gives and frees children to play with digital devices and rarely invites children to play outside to interact with others. It has been socialized by village mid-wives during activities at Integrated Health Service Center at Cadres regarding child growth and development, some parents of children who experience speech delay do not discuss it. So, the parents did not make any effort to deal with the child. But, if this is immediately discussed by experts and there is a positive change in the awareness of parents and the environment, all children will develop optimally.

Based on the results of observation and interviews, the problem of children who have speech delay is more influenced by external factors (environmental factors) namely not interacting with peers or other people in their home environment, parents more often give digital devices to children, parents pay less attention to child development. Often watching digital devices without time limits, the child watches digital devices alone and is rarely invited to interact with two-way communication and his desire is always fulfilled just by pointing or crying to tantrums. After some children are done with delayed therapy, the child has increased starting from issuing simple words and sentences. This is the impact of digital devices.

Table 3. The Impact of Digital Devices

No	Positive impact	Negative impact
1.	As a means of entertainment for children.	Children will be addicted when using digital devices uncontrolled.
2.	Training intelligence in children.	Lack of social interaction in the surrounding environment.
3.	Increase self-confidence.	Disrupting children's health
4.	Develop children's abilities in problem solving.	The influence of bad behavior

From the table we know that various negative impacts of digital devices in children, children will have less social interaction as a result and this will have an impact on social interaction. The habit of using digital devices for too long makes children lazy to play with their friends, this can be detrimental to children's health because the effects of radiation from technology are very dangerous for human health, especially for children during their growth and development period. The influence of bad behavior on children through watching videos that contain violent values, children have a high

imitation nature, so they will do the same things they see when using digital devices in real life [22].

In addition to doing delay therapy in the hospital, parents are also allowed to do therapy at home. There are several strategies or techniques that parents can apply to overcome speech delays in children developed by therapists at the interview. These strategies include: 1) Teaching children to speak correctly, slowly and repeatedly. 2) Always pay attention to grammar when they speak. This is in line with Brown's theory states that parents encourage their child to use correct grammar when speaking. 3) Always encourage children to speak up in every situation by correcting their incorrect vocabulary. Children benefit from parents actively engaging in conversation, asking them questions, and emphasizing interactive language rather than directive language. 4) Utilize technology to support children's vocabulary. There are three ways technology can help children's vocabulary such as computers, audiobooks, and educational television. 5) Regular consultations with doctors and child psychologists to find out the child's development.

Things related to the impact of digital devices on the development of speech delay are in line with the theory According to Hurlock. If children experience speech delay, their social interactions experience obstacles resulting from their language development which is lower than the language development of their peers. In addition, the type of parenting style greatly affects the characteristics and development of children towards the use of electronic media. In addition, the purpose of parents giving digital devices to children is to encourage them to be interested so that children have high interest and motivation in learning. The subject matter will be easier to understand. Wrong or improper parenting when giving children digital devices is feared to interfere with speech and language development (speech delay) in children.

In addition, in accordance with the theory of language mastery, behaviorism states that reinforcement and imitation are the way language is learned. Children gradually learn by imitating the voices of people around them, such as parents, home environment, school, and so on. If the imitation cannot communicate, then the child's language or speech development cannot develop optimally. So, it is important for parents to limit the use of digital devices and examinations to detect speech delays and also stimulate them independently by inviting them to communicate for stimulation of children's language or speech development. This research is in line with previous research found that good cooperation with parents helped children develop faster and perform early language and speech interventions fluently.

4. CONCLUSION

Children experience the same stages of development but the differences include: family social, intelligence, health, encouragement, relationships, friends also affect it, this means the environment also affects the child's language development, Children will be better off growing in a positive environment, but if the environment is bad, children will grow according to their environment. Based on research at the Beruk Wetan Hamlet Integrated Health Service Center at Cadres, children prefer to play digital devices rather than explore other games. There is a comparison of children treated for therapy

delay who have begun to develop language or speech but those who are not children have not changed at all. Based on the results of observation and interviews, the problem of children who have speech delay is more influenced by external factors (environmental factors) namely not interacting with peers or other people in their home environment, parents more often give digital devices to children, parents pay less attention to child development.

From the results of the study there are several strategies that can be done by parents at home, namely paying more attention to the child's language development, by reducing holding a cellphone when with children, Training children to speak correctly, slowly and repeatedly, when speaking, parents must always pay attention to the grammar used and involve children in speaking in every situation, so that they can improve their speech. Children benefit from parents actively participating in conversations, asking them questions, and emphasizing interactive language over directive language, use of technological media that supports children's vocabulary. Three methods help children's vocabulary with technology such as computers, audiobooks, and educational television.

In this research, it is hoped that future researchers will focus more on digital devices replacement solutions for children aged 3-4 years during the child's development period. Future researchers are also expected to provide solutions to parents or children's companions if children are still developing tendencies digital devices. Maybe in the future technology will become more sophisticated, this will make it possible for learning activities to be easier when passing through digital devices. However, parents must accompany and give time for children aged 3-4 years to use the digital devices. Future research is expected to provide good time for children playing digital devices and time to play with their friends. So that children aged 3-4 years have more effective time, on the other hand children aged 3-4 years are not behind the times and can still interact socially in the social environment.

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