The effect of gadget on speech development of toddlers

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Abstract. Nowadays, children use gadgets often. However, too much use of gadget has some specific effects on children’s speech development. The latter is among the major indicators of considerable growth in children’s cognitive ability, and educational achievement during their golden age, that is a period of 9 to 24 months. This research used the phenomenological descriptive approach to explain the effect of gadget on speech development of toddlers. The data collecting technique used in-depth audiotaped interview of 10 participants. The data analysis used Colaizzi’s (1973) approach. This research employed 3 themes, which were toddlers who used gadget for developing speech, the duration of playing on gadget, and how to check gadget addiction in toddlers. In conclusion, the research revealed that gadget had a negative effect on the development of speech in toddlers which made it impossible for them to talk like other children of the same age.

1. Introduction

Gadgets were once used by the upper-middle-class economy but nowadays it is used by all categories of people including children[1]. A gadget is an electronic appliance which is produced for the purpose of downloading the latest information which makes life easier for people [1], [2]. A gadget can be used for watching videos, playing game, communicating, listening to music, studying and creating an illustration or a document [3], [4]. The mostly used gadgets in Indonesia are mobile phone (52%), and PC (69%) while the commonly used electronic media is TV (70%) [5], [6]. The United States has pointed out that 40% of babies aged 3 months and 90% of infants aged 24 months watch TV, video, or DVD on a regular basis. 75% of infants aged 6-23 months have been introduced to TV and 49% of them watch TV on a daily basis [7]. Excessive use of gadget has numerous negative effects on children, among them are stress, addiction, depression, and emotional problem, cognitive and moral development disorder, furthermore, it is very dangerous for children who do not pay attention to the people around them because they are busy with their gadgets. [3], [8].

Speech is a complete human thought and feelings which employs sound as its medium [9]. The development of speech is among the indicators of the total development of children’s cognitive ability. Considerable educational achievement occurs during the golden period for speech development in toddlers, that is 9-24 months [10]. The process of speech development in children begins when children are between the ages of 6 weeks and 4 months; at this age, the children begin to practise vocalizations, the speech development of children aged 4-7 years is said to be phonological they become more active, their hearing ability is well developed and they can recognize colorful sounds, when the children are between the ages of 7-12 months, they begin to babble, producing only one syllable, the ages of 1-2.6 years refer to the ages of transition from infancy to toddlers; at this age, children start to comprehend what the people around them are saying and this is known as active semantic development. The ages of 2.6-5 years represent a period of differentiation characterized by a very rapid children’s speech development, if the children fail to pass through all these periods, it will result in the disruption of their normal development [1].
2. Research Methods

This research employed the qualitative research design using a phenomenological approach to determine the effect of gadget on toddlers at Diego Clinic, Garut between April and June 2018. The descriptive phenomenology focused on exploring actual phenomena and meanings through deep involvement in reality.

The stages of descriptive phenomenological analysis of data produced by Colaizzi (1973)

![Diagram of stages of analysis]

The analysis of the transcripts of the participants was done using the Colaizzi’s (1973) seven-stage approach. The respondents’ audio interview process was recorded and transcribed. The description of each interviewee was read many times in order to get their actual involvement and feeling, then the significant statement was extracted next, the researcher formulated an additional statement as well as general meaning from every significant statement, before the fundamental definition or structure was obtained from the phenomena, the researcher had written a total description of the phenomena, and the description was then substantiated by each of the interviewees [11]. This research also attached great importance to ethical issues, including anonymity, risk level, data storage, secrecy, informed consent, approval letter, and the right to draw a conclusion without bias. The data were obtained from 10 interviewees, using the Inclusion and Exclusion Criteria can be see in table 1. The data collection technique was an in-depth interview. The participants were interviewed by giving them the opportunity to express their mind freely and share their experiences in their own words. Each interview lasted for 60 minutes. 5 minutes was devoted to opening the interview, telling the interviewee the aim of the interview, and 45 to 55 minutes was spent for the major interview process about the effect of gadgets on children’s speech development, and 5 minutes was expended for concluding the interview.

### Table 1. Inclusion and Exclusion Criteria

| Inclusion Criteria | Exclusion Criteria |
|--------------------|--------------------|
| One of the parents whose children have delayed speech | Children who have speech delay caused by infections, trauma, or drugs |
| Toddlers who are undergoing therapy at the Diego clinic, Garut | |
| Children who have gadgets provided for them by their families | |
3. Result and Discussions

Here, the effect of gadget on speech development in early age children will be explicated. The study identified three themes

![Diagram of analysis]

**Figure 2.** Theme of analysis

The result of the research indicated the time, which early age children spent on gadget, a participant revealed that his kid watched cartoon show on the TV. Another participant said, "If I allow my kid to watch cartoon, there is a tendency for him to spend the whole day watching it.” Another participant said “I allow my kid to watch music video, or play video game on my laptop or cellphone any time he cries, to prevent him from disturbing my job. He always spends more than 4 hours in front of my laptop or cellphone a day”.

The result of the research revealed the effect of gadget on early age children. One of the participants said that his kid finds it difficult to speak. He added that any time his child needed something he would point out his finger. The participant went further "my child is two and a half years old now, yet he still finds it difficult to speak. He is totally different from his siblings who have no speech difficulty. If he needs anything, he indicates that by pulling my clothes and speaking gibberish such as “aaaaiiew” or “aaaaaaa” and this creates confusion regarding what I have to do”. Another participant said that his child was only capable of speaking 3 words and he would not respond whenever his name was called. He said, "My child is 31 months old now. He could speak, but his speech is only limited to drink, eat and dad. Whenever I call him, he doesn’t answer me and after sometimes, he will eventually turn his head in my direction.” Another participant observed that his kid was 22 months old and he still had speech difficulty. He went further, “I always don’t comprehend what my child says. Any time I switch off the TV or withdraw a gadget from him, he gets angry and cries. He would throw objects in front of him, perhaps he still wants to watch the TV or play with the gadget. But I don’t know exactly what he wants because he would not say anything. I also become angry any time he’s like that”.

The result of the research revealed that the participants made efforts to help their speech delayed children by enrolling playgroup so that they could associate and socialize with other children of the same age. Another participant said “Every morning, my kid goes to his playgroup and in the afternoon, I take him to a daycare. I do this to enable my child to socialize with other children of the same age”. Another participant disclosed that his child is undergoing therapy. He added, “The therapy is done by a professional. It is done by eliciting a response from him by calling him. The expert also ensures that my child maintains an eye contact. In the past, he didn’t respond any time he’s called. Now, there is a tremendous progress. In the therapist office, my kid is also being assisted to be more focused and not to be hyperactive”. The remaining participants spent time to visit their parents’ house in a rural area to enable their children to play in nature. One of the participants said “I introduce my kid to nature and I also take him round the market to enable him to learn things directly such as the name and shape of fruits. In the natural environment, I allow my kid to walk on the mud, or rice fields. At home, I introduce him to puzzle and wooden toys to take his mind away from gadget”. 
Toddler using Gadget screen time > 2 hours per day

Impact on the development of language:
- reduced vocabulary and unclear talking
- called name, do not look and point or pull clothes if they want something
- interaction or stimulation of speech in children by parents is reduced

Prevent Negative Effects of gadgets on toddler:
- Regulate screen time, mitigate the risks associated with screen time, and be mindful.

**Figure 3.** The Final Thematic The Effect of Gadget on Speech Development of Toddlers

Take a look at Figure 3, the result of the research indicated that toddlers used cellphone and personal computer for browsing the internet most of the time also, the majority of the toddlers watched the television with an average viewing time of 4 hours per day, the result of the research carried out on Infant, Children, and Women in New York established that children aged 1-2 years watched the TV and video and their viewing time increases as they grow older, 1-year-old children could spend about 10 hours per week watching the TV, while children aged 2 years could spend about 15 hours in a week watching the TV or video [12]. In 2014, the Active Healthy Kids, Canada, made it known that children aged 3 to 5 years could spend 2 hours per day watching the TV [10]. If children begin to watch the TV in toddler phase, there is a prediction that their average viewing time will increase as they grow older and become adults [10], [12]. Time spent for watching the TV or using gadget depends on the economy, culture, and social class and it differs from one family to another, it could also be influenced by the habit of the parents and/or other members of the family [12], [13]. In addition to that, time spent on gadget depends on the program, the control of parents on gadget which differs from one country to another [14].

The findings of the research revealed that the children that got affected by gadget have a speech disorder, limited vocabularies, unclear articulation, emotional problem, pointing to things which they want, and not responding when they are called upon, children aged above 2 years should watch videos for less than 2 hours, and children aged less than 2 years should not watch the TV because the first 2 years of children’s lives is a critical stage when the development of the brain occurs, at this stage, the children also experience vocabulary learning development so that they are able to speak more than 2 words [10], [15], [16]. Other research’s findings have revealed that spending too much time for watching the TV has a lot of negative effects such as attention disorder, slow cognitive development in speech and executive function in children below 5 years because the TV can decrease the amount of interaction between the parents and their children also, the TV can take the attention of children away from playing [12]. The gadget can have a negative effect on the development of speech because an interaction between parents and their children is a key factor of speech stimulation to achieve fluency, Therefore, lack of communication and interaction between parents and their children can delay the ability of toddlers to speak smoothly and fluently [10], [14], [17].
Communication is a behavior in which the speaker and the listener exchange information via dialogue [14]. In the meantime, the flow of information on the gadget is only one way. That explains why gadget is not appropriate as a communication facility for toddlers [7], [14], [15], [17]. Apart from that, illustration or picture on a gadget is a rapid visual stimulation involving a change in scenery, change of character and object changing every minute thus it cannot be of help for children's cognitive development when compared with drawing books [10], [17]. In addition, spending too much time on gadget will reduce interaction and chances of playing for parents and their children, alas, the attention of parents, and the speaking quantity and quality of parents have a tendency to be drastically reduced towards their children [13], [17], [18]. Factors that cause speech development disorder are complex and are not yet clearly identified, but based on some evidence, parenting pattern, gender, genetic factor, and environmental factors are probably the strong factors that are responsible for a speech disorder [1], [13], [14], [17], [18].

The participants said that their children enrolled in playgroup, they used therapy and spent their time in nature, this research is in line with the recommendations of the Canadian Pediatric Society with respect to health and the growth of children in the digital era 2017 among which are reducing screen time, reducing the risks associated with screen time, and being mindful [10]. Minimize screen time: gadget should not be given to children below the age of 2 years, for children aged 2-5 years, parents should reduce their screen time to less than 1 hour in a day, ensure that screen time is not a part of parenting pattern of children below the age of 5 years, maintain free time on a daily basis, particularly for reading book, and for having dinner together, avoid gadget for at least 1 hour before going to bed, since it can have an effect on melatonin suppression meanwhile, mitigating the risks associated with screen time requires parents’ involvement when their children use gadget, be careful with the wrong contents and make educational contents which are interactive and appropriate for the age of the children a priority, employ a parenting strategy which can teach self-relaxing, self-limitation, and self-management, be more careful with the screen time of the children: carry out self-assessment in respect of screen time habit and come up with a media planning with regard to the duration, and where the use of the gadget is forbidden, Assist the children to recognize and question stereotype, advertisement content, and other unpleasant contents, remember that spending excessive time on gadget translates into losing the chance to teach and learn, keep away from toddlers anything that talks about the benefits of using the gadget for toddlers [10].

Adults should show an example of a correct and healthy screen usage: Go for a healthy option such as playing outdoors, reading, being creative with direct physical activities, and being back to nature, turn off the children’s gadgets while at home during the family time, turn off the screen while it is not used and avoid the TV [10], [14]. If the speech delay has already happened, get in touch with professional health workers without delay so that the children can be assisted with Applied Behavior Analysis Therapy and Sensory Integration Therapy [19], [20].

4. Conclusion
The research sought to know the effect of gadget usage on toddlers and ways of preventing it. The research revealed that the gadget had a negative effect on the speech development of toddlers which leads to the toddlers’ inability to talk like other children of the same age. The findings of this research are about the roles of parents in reducing the gadget usage of their children to less than 2 hours per day, the screening that has to be carried out by the parents to discover whether their children have the speech development disorder or not. The role of the parents is to take their children who have speech delay to the therapist or professional health workers to enable them to speak like other children of the same age.

5. Limitation
The sample of this research was very small in number, therefore, it couldn’t be generalized into the bigger population and the researcher couldn’t carry out a genetic test to find out the history of speech delay.
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