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The Influence of Gadgets on Development Cognition in Early Childhood

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ABSTRACT
Cognitive development is the mental ability to process information, think, learn and solve problems. The effect of gadgets on early childhood cognitive development is very important. This is because the rapid development of technology and the increasing use of gadgets among children trigger concerns about their impact on child development and The benefits of this study are to increase parents' and educators' awareness of the impact of gadgets on child development, provide scientific information about the effect of gadgets on children's cognition, and help develop effective educational strategies. This study can also help parents and educators in making decisions about the use of gadgets and improve the quality of education and child development. This study aims to determine the effect of gadget use on early childhood cognitive development at Sabulus Naimata PAUD. The research method applied was descriptive qualitative with a population of 45 children aged 4-6 years. Data collection techniques were interviews and documentation studies. The research participants were one teacher and three parents, as well as document analysis related to the use of gadgets in PAUD. The results of data analysis show that gadget use has a significant influence on early childhood cognitive development. The influence can be positive, such as improving problem-solving skills and creativity, but also negative, such as being easily distracted, less active in playing, and difficulty concentrating. This study concludes that the use of gadgets in early childhood at PAUD Sabulus Fani Naimata has both positive and negative impacts. It is expected that parents and teachers can assist and limit children to use gadgets and balance them with other activities that support children's cognitive development.
Keywords: *Gadget, Cognitive Development, Early Childhood*

INTRODUCTION

Early childhood education is an effort to provide basic abilities in important coaching for children from birth to six years of age as a diamond age which is manifested in providing educational stimuli through growth in the form of nutrition and health and maximizing the potential for early childhood development in a holistic integrative manner through aspects of physical motor development, cognitive creativity, social emotional. language and religion and morals so that children have readiness to enter further education in formal, informal and non-formal channels (Amseke, 2023), language and religion and morals so that children have the readiness to enter further education in formal, informal and non-formal channels (Amseke, 2023).

According to Vygotsky (2018), cognitive development includes aspects such as attention, memory, understanding, reasoning and decision-making. Meanwhile, UNESCO (2022) emphasizes the importance of an environment that supports children's development, including external aspects such as appropriate and controlled technology (gadgets).

Mitra (2019) added that the use of gadgets must be balanced with social interaction and physical activities to prevent negative impacts. In addition, Piaget (2019) wrote that young children need fun and interactive learning experiences to develop their cognitive and social abilities. Mitra (2019) states that the use of digital technology can improve children's learning ability, but it needs to be well regulated. Gadgets, such as smartphones, tablets and computers, have become an integral part of everyday life, even in educational settings. Some studies show that the use of gadgets can provide educational benefits, improve cognitive abilities and develop children's creativity.

However, other studies show that excessive use of gadgets can have negative impacts, such as impaired concentration, less active in playing, and inhibiting problem-solving skills Anditiasari & Dewi, 2021; Oktaviana, 2019). The rapid development of technology, especially the presence of gadgets, has had a significant impact on human life, including early childhood. According to Twenge (2020), the use of gadgets in early childhood can affect their cognitive, social, and emotional development. This raises concerns about the impact of gadget use on children.

Nurhayati dan Sukmadinata (2019), study found that excessive gadget use affects children's memory and attention skills. This study was conducted on children aged 4-6 years in kindergartens in Indonesia. The results showed that children who used gadgets for more than 2 hours a day had lower memory and attention skills compared to children who used gadgets for less than 1 hour a day. Kusumaningsih and Widyastuti (2020), research proved that proper use of gadgets can improve the problem-solving ability and creativity of children aged 5-7 years in elementary schools in Indonesia. Supriyanti and Widyastuti (2020), research showed that excessive gadget use inhibits the social-emotional development of 4-6 year old children in kindergartens in Indonesia.

Previous research conducted by Bangsawan, Ridwan and Fauziyah (2022), showed that the use of gadgets can have a positive and significant impact on children's cognitive development, especially in terms of the ability to think, remember, reason, and imagine. Previous research also shows that family educational interactions play an important role in maximizing the positive impact of gadget use on children.

Previous research conducted by Yumarni (2022), showed that gadget use has both positive and negative impacts on children's development. The positive impacts include improving children's adaptive functions, increasing knowledge, expanding friendship networks, making communication easier, and building creativity. However, the negative impacts include gadget dependency, decreased concentration, lack of social interaction, and potential health problems. This study concludes that the role of parents is crucial in guiding and controlling children's use of gadgets to maximize the positive impact and minimize the negative impact.

Based on interviews with teachers and parents at KB Sabulus Fani Naimata PAUD, there is a significant use of gadgets among early childhood. The main purpose of using gadgets is for entertainment and learning. However, the use of gadgets has a double impact, both positive and negative. The results of this study are expected to provide useful information for teachers, parents and educational program developers. Gardner (2020) states that the use of digital technology should be integrated with appropriate learning approaches. This research will help develop strategies for effective and balanced gadget use.

This study focuses on early childhood (4-6 years), in accordance with the suggestion of Vygotsky (2018) which states that the age of 4-6 years is a critical period of cognitive development of children. From the phenomenon of the problem, it is interested to examine the influence of Gadget on early childhood cognitive development.

METHODS

This research uses a qualitative method with a descriptive approach. According to Sugiyono (2017), descriptive qualitative research methods are research methods that attempt to describe systematically and accurately about the object or phenomenon under study. According to Sugiyono (2017), this method aims to describe systematically and accurately about the object or phenomenon under study. Creswell (2019) adds that descriptive qualitative research aims to produce an accurate and in-depth description of the phenomenon under study. Denzin and Lincoln (2018) state that descriptive qualitative research requires precision and patience in collecting and analyzing data. The place of this research was conducted at PAUD Sabulus Fani Naimata in Kupang City. The research participants were one teacher, three parents with children aged 4-6 years.

RESULTS AND DISCUSSION

Results

The results of the study can be described in the following table:

Table 1. Results of Research Recap at PAUD Sabulus Fani Naimata

Participants

Participants	Frequency	Duration	Purpose	Positive Impact	Negative Impact
Participant 1 (teacher)	1-2 times a day	15-20 minutes per session	Gadgets are used to provide a more interactive and engaging learning experience for children.	Gadgets can help children develop problem-solving skills through educational games and challenging apps.	Children become easily distracted, less active in play, and have difficulty concentrating
Participant 1 (parent)	1-2 times a day	30 to 45 minutes	The main purpose of gadget use for Sempian Taosu children is for entertainment and learning.	The positive impact of gadget use on their children, such as improving problem-solving skills and increasing creativity.	Sempian Taosu has also seen negative impacts, such as children becoming easily distracted, less active in play, and difficulty concentrating.
Participant 2 (parent)	2-3 times a day	15 to 20 minutes	The main purpose of using Gadgets for Florensia Mael's children is entertainm	Improve children's ability to solve problems, increase creativity, and develop fine motor skills.	Florensia Mael stated that excessive use of gadgets can affect children's concentration ability. Children tend to be more easily distracted

			ent and learning.		by sounds and images on gadgets.
Participant 3 (parent)	1-2 times a day	30 to 45 minutes	The main purpose of using gadgets for Asriani E. Habel's children is for entertainment and learning. Asriani E. Habel wants her children to be motivated to learn through gadgets and gain new experiences.	Asriani E. Habel has seen the positive impact of gadget use on her children, such as improving problem-solving skills, increasing creativity, and developing fine motor skills.	Asriani E. Habel has also seen the negative impacts, such as children becoming easily distracted, less active in playing, and difficulty concentrating. Therefore, she always tries to balance the use of gadgets with other more active activities.

Discussion

The study analyzed the effect of gadget use on early childhood cognitive development based on interviews with teachers and parents at PAUD Sabulus Fani Naimata. Data were collected through interviews and presented in a table summarizing the frequency of use, duration, purpose, positive impact, and negative impact of gadget use. Gadget use in early childhood has a positive impact on cognitive development, such as improving memory, attention and problem-solving skills (Kucirkova et al., 2017). Gadgets also help develop learning skills, such as reading and writing (Hirsh-Pasek et al., 2015).

However, excessive gadget use can also have a negative impact on early childhood cognitive development. According to the American Academy of Pediatrics (2018), children who use gadgets for too long are at risk for sleep disorders, obesity and behavioral disorders. In addition, excessive gadget use can also hinder children's ability to interact socially and develop empathy (Turkle, 2015). Data shows that gadgets are widely used among early childhood, both for entertainment and learning. While there are positive impacts such as increased problem-solving ability and creativity, negative impacts are also significant, particularly in relation to concentration, physical activity and potential distraction. Variations in frequency and duration of use suggest differences in parental approaches to managing children's gadget use.

From interviews with one teacher and three parents, several issues emerged regarding the influence of gadgets on early childhood cognitive development. Teachers and parents agreed that excessive use of gadgets can disrupt children's concentration, make them easily distracted, and less active in playing. They also acknowledged the difficulty in controlling children's use of gadgets and the need for appropriate strategies in utilizing gadgets as learning tools. In addition,

parents were concerned that the use of gadgets could hinder the development of problem-solving and critical thinking skills in children. There is also a concern that excessive gadget use may affect parents' relationship with their children.

Based on interviews with teachers and parents at PAUD Sabulus Fani Naimata, there is a significant use of gadgets among early childhood. The main purpose of using gadgets is for entertainment and learning. However, the use of gadgets has multiple impacts, both positive and negative. Positive Impact, some respondents reported positive impacts such as improved problem-solving skills, creativity, and even fine motor skills development (especially through interactive apps). This shows the potential of gadgets as effective learning aids if used appropriately. The negative impact is that children tend to be easily distracted, less active in play, and have difficulty concentrating. This points to the need for strict supervision and regulation of gadget use so as not to interfere with children's holistic development.

Excessive use can lead to dependence and inhibit physical activity and social interactions that are important for early childhood development. Variation of Use that in the frequency and duration of gadget use each early childhood is different. It was evidenced in the interviews that parents and teachers have different strategies in managing gadget use. Some parents may be more permissive, while others are stricter in limiting usage time.

CONCLUSION

The conclusion of this study found that the use of gadgets in early childhood at PAUD Sabulus Fani Naimata has multiple impacts, both positive and negative. While gadgets can be used as effective learning aids to improve problem-solving skills and creativity, excessive use negatively affects children's concentration, physical activity and social interaction. Variations in the frequency and duration of gadget use between respondents suggest differences in management strategies for gadget use by parents and teachers. Therefore, gadget use in early childhood requires close supervision and appropriate strategies to maximize the benefits and minimize the negative impacts.

It is important for parents and educators to be wise in utilizing technology, choosing the right content, and limiting the time of gadget use so that children's development remains balanced and optimal. To minimize the negative impact and maximize the positive impact, parents should monitor and regulate their children's gadget use. According to Rasmussen (2018), parents should set time limits for gadget use, choose educational applications, and invite children to interact socially. It is expected that teachers should understand the impact of gadgets on early childhood cognitive development. According to g Kucirkova (2017), proper use of gadgets can improve children's cognitive abilities. Therefore, teachers can integrate technology in the learning process effectively, choose educational applications that are suitable for children's age and needs and supervise children's gadget use to prevent negative impacts. It is expected that early childhood use gadgets wisely.

According to Turkle (2015), excessive gadget use can inhibit children's social and creative abilities. Therefore, children can use gadgets only for learning purposes and not excessive, limit the time of gadget use to avoid negative impacts and develop social and creative abilities through other activities. It is expected that parents can monitor and regulate children's gadget use. According to (Hirsh-Pasek et al., 2015), parents should ensure that children's gadget use does not interfere with playtime and social interaction. Therefore, parents can set time limits for gadget use, choose educational applications that are appropriate for early childhood development and children interact socially and do physical activities.

For further research, it is recommended to increase the sample size to a larger and more representative sample which will provide more generalized results, use more diverse data collection methods, combine interviews with observation and questionnaires will provide more

comprehensive and valid data, analyze the type of gadget content. Research can focus on the type of gadget content used and its effect on children's cognitive development. This will provide a more detailed understanding of how certain types of content can influence a child's development, and involve other variables. Research can consider other variables such as parental education level, socioeconomic status, and social support in analyzing the influence of gadget use on children, and conduct longitudinal studies which will allow researchers to observe the long-term impact of gadget use on children's cognitive development.

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