The Effect of Gadgets on Cognitive Development of Children Age 5-6 Years In Sirimau Sub-District, Ambon City

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Article Info

Abstract

This study aims to determine the effect of gadgets on cognitive development of children aged 5-6 years in Sirimau sub-district, Ambon City. This research needs to be discussed because gadgets affect the cognitive development of children aged 5-6 years. The population in this study were 30 parents of children aged 5-6 years in Sirimau sub-district who were selected using purposive sampling technique. The research design used is quantitative research using Discrimination Power Test, Validity and Reliability Test with an emphasis on theory testing through measurement of research variables through the distribution of research questionnaires. The sampling technique used was purposive sampling. The analysis technique used is simple linear regression with SPSS 16.0 software. The results of this study indicate that the gadget variable. The gadget variable affects cognitive development by 85.6% and the remaining 14.4% is influenced by other variables not examined in this study.

Keywords: Gadgets, Cognitive Development

INTRODUCTION

The development of technology and communication is currently very fast. The development of technology and communication has had a huge impact on the world of education, not only for adults who are familiar with this advanced technology and communication, but also for the development and education of early childhood. Gadgets are mini-sized tools with many uses that can be found in them both as a means of communication and as a means of education. Ease of accessing various information and entertainment has been presented in the form of Online and Offline. The enthusiasts continue to grow from various backgrounds and ages. In Indonesia alone, internet and gadget users have continued to increase from year to year. As reported on the online republika site (2014), Indonesia is ranked the fifth largest smartphone user in the world. Meanwhile, according to the Central Statistics Agency in

2013, the percentage of the population aged 5 years and over who had accessed the internet in the last three months was around 14.90 percent and increased to 32.34 percent in 2017. Various sophisticated applications in it and the variety of innovations offered producers have always been a special attraction for people to take advantage of this sophisticated tool both as entertainment and as a learning tool. These applications are considered to have many positive benefits for humans to make their lives easier. However, in reality these gadgets are not only used by adults for doing business or doing school assignments and college assignments but also by children. Maria Montessori (Elizabeth B. Hurlock, 1978: 13) argues that 3-6 years of age is a sensitive period or a sensitive period, which is a period where a certain function needs to be stimulated, directed so that its development is not hampered. Gadgets provide a variety of information that can also encourage children to be more creative. Children will find it easier to find all the information and news they need, especially in terms of learning while playing or playing while learning. At this age, children are still in an exciting time to play.

Children who intensively use gadgets will be very dependent and become activities that must and routinely be carried out by children in their daily activities. It is undeniable that nowadays children play gadgets more often than learn and interact with their surroundings. This is worrying, because during childhood they are still unstable, have very high curiosity, and have an effect on increasing their consumptive nature. Behavioral patterns like this can affect children's growth and development so they need special attention from parents and teachers. Ferliana (2016), said that early childhood using gadgets for at least 2 hours but continuously every day affects the brain and psychology of children. For example, children become addicted to playing gadgets rather than doing activities that should be, namely learning. Actually gadgets do not only have a negative impact on children, because there are also positive impacts, including in the child's mindset, namely being able to help children in regulating their playing speed, cultivating strategies in games, and helping improve children's right brain abilities while under good supervision.

According to Sari and Mitsalia (2016), the use of gadgets is categorized as high intensity when using a gadget with a duration of more than 120 minutes / day and in one use it ranges from> 75 minutes. In addition, in a day you can use a gadget many times (more than 3 times) with a duration of 30-75 minutes will cause addiction in the use of gadgets. Furthermore, the use of gadgets with moderate intensity if using gadgets with a duration of more than 40-60 minutes / day and the intensity of use in one use 2-3 times / day per use. Then, good gadget usage is in the low category, namely with a duration of use <30 minutes / day and a maximum usage intensity of 2 times. Therefore, it is important to understand the effects of gadgets, especially for parents.In this connection, this research is focused on The Effect of Gadgets on the Cognitive Development of Children aged 5-6 years in Sirimau District, Ambon City.

METHOD
Research design
The research method used by the writer is quantitative method. PThis research is to analyze the effect of gadgets on the cognitive development of children aged 5-6 years in Sirimau District, Ambon City.

Population and Sample
The study population was 30 parents of children aged 5-6 years in Sirimau sub-district, Ambon City. The sampling technique used was purposive sampling. Purposive sampling is a sampling technique used by researchers if the researcher has certain considerations in taking the sample.

Research Instruments

Measuring tools In this study, data on the variables were obtained using an instrument in the form of a scale that must be filled in by teachers and parents. The lattices for the instruments in the preparation of the questionnaire are as follows:

Table 1. Cognitive Development

NO	Statement	Item No	
		F	U
1.	Children are able to express reasons for an idea	-	
2.	Children can group various objects based on their function.	-	
3.	The child can describe the weather	-	
4.	Children know cause and effect in everyday events.	-	
5.	Children have new ideas related to games and so on.	-	
6.	Children do not recognize differences based on size 'more than' less than ', and at most'		-
7.	Children can classify objects based on color, shape and size in 3 events.	-	
8.	Children cannot classify objects based on color, shape, size and function		-
9.	Children understand family relationships	-	
10.	Children can sort objects by size from smallest to largest or vice versa	-	
11.	Children can name the symbols numbers 1-10	-	
12.	Children can match numbers with number symbols	-	
13.	Children recognize several colors	-	
14.	Children recognize various kinds of vowel and consonant symbols.	-	
15.	Child can name 7 days	-	
16.	Children can sort numbers 1-10 in reverse order	-	
17.	Children can identify objects that are located in the middle	-	
18.	Children have a high curiosity	-	
19.	Children recognize objects based on their function	-	
20.	Children cannot classify objects based on their function		-

Table 2. Gadget use

NO	Statement	Item No	
		F	U
1.	Children owning gadgets is important	-	
2.	Children are restricted and accompanied in the use of gadgets	-	
3.	Children use gadgets for more than 30 minutes a day		-
4.	Children rarely communicate with family members because of the use of gadgets		-
5.	Children always check gadgets every time they wake up		-
6.	Children prefer to play gadgets than play with peers		-
7.	The child feels restless / angry / crying when not holding the gadget		-
8.	Children use gadgets to access various information on the internet	-	
9.	Children always hold gadgets even when eating and going to the toilet		-
10.	Children use gadgets more often than study		-
11.	Children find it difficult to concentrate at work or while studying because of the use of gadgets		-
12.	Children always check gadgets so they don't miss out on activities outside the home	-	
13.	Children feel annoyed when the signal of the gadget is bad	-	

14.	Children always fail when trying to reduce the time they spend on gadgets	-
15.	Children panic, worry, and feel uncomfortable if gadgets left at home rather than other objects.	-
16.	Children do not want to lend gadgets to other people	-
17.	Children often argue and disobey parental orders because of the use of gadgets	-
18.	Children love to show their cleverness to play gadgets in front of their friends	-
19.	Children are indifferent when called or advised by others when they are cool using gadgets	-
20.	Children will get angry if disturbed while playing gadgets	-
21.	Children do not want to lend gadgets to other people	-

DATA ANALYSIS TECHNIQUE

This research uses simple linear regression analysis. This multiple regression equation aims to determine the extent to which the gadget variable (X) affects the cognitive development of children aged 5-6 years (Y). Hypothesis testing is done using a significance level of 5% or $\alpha = 0.05$. Use the SPSS 16.0 for Windows program for this statistical analysis.

RESULTS AND DISCUSSION
Research result
Validity and Reliability Test Results
Validity Test Results

The discrimination power test was carried out with the help of SPSS 16. This test was performed using the corrected item-total correlation technique for each item. Based on the results of the tryout, on the scale of gadget use, there were 5 items that were declared invalid because they had a correlation <0.30 so that they were declared invalid. Meanwhile, in research with a scale of gadget use, it was found that 21 items were declared valid or had a correlation of> 0.30 with a range of values that moved from 0.385 to 0.728. For the child's own cognitive development scale, 20 items were obtained with a correlation of> 0.30 with a range of values that moved from 0.398 to 0.717.

Reliability Test Results
Gadget Usage Scale

The reliability test of the Gadget Usage scale was carried out using SPSS 16. Based on the results of the calculation of item selection in the tryout, the reliability coefficient was 0.784 with the number of items 21 with 30 subjects. Meanwhile, in the study, the reliability coefficient was 0.848 with the number of items 21 and the number of subjects as many as 30 people.

Cognitive Development

The reliability test of the cognitive development scale was carried out with SPSS 20. Based on the results of the calculation of item selection in the tryout, the reliability coefficient was 0.790 with the number of items 20 with 30 subjects. Meanwhile, in the study, the reliability coefficient was 0.817 with the number of items 20 and the number of subjects as many as 30 people.

Classic assumption test
Multivariate Correlation Normality Test
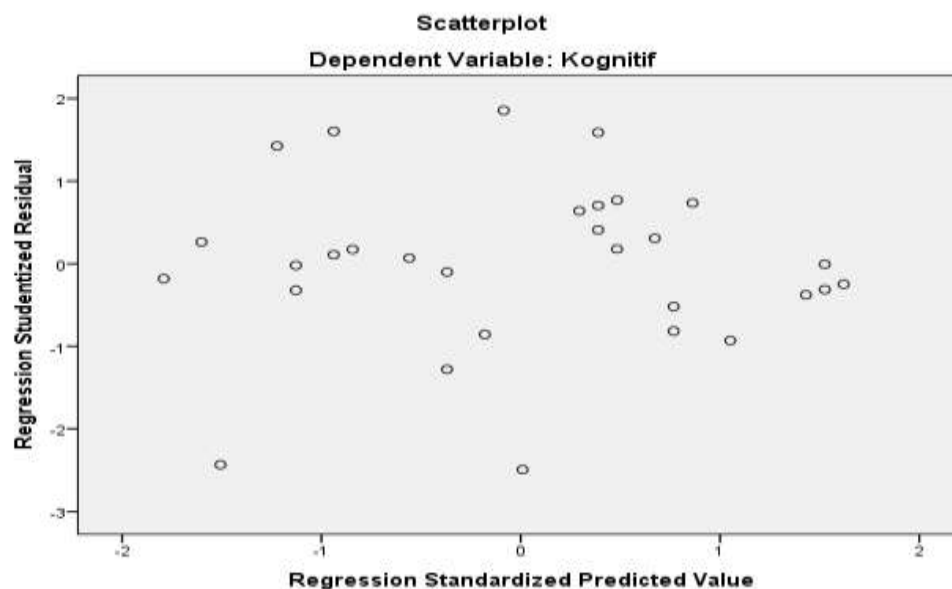
Table 3. One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		30
Normal Parametersa, b	Mean	0E-7
	Std. Deviation	3.39786050
Most Extreme Differences	Absolute	.124
	Positive	.089
	Negative	-124
Kolmogorov-Smirnov Z		.682
Asymp. Sig. (2-tailed)		.741

a. Test distribution is Normal.

b. Calculated from data.

Based on the results of the normality test, it is known that the significance value is 0.741> 0.05, so it can be ascertained that the residual value is normally distributed.

Picture 1. Heteroscedasticity Test

From the image above, it can be seen that the dots are evenly spread out and do not form a clear pattern. The points spread above and below the number 0 on the Y axis. So it can be concluded that there is no heteroscedastity.

Hypothesis testing
Simple Linear Regression Analysis
The output of data processing using SPSS is as follows:

Table 4. ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1984,382	1	1984,382	165,949	.000b
	Residual	334,818	28	11,958		
	Total	2319,200	29			

a. Dependent Variable: Cognitive
b. Predictors: (Constant), Gadgets

Based on the ANOVA table above, it is known that the value of F count = 165.949 with a significance level of 0.000 less than 0.05, the regression model can be used to predict the participation variable or in other words there is the effect of the gadget variable (X) on the cognitive development variable (Y).

Table 5. Model Summary b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.925a	.856	.850	3,458

a. Predictors: (Constant), Gadgets
b. Dependent Variable: Cognitive

From the Model Summary table above, it is explained that the value of the correlation / relationship (R) is 0.925. From this output, the coefficient of determination (R Square) is 0.856 which means that the influence of the independent variable (Gadget) on the dependent variable (Cognitive Development) is 85.6%.

Simultaneous Significance Test (Test F)

Simultaneous statistical test results for the dependent and independent variables obtained the following results.

Table 6. ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1984,382	1	1984,382	165,949	.000b
	Residual	334,818	28	11,958		
	Total	2319,200	29			

a. Dependent Variable: Cognitive
b. Predictors: (Constant), Gadgets

The F value obtained in this study is equal to165,949 with a significance value of 0.00 less than a significance value of 0.05 means that the hypothesis is accepted and there is a relationship between gadget variables and cognitive development of children aged 5-6 years.

DISCUSSION

Based on the results of data analysis using a simple linear regression test, the discussion of the research hypothesis is as follows

Gadgets has a significant effect on children's cognitive development

The results showed that the F value of 141,724with a significance value of 0.000 less than a significance value of 0.05 means that the hypothesis is acceptable and there is a relationship between the gadget variable and cognitive development. In addition, to show the influence, it

can be seen from the comparison of F count and F table, where F counts for 141,724 while F table is 4.20 and it is known that F count is greater, which means that the hypothesis in this study is accepted. This research is supported by previous research conducted by Fitra, et al. (2018) whose research results are described as follows:The positive impact of using gadgets on early childhood development in early childhood and kindergarten is 96.8%, while the negative impact of using gadgets on early childhood development in early childhood and kindergarten is 93.1%.

Gadgets simultaneously affect children's cognitive development

The results of data analysis show that gadgets simultaneously affect the cognitive development of early childhood in Ambon city. The statistical test results show Fcount= 165.949 with a significance level of 0.00. Gadget variable affects cognitive development by 85.6% and the remaining 14.4% is influenced by other variables not examined in this study. Several things that affect the gadget variable (X) simultaneously on the variable cognitive development of children (Y), namely:

First Possibility:Efficient use of gadgets with parental supervision and guidance can have a positive impact on children's cognitive development. The positive impacts of using gadgets include: 1) Applications or educational features on gadgets that children can improve their thinking skills, 2) increase children's creativity, 3) gadgets as an interesting and fun learning resource for children. This statement is supported byby Asmaul (2017) that proper use can help children broaden their knowledge.

The second possibility, PIntensive use of gadgets can have negative impacts, such as: 1) not all applications or features on gadgets are educational, 2) intense use of gadgets can lead to addiction, 3) impaired brain development. Asmaul (2017) suggests that using gadgets for too long in all daily activities will interfere with brain development. So that it causes obstacles in the ability to speak (not fluent in communication), and inhibits the ability to express thoughts. In line with this, excessive use of gadgets can have a negative impact on human health because the radiation effects of technology are very dangerous for human health, especially for children aged 12 years and under and can interfere with children's development (Abdilah, 2019).

The third possibility,Parenting patterns and the role of parents are very important in educating, guiding, and supervising children when using gadgets. Effective parenting can minimize the negative impact of gadgets on children's cognitive development. This is supported by the results of research by Khumaerah, et al. (2017).who concluded that the parenting style is very influential on the development of children's intellectual intelligence.

The results of data analysis show that gadgets simultaneously affect the cognitive development of early childhood in Ambon city. The statistical test results show Fcount = 141,724 with a significance level of 0.00. The gadget variable has an effect on cognitive development by 83.5% and the remaining 16.5% is influenced by other variables not examined in this study. Things that affect gadgets simultaneously on children's cognitive development are children aged 5-6 years at the pre-operational stage of cognitive development. At this stage it is the beginning of the child to build his ability to organize his thoughts. Therefore, the child's way of thinking is not stable and not well organized.When a child uses a gadget, his cognitive will be formed in what he sees and hears on the gadget. The thing that comes to mind, is based on what he received from using his gadget (Zaeny, et al. 2019).

CONCLUSION

Based on the results of the research and discussion previously described, the following conclusions can be drawn: The results of the study show that the tcount is 11,905>t table 0.361 so it can be concluded that the gadget variable is proven to have an influence on children's cognitive development or variable X (Gadget) has an effect on variable Y (cognitive

development). Meanwhile, the simultaneous significance test results obtained valueFcount= 165,949> from Ftable = 4.20 with significance 0.00 (<0.05). This is meaningfulThe regression model can be used to predict the gadget variable or in other words, there is the simultaneous influence of the X (Gadget) variable on the Y variable (children's cognitive development). The gadget variable gives an effective contribution of 85.6% and the remaining 14.4% is influenced by other modifiers not examined in this study.

Suggestion
1. Parents are expected to guide, educate and assist children in using gadgets, so that they can optimize children's cognitive development and minimize the negative impact of gadgets.
2. There are several things that researchers can recommend to future researchers, namely being able to study and research other variables that can affect children's cognitive development, conducting research with different participants, for example the cognitive development of elementary school students on other occasions or studying through studies on the role of parents.

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