



Relationship of Gadget Use With Cognitive Levels in Children of Basic School Age (A Study on Students of SD Negeri 7 Kepanjen)

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ABSTRACT

In this case, the use of gadgets for elementary school aged children (7-12 years old) will in some degree affect cognitive levels. This can be seen from the achievement of the achievement value of children in school. Based on preliminary study conducted in Elementary School 7 Kepanjen, obtained the results of a total of 40 respondents as many as 33 children already have their own smartphone and the average use of the majority of gadgets over 3 hours. Meanwhile, more than 30 children admitted to using gadgets for the purposes of playing games and doing tasks. The purpose of research is to know the relationship of using gadget with cognitive level of elementary school age children in SD Negeri 7 Kepanjen. This research uses descriptive analytic descriptive research design and use cross sectional data retrieval. Sampling technique in this research using simple random sampling counted 60 respondents. Research data from a total of 60 respondents as much as 19 (32%) of respondents who categorized the use of high gadget decreased at cognitive level. In contrast, as many as 33 (60%) of children in the category of use were getting good cognitive value. The results were analyzed by Spearman Rank statistic test obtained significance $(p) 0.001 = (p) < 0.05$ which means there is a significant correlation or relationship between variable use of gadgets with cognitive level variables. Based on research the use of gadgets for children should be more limited to avoid the impact and decrease on the cognitive level of children.

KEYWORDS

Child, Cognitive level, Gadget usage, Elementary school

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INTRODUCTION

A gadget is a high-tech feature. A gadget is also a device or instrument that has specific practical purposes and functions that are useful and generally given to something new (Kuncoro, 2009). According to data owned by technology research institute e-Marketer, in 2015 it is estimated that smartphone gadget users in Indonesia reached 55 million people. e-Marketer also projects that from 2016 to 2019 smartphone users in Indonesia will continue to increase. The growth rate is quite fantastic. In 2016 there will be 65.2 million smartphone users. While in 2016 there will be 74.9 million users. In 2018 and 2019, the number of smartphone users will continue to increase from 83.5 million to 92 million mobile phone users in Indonesia (Kominfo, 2017).

Gadgets are electronic devices created with various applications that can serve various news media, social networks, hobbies, and even entertainment. This sophisticated technology, which is seen in terms of prices that cannot be considered cheap, is not only used as a medium of entertainment but with applications that are constantly updated, gadgets must be used by people who have business interests, or work on college and office assignments. However, in fact, gadgets are not only used by adults or the elderly (22 years and over), adolescents (12-21 years), but also children (7-11 years), and more ironically gadgets are used for children (3-6 years), who should not be eligible to use gadgets (Widiawati and Sugiman, 2014).

In the Journal Infant Behavior and Development, cited by Sakhina (2016), states that interacting with gadgets for too long will increase the risk of delays in cognitive, motor, and language development in children under 13 years of age. The longer the duration of the child's interaction with the gadget, the more severe the disorder. In the journal, it is said that children who are too often exposed to gadgets tend to experience cognitive barriers characterized by a decrease in interest in learning, which adversely affects the ability to think and the acquisition of children's achievements at school.

The development of cognitive level is needed to improve the brain's ability. For example, classifying colors, recognizing numbers, recognizing geometric shapes, recognizing size, recognizing the concept of space, recognizing the concept of time, recognizing various patterns, and others. Learning by using gadgets provides opportunities for children to manipulate, repeat, explore, practice and gain an innumerable variety of concepts and understanding through the features in the gadget (Kurniasih, 2013).

Interacting with gadgets can have both positive and negative impacts on children. One of the positive impacts of gadgets is that they can improve the ability to reason or logical thinking in children through games. For example, in the game feature in the gadget, there are problems that must be solved to achieve certain stages/goals, so that the ability to think and reason is needed to be able to solve every problem in the game. The penchant for playing games allows children to sharpen their brains to solve problems so that their reasoning skills continue to develop (Agata, 2015). However, children who use gadgets excessively will have a negative impact on cognitive development, especially on the acquisition of achievement levels at school.

The negative impact of gadgets is more felt if there is an addiction to playing gadgets. When gadgets are played excessively, children cannot do the tasks given by the school, do not concentrate during the learning process, sleep in class and even skip school. Excessive use of gadgets will also affect learning motivation in children which results in children becoming lazy to learn and prefer to learn using gadgets rather than through books so that it can affect the acquisition of cognitive levels or children's intelligence, especially in logikamatematika intelligence (logical thinking, recognizing numbers) (Suziedelyte, 2012).





From the above phenomenon, it can be concluded that gadgets can affect children's learning ability and intelligence positively or negatively, but it is necessary to know how the relationship between the intensity of gadget use and cognitive level in children of different ages is. to cognitive levels in children aged 7-12 years old (concrete operational stage). So that researchers are interested in finding out know if there is a relationship between the variable the use of gadgets to the variable acquisition of children's cognitive levels at the age of elementary school age.

MATERIALS AND METHODS

This research is a quantitative research type using an analytical descriptive method research design. The research was conducted on all students at SD Negeri 7 Kepanjen, in March 2018. The population in this study were all students and female students at SD Negeri 7 Kepanjen totaling 240 people. Of the 240 people it will be divided into 5 groups, where each group has been differentiated at different grade levels according to age (7-11 years), then sampling was carried out as many as 60 people using the simple random sampling method by random sampling. The instruments used in data collection were a checklist questionnaire and the acquisition of achievement levels at school. With statistical tests using the Spearman Rank Test to determine the existence of a relationship or comparison between the variable level of gadget use with variable children's cognitive level at school.

RESULTS

Table 1. Frequency distribution based on the level of gadget use after measurement through a checklist instrument on the use of gadget use at SD Negeri 7 Kepanjen Malang Regency

Level of gadget usage	Frequency	Percentage
Very high	-	-
High	19	32%
Moderate	33	55%
Low	8	13%
Total	60	100%

Based on table 1, it is found that out of a total of 60 respondents of SD Negeri 7 Kepanjen students after being given a questionnaire about gadget use, 33 (55%) respondents fall into the "moderate" category in the level of gadget use. While 19 (32%) children are categorized as a "high" level of gadget use, and the rest are categorized as low level of gadget use.

Table 2. Frequency Distribution Based on Cognitive Level (achievement level) after Examination in 3 subjects: Indonesian Language, Mathematics, and Science at SD Negeri 7 Kepanjen Malang Regency.

Cognitive level	Frequency	Percentage
Good	37	61%
Moderate	23	39%
Low	0	-
Total	60	100%

Based on table 2, it is found that out of a total of 60 respondents after the exam in the subjects of science, Indonesian language, and mathematics, then the average score in a total of 3 subjects is





obtained as many as 37 children or 61% of the total get a score that is categorized as good. Meanwhile, the rest as many as 23 children (39%) got scores that were classified as moderate.

Table 3. The results of the analysis of the relationship between the use of gadgets and cognitive levels (achievement scores) in elementary school children using the spearman rank method

	Cognitive level
	$r = -0.698$
Gadget usage	$p < 0.01$
	$n = 60$

From table 3, the results of the statistical test above, obtained a P-value of 0.001 (<0.05) which indicates that there is a significant relationship or correlation between the variable gadget use and the cognitive level variable. The Spearman correlation value is 0.698 which indicates that there is a strong relationship and the correlation is negative. negative.

DISCUSSION

From the data of the results of research conducted on 60 respondents, it is known that the results in table 1 show that the frequency of the level of gadget use is mostly at the level of use of gadgets in the moderate or moderate category, totaling 33 respondents (55%). While in the category of high intensity gadget usage levels, there were 19 respondents (32%). And the rest are included in the low intensity of gadget use. The use of gadgets for children can determine the stages of development in children. One of the aspects that can be affected by the use of gadgets is the development of cognitive level or thinking process (Nurvitasari, 2016).

From the research data listed in table 2, it is known that the majority of the frequency of the most cognitive level is in the good category cognitive level which amounted to 37 respondents (61%). Meanwhile, the remaining 23 respondents (39%) were included in the category of sufficient cognitive level. The cognitive level of this study was measured based on student achievement scores, namely based on the average results of three subject scores namely Indonesian language, mathematics, and science.

Cognitive development is needed to improve the brain's ability. For example, classifying colors, recognizing numbers, recognizing geometric shapes, recognizing size, recognizing the concept of space, recognizing the concept of time, recognizing various patterns, and others (Kurniasih, 2013). In this research this study, researchers tried to measure cognitive level through the results of level of student achievement at school with data input based on the value of exam results on subjects.

According to Efendi & Makhfudi (2009), there are six levels of knowledge that need to be considered in observing development at the cognitive level, including the following: (1) Knowledge, (2) Comprehension, (3) Application, (4) Analysis, (5) Synthetic, and (6) Evaluation. Based on these six levels, researchers measure cognitive levels according to the first level of knowledge, namely the level of Knowledge (student learning achievement).

From the analysis of the results of statistical tests using Spearman Rank, it is known that there is a significant relationship between the variable level of gadget use in elementary school children and the variable cognitive level of children in SD Negeri 7 Kepanjen. This is supported by the SPSS statistical test using the Spearman Rank method which shows a p value = 0.001. Thus, $p < 0.05$, this means that H_a can be accepted, which means that there is a relationship between the variable





level of gadget use and the variable cognitive level in elementary school children. Based on the results showed that out of a total of 60 respondents, 14 respondents used gadgets more than 3 hours per day. Gadgets are mostly used for browsing, playing online games and to access various existing social media.

The questionnaire count data also showed that 21 respondents admitted to being anxious and confused when studying without using gadgets. Meanwhile, 19 respondents noted that they always use gadgets before going to bed until late at night. Based on this data, it can be said that the use of gadgets will have an impact on children's learning patterns. This is in line with the theory put forward by Sukidin (2014) that the negative impact of gadgets is more felt if there is addiction in its use. If the gadget is played excessively, there will be a nature of dependence that can affect learning patterns and will determine the level of achievement of children at school. Addiction in this study can be seen through the calculation of questionnaire results as many as 21 respondents claimed to be anxious and confused when studying without using gadgets.

CONCLUSIONS

The level of gadget use in students of SD Negeri 7 Kepanjen is classified as moderate or moderate, as evidenced by the total of 60 respondents, the majority of 33 respondents fell into the category of moderate level of gadget use. The level of cognitive achievement in Mathematics and Natural Sciences subjects of SD Negeri 7 Kepanjen students is also quite good. As evidenced by the results of the data obtained, a total of 60 respondents, 37 respondents received good scores and the rest were in the moderate category. There is a significant relationship between the level of gadget use and the cognitive level that determines the results of achievement scores in students of SD Negeri 7 Kepanjen. Evident from the acquisition of SPSS results using the spearman rank method ($p = 0.001$) $p < 0.05$ which means that H_0 is accepted and there is a significant relationship between the variable use of gadgets on the cognitive level of children.

Conflict of Interest

The authors declare that they have no known financial or interpersonal conflicts that might have looked to have influenced the research presented in this study.

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