

Conference Paper

The Relationship of Gadget Use to Social Interaction and Learning Achievement Levels in Sagulung Elementary School Students in Batam City 2023

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ABSTRACT

Gadgets are one part of technological development that always presents the latest technology that can help make human activities easier. The impact of gadgets in the era of globalization has positive and negative impacts. The positive impact of using devices is that it can make it easier to find information, including information, and can be used over long distances. Devices can also have negative impacts, such as reduced socialization of children and disrupting the process of child development. Prolonged use of devices limits learning opportunities, thus negatively affecting students' grades and learning outcomes. The purpose of this study was to analyze the relationship between the use of social interaction devices and students' academic achievement at SD Negeri 013 Sagulung, Batam City in 2023. This study included observational analysis with a cross-sectional design, with a total of 64 students. respondents. The sampling technique was stratified random sampling. The research instrument was developed by the researcher based on the theory of variables and statistical tests using the Chi-square test. The results of the chi-square test obtained from 36 students of SD Negeri 013 Sagulung with unrestricted gadget use poor social interaction as many as 23 students (63.9%) with a p-value = 0.047 <0.05, meaning that there is a significant relationship between gadget use and student social interaction. In addition, the results were also obtained from 36 students of SD Negeri 013 Sagulung with unrestricted gadget use with low learning achievement results as many as 24 students (66.6%), with a p-value = 0.027 <0.05, meaning that there is a significant relationship between gadget use and student learning achievement. Schools if they want to improve student learning achievement need to regulate the use of gadgets at school and for parents need to make rules and control children while at home.

Keywords: Social interaction, learning achievement level, gadget use

Introduction

The development of communication technology in this era of globalization has progressed very rapidly and has brought us to the present. We cannot avoid the development of technology today, because the development of science always goes hand in hand with technological development (Ashifa & Wahyuningsih, 2022). Technology needs are one of the most important needs today. This is because technology is needed for various purposes. One of the technological advances is the availability of communication tools that facilitate work and facilitate daily community activities, one of which is gadgets (Rahmalah, 2019).

Gadgets are electronic devices whose mission and purpose are to facilitate human work (Ulmi et al., 2022). Gadgets are commonly called smartphones or smartphones. With the help of gadgets, we can not only make calls or SMS services like before, but also use social media applications,

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games, and search for information (Ulmi et al., 2022). With the development of science and technology (IPTEK), of course, it affects a person's lifestyle both in terms of thinking and behavior.

According to Global Wex (Puspita, 2020), Indonesia is the largest internet-using country in Southeast Asia with the most active social media users. In 2001, the number of consumers using devices was only 500 thousand people, and now in 2022, 204.7 million people use the Internet, of which 167 million people use cell phones to access the Internet. This is because cell phones are easily available and affordable (Ashifa & Wahyuningsih, 2022). Devices are not only used by professionals, workers, and parents, but nowadays children also use devices even smarter than their parents (Ashifa & Wahyuningsih, 2022).

Based on a survey by the Commissioner for Pornography and Cyber Crime, Indonesian Child Protection Commission in 2020, around 71.3% of school-age children own gadgets and play with their gadgets for a long period of time in a day, and as many as 55% of them spend time playing these mobile phones with online and offline games (Maimunah, 2022). Based on a study conducted by the Ministry of Communication and Information Technology (Kominfo, 2019), it was found that 98% of children under 15 years old know about the internet and 79.5% of them are internet users (Kominfo, 2019). This figure is a high percentage of children as internet users.

The influence of devices in the globalization era has both positive and negative impacts. One of the positive impacts is the ease of finding information and knowledge, and the ability to receive or communicate with each other over long distances. In addition to positive impacts, the use of devices by children can also have negative impacts, such as children's socialization with their peers, where ethical values in interpersonal relationships can decrease. Parents and teachers often complain about this. Children's social development is influenced by several factors, one of which is the parenting process or parental guidance in introducing them to the social life environment (Puspita, 2020). Children's character can also develop if children use too many gadgets (Rahmalah, 2019). School-age children still need guidance from the surrounding environment, because character is born through experience and education. Character is the values that are left in a person through experience, education, experimentation, and environmental influences, which are then combined with the values within a person that underlie a person's attitudes, behavior, and thinking. Children aged 6 to 12 years who have high curiosity will develop good character when directed to positive things, especially in using gadgets. Therefore, this study investigates the relationship between gadget use and children's social communication development.

Children aged 6-12 years should fill their time with various activities that encourage the development of brain development and social development such as playing various traditional games with peers, games that allow them to learn while playing (Yanti & Silvianetri, 2022). However, in this day and age, most children cannot socialize because children are too focused on their games, children prefer to play with their games rather than interact with their friends, so children experience asocial.

Some experts also believe that the use of gadgets is strongly discouraged because it can interfere with the natural growth and development process of children. There are limited opportunities for learning because gadgets only communicate one-way, i.e. they cannot respond to two-way forms of communication. Children cannot learn naturally in terms of communicating and socializing, children are also unable to recognize various emotions, such as sympathy, sadness, or happiness, and finally, children cannot respond to things around them both emotionally and verbally (Puspita, 2020).

Currently, various applications can be found on gadgets, so they are often misused by children which can have a negative impact on their academic grades and achievements. Gadgets are considered more interesting than textbooks. Children who use gadgets without control can cause laziness which will have an impact on children's learning achievement (Aprianti et al., 2022). The learning process involves various factors that are very complex. Therefore, each factor needs to be considered so that the learning process can succeed by the predetermined goals. Learning is

not only determined by the potential that exists within the individual but is also influenced by other factors coming from outside the learner. It is not surprising that smart, active and creative children can eventually fail in learning because of unsupportive family factors. Conversely, many children from weak economic families are found to be successful in learning because of the high motivation to succeed supported by professional teachers (Sriyanti, 2019).

Excessive stimulation from gadgets on children's developing brains can cause cognitive delays, interference in the learning process, increased impulsivity, decreased ability to be independent and affect social activities in children. The results of research by Kurniawati (2020), show that the use of gadgets can affect student achievement during school by 56%. Likewise, the results of research (Nofiyanti et al., 2023) show that the effect of gadget use on social interaction is 66.8% while the remaining (100% - 66.8% = 33.2%) is influenced by other factors outside.

Material and Methods

This research design is an analytic observational with a cross-sectional type that aims to analyze the relationship of gadget use to social interaction and learning achievement level in students at SD Negeri 013 Sagulung Batam City in 2023. The sample size in this study was 64 students using a stratified random sampling technique. Data collection used questionnaires on gadget use and social interaction in elementary school students, as well as the average score of the last semester's report card. Data were analyzed using the chi-square test.

Results and Discussion

Based on the results of the study, the characteristics of respondents in this study consisted of gender and religion as shown in Table 1.

Table 1. Distribution of characteristics respondents

No.	General Data	Frequency (n)	Presentation %
1	Gender		
	Male	37	58
	Female	27	42
	Total	64	100
2	Religion		
	Islam	58	91
	Kristen	4	6
	Buddhism	2	3
	Total	64	100

Based on Table 1 shows that most of the students of SD Negeri 013 Sagulung, Batam City who became respondents were male 37 students (58%) and some students who became respondents were female 27 students (42%), most of the students were Muslim 58 students (91%), 4 students were Christian (6%) and 2 students were Buddhist (3%).

Table 2 shows that most students often use gadgets, namely 36 students (56%), while students who do not often use gadgets are 28 students (44%). The results obtained show that students are given permission by parents to use gadgets without any time limit so that the duration of gadget use in most students is categorized as often using gadgets without restrictions, parents also do not limit what applications can be accessed and cannot be accessed by children. Most parents do not know what applications are used by students, so students play gadgets without any control from parents. The factors that influence the intensity of gadget use in children are less than optimal communication between children and family members (especially parents) and less parental supervision of children. This is also in line with research conducted by

Pangastuti (2018) explaining that children use gadgets excessively because parents do not provide time limits to children when playing with gadgets so children become addicted to gadgets.

Table 3. Frequency distribution of students' social interaction

No.	Student Social Interaction	Frequency	Presentation
		(n)	%
1	Good	31	48
2	Not good	33	52
	Total	64	100

Table 3 shows that most students have poor social interactions, namely 33 students (52%), while students with good social interactions are 31 students (48%). The results obtained from the questionnaire statements that have been filled in by parents that most children prefer to play at home rather than playing outside with friends. Children prefer to do activities alone rather than doing group activities.

Similar research results were also conducted by Nofiyanti et al. (2023) who explained that children prefer to play with gadgets than play with their peers, this is because the games contained in gadgets tend to be more interesting than games in the surrounding environment.

The aspect of social development is one of the important aspects to be developed as a provision for children's lives in the present and future. According to Mayar (2018) suggests that children's social development is how early childhood interacts with peers, adults, and the wider community in order to adapt well to what is expected by the nation and state. One of the abilities that children must have is the ability of social interaction.

Social interaction can be interpreted as a relationship that occurs in a group of individuals who are interconnected both in communicating and performing social actions. Ahmadi (2009) explains that social interaction is a relationship between individuals and individuals or individuals and groups, where these individuals are interconnected.

Table 4. Frequency distribution of student learning achievement

No.	Student Social Interaction	Frequency	Presentation
		(n)	%
1	Good	31	48
2	Not good	33	52
	Total	64	100

Table 4 shows that most students have a low level of learning achievement, namely 34 students (53%), while students with a high level of learning achievement are 30 students (47%). This is because most students who have a low level of learning achievement are students who use gadgets in the frequent category.

From the above conclusions, the researcher concludes that students who use gadgets too often for entertainment purposes are more interested in playing and having fun with their gadgets than using gadgets for learning purposes.

In line with Bunga Alamiah (2020), it is said that children who have been addicted to gadgets for the sake of playing, when the child does not hold the gadget, will continue to ask for and look for the gadget. As a result of this addiction, students will be discouraged from learning and decreased concentration on learning so that student achievement decreases.

Table 5. Relationship between Gadget Use and Students' Social Interaction in Elementary School Negeri 013 Sagulung Batam City

Gadget Usage	Social interaction				Total	P-Value	RP Value (Prevalence Ratio)	
	Less Good		Good					
	n	%	n	%				
Unrestricted	23	63,9	13	36,1	36	100	0,047	1,789
Restricted	10	35,7	18	64,3	28	100		
Total	33	51,6	31	48,4	64	100		

Based on Table 5, the results of 36 students of SD Negeri 013 Sagulung with unrestricted gadget use obtained poor social interaction as many as 23 students (63.9%). Of the 28 students who are restricted from using gadgets, only 10 students (35.7%) have poor social interactions.

From the *Chi-Square statistical test* results through the SPSS 2.6.0 program. It is found that the p-value = 0.047 (p-value <0.05) (which is shown in table 4.5) which means that there is a significant relationship, and it is found that there is a possibility that students who use unrestricted gadgets 1.789 times affect students' social interactions with a lower of 1.028 and an upper of 3.114. So H₀ is rejected and H_a is accepted, meaning that there is a relationship between the use of gadgets and social interaction in students at SD Negeri 013 Sagulung Batam City in 2023.

The results of the research conducted at SD Negeri 013 Sagulung, Batam City, showed that there is a significant relationship between gadget users and the social interaction of elementary school students.

The same thing is also revealed by research conducted by Nofiyanti et al. (2023) entitled The Effect of Gadget Use on Children's Social Interaction shows the results of research that there is a relationship between gadget users and student social interactions. Likewise, research from Aisyah (2019) entitled The Relationship between Gadget Use and Children's Social Interaction based on the results of the research, there is a significant relationship between the variable use of gadgets and the social interaction variable.

The negative effect caused by the use of gadgets is the inhibition of the development of children's social skills (Gani, 2021). Children will interact less with the environment, parents, and peers because gadgets that have a variety of applications will make children more selfish. (Sianturi, 2021). This can be associated with a disturbance in the child's brain, one of which is the PFC (*Pre Frontal Cortex*).

PFC or *Pre Frontal Cortex* is the part of the brain that regulates emotions, self-control, responsibility, decision-making, and other moral values. In children who are addicted to technology such as gadgets and *online games*, their brains will produce excessive dopamine hormones which disrupt the function of the PFC and make the child *introverted*. Children's dependence on gadgets makes them think that gadgets are everything for them. They will be stressed and anxious if their gadgets are taken away. Most of their time is spent playing with gadgets. As a result, the intimacy between parents and children is reduced, and children tend to become *introverted* (Suhana, 2018).

The habit of playing with gadgets will result in dependent behavior that can damage children's social and emotional development. Individualistic children cause them to not care about their surroundings. So, they lack socialization in the community. This socialization process will continue from childhood to adulthood. If children are still fixated on technological sophistication, then they will find it difficult to communicate with the surrounding community (Suhana, 2018).

Poor social interaction in children caused by the use of gadgets can be prevented by providing an understanding of the function of gadgets, providing limits on the use of gadgets, providing rules for usage time, and providing good examples of using gadgets. The same thing is supported by Kusuma's research (2022) which states that students' dependence on gadgets can be prevented

by guidance efforts from parents providing understanding related to gadgets both in terms of function and impact, parental supervision of children such as providing rules for using gadgets, and providing wise examples in using gadgets.

The use of gadgets greatly affects students' social interactions, students who often use gadgets tend to prefer to play with gadgets at home compared to playing with friends outside the home, so children rarely make social contact with the surrounding environment. Students who often use gadgets tend to have low social interactions. Students' social interactions can be improved by reducing the use of gadgets in students so that students will be more interested in interacting with other individuals in the real world than just playing with gadgets.

In line with research conducted by Ashifa and Wahyuningsih (2022) If students prefer to be alone in using gadgets and this behavior is allowed, it has a bad influence such as forming students who lack social skills and students are more concerned with gadgets and find it difficult to interact with others.

Table 6. Relationship between gadget use and students' learning achievement level in SD Negeri 013 Sagulung Area, Batam City

Gadget Usage	Learning Achievement				Total	P-Value	RP Value (Prevalence Ratio)	
	Low		High					
	n	%	n	%				
Unrestricted	24	66,7	12	33,3	36	100	0,027	1,867
Restricted	10	35,7	18	64,3	28	100		
Total	34	53,1	30	46,9	64	100		

Based on Table 6 of 36 students of SD Negeri 013 Sagulung with unrestricted gadget use, the results of low learning achievement were 24 students (66.6%). Of the 28 students who are restricted from using gadgets, only 10 students (35.7%) have low learning achievement results.

From the *Chi-Square statistical test* results through the SPSS 2.6.0 program. It is found that the p-value = 0.027 (p-value <0.05) (shown in Table 6) means that there is a significant relationship, and it is found that there is a possibility that students who use unrestricted gadgets 1.867 times affect the level of student achievement with a lower 1.079 and upper 3.229. Thus it can be interpreted that H₀ is rejected and H_a is accepted, which means that there is a relationship between the use of gadgets and the level of learning achievement in students at SD Negeri 013 Sagulung Batam City in 2023.

The results of research conducted at SD Negeri 013 Sagulung, Batam City, showed a significant relationship between the use of gadgets and the level of learning achievement of elementary school students.

The results of the study are in line with research conducted by Kurniati (2020) entitled *The Effect of Gadget Use on Student Achievement*, based on the results of the study, showing that using gadgets can affect student achievement. The same thing is also said in Manumpil et al. 's research (2019) entitled *The Relationship between Gadget Use and Student Achievement Levels*, which shows that there is a significant relationship between gadget use and student achievement levels.

Children's negative behaviors can arise as a result of gadget use. Among these negative behaviors can be difficulty thinking, decreased concentration, inability to focus, and learning difficulties. This may be caused by changes in cognitive and psychological processes after children use gadgets. According to Kurniawati (2020) cognitive is a psychological process related to an individual's ability to learn, pay attention, observe, imagine, estimate, assess, and think about the environment. This process will be inhibited in children who use gadgets. Excessive use of gadgets makes children lazy to write and read because, with the use of gadgets, children are more tempted by the variety of colors on the gadget display. Whereas in reading books only monotonous one color. Monotonous visual media causes children to be too lazy to read (Pangastuti, 2018).

Frequent use of gadgets in children has an impact on children who often forget their daily activities such as learning, eating, bathing, and even communicating, and are not interested in games that can stimulate physical-motor, cognitive, and language development. Children who are dependent on gadgets will close themselves to their environment, so children become individualistic, of course, this will have an impact on children's development (Siregar & Yaswinda, 2022).

The problem with the use of gadgets or *online games* is the change or pathology of the habit of playing gadgets. Changes are shown by an increase in the intensity of play, influence on the emotional and psychological effects of the game, and online games become a distraction from the real situation. Continuous use of *online games* can lead to disruption of social relationships and decreased motivation to learn because of a change in priorities, playing *online games* is more of a priority compared to learning (Anggraeni & Wihardja, 2020).

The use of gadgets can affect student achievement levels. The level of student achievement can decrease because students use gadgets more for entertainment purposes so they ignore learning. The majority of students prefer to use gadgets for entertainment media rather than as a medium for learning. Therefore, parents need to be wise in giving children gadgets. Rules and controls on gadget use need to be consistently applied by parents so that children can avoid the negative impact of gadget use.

Conclusion

The results showed that there is a significant relationship between gadget use and students' social interaction with a $p\text{-value} = 0.047$ and there is a significant relationship between gadget use and students' level of learning achievement with a $p\text{-value} = 0.027$. This proves that social interaction and the level of learning achievement are directly proportional to the use of gadgets by students. This means that students with unrestricted gadget use tend to have poor social interactions and low achievement levels.

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