The Effect of Use of Device on the Learning Outcomes of Class 4 Students at SDN Kadudampit

Pariz Alparuq(✉), Nurani, and Samsul Pahmi

Elementary Teacher Education, Nusa Putra University, Sukabumi, Indonesia
{pariz.alparuq_pgsd20,Nurani_sd20,samsul.pahmi}@nusaputra.ac.id

Abstract. The use of gadgets is included become a factor that affects learning outcomes, and gadgets can also have a negative or positive impact in the world of education, especially on student learning outcomes. Gadgets are sophisticated goods created with every information, social media, hobbies and likes, to entertainment, for example, mobile phones, game consoles, notebooks, and tablets. The purpose or aim of this research is to make sure and determine learning outcomes of students before and after using or owning a device and how much influence the device had on the learning outcomes of students in grade 4 SDN Kadudampit. This research is a descriptive and statistical research so that this research can describe in full and in detail how the influence of the use of these devices on students in grade 4 SDN Kadudampit. The data collection instrument used questionnaires and interviews which were distributed to all 4th graders at SDN Kadudampit and produced 48 respondents covering four aspects of the questionnaire and then analyzed using a Likert scale. Of the 48 respondents, 21 samples had a low level of time span of using their devices per day with an average usage of less than one hour in one day. Then, 23 samples have a moderate level of time span of device use per day with an average time span of one hour to less than 3 h. So, if the use of gadgets (variable X) continues to be increased, the value of learning outcomes (variable Y) will decrease. On the other hand, if the use of gadgets is reduced, the value of learning outcomes will increase. So that it can be concluded, there are relationships and correlations that mutually influence the use of gadgets on learning outcomes.

Keywords: device usage · gadget · learning outcomes

1 Introduction

One of the developments in communication technology today is internet-based devices [1]. Gadgets are sophisticated items created with every information, social media, hobbies and likes, to entertainment as examples such as cellphones, game consoles, notebooks, and tablets [2]. If in the past gadgets were only owned by rich people and were only used to communicate remotely, now gadgets can be owned by the general public.

Gadget users in Indonesia in 2018 amounted to 62.4% of the total population and the achievement of gadget use was dominated by millennials and this data is projected

P. Hartanto and J. Suprapmanto (Eds.): ICEHoS 2022, ASSEHR 763, pp. 40–49, 2023.
https://doi.org/10.2991/978-2-38476-088-6_6

to increase every year [3]. In fact, children of primary school age at this time already have their own personal gadgets in this era, the use of gadgets is not only used by adults, but also children aged 6–12 years. As we know, the age of 7–11 years is included in the category of children of primary school age [4].

Giving gadgets to children is not without reason, parents nowadays sometimes want to make their children happy by giving their children gadgets such as Smartphones, Pads, Laptops, Cellphones, Tablets, etc.) [5]. The provision of gadgets to school-aged children will certainly have an influence on learning, especially the learning outcomes of these children [6]. Influence is a force that arises from something. or people and also deep symptoms that can give changes that can form beliefs or changes [7]. Learning outcomes are changes through a person's behavior which includes knowledge, emotions, and the ability to act. Behavioral changes that occur are obtained when students finish carrying out learning by interacting through each type of learning resource and learning object environment [8]. Learning outcomes obtained by students with optimal learning activities will sometimes give varied results as follows: 1. A pride or satisfaction that is able to become a learning motivation for students, 2. Increase confidence in their abilities, 3. Results obtained through learning activities are very valuable for individuals, 4. The learning outcomes obtained by students are comprehensive (comprehensive), 5. The ability of students to control themselves personally, especially when controlling themselves in assessing the results they achieve and controlling the learning process and the efforts of learning outcomes achieved by students [9].

The learning outcomes that are the main study of this research is learning outcomes mathematics subjects. Mathematics learning outcomes are abilities that are inherent in students after obtaining mathematics learning experiences, or mathematics learning outcomes can also be interpreted as student changes, in the form of changes in knowledge, behavior, and subsequent abilities to be observed and measured [10].

Based on some of the opinions expressed above, the use of gadgets is a factor that affects learning outcomes, and gadgets can also have a negative and positive impact in the world of education, especially on student learning outcomes. According to previous research conducted, it has been proven that excessive use of gadgets will cause an attitude of dependence on gadgets [11]. The difference with this study lies in the samples and variables, where Harahap took samples in grade 5 elementary school children, while in this study the samples were in grade 4 elementary schools. And in this study, examined the use of gadgets and the relationship of direct influence with mathematics learning outcomes. It is not the relationship between the use of gadgets with student learning outcomes.

After explaining the background of the current problem, the researcher intends to conduct a research entitled "The Effect of Using Gadgets on The Learning Outcomes of Grade 4 Students of SDN Kadudampit".

The formulation of the problem in this study is: (1. How is the use of gadgets for students in grade 4 of SDN Kadudampit?, 2. What are the learning outcomes of students before and after using or having a device?, 3. How much influence does the device have on the learning outcomes of students in grade 4 of SDN Kadudampit?).

Researchers hope that the results of this research will be useful for everyone as an enhancer of insight and knowledge about the impacts and influences caused by students

in From the use of gadgets, positive and negative effects occur. Results of this study can also be used as a consideration to be able to provide devices directly and personal rights to students of primary school age.

2 Research Methodology

A. *Types of Research*

The research method applied in the implementation of this research is a quantitative research method. Because according to the problem raised in this study is the problem of using a device, which is a researcher's question that is connecting two or more variables. The relationship of variables in this study is a causal relationship, which is a relationship that has a causal nature. There are independent variables (influenced variables) and dependent variables (influenced). The independent variable in this study is the use of gadgets (X) and student learning outcomes (Y) as the dependent variable.

Quantitative research is a research that provides findings that can be achieved (obtained) through statistical procedures or other quantification (measurement) methods [12]. Meanwhile quantitative research methods, namely research methods based on a positivist philosophy, applied to the study of a particular population or sample, using research tools to collect data and produce concrete quantitative or statistical data, aiming to analyze and test existing hypotheses [13]. Quantitative research deals with social research techniques including interviews, questionnaires, experiments, structured observations, content analysis, formal statistical analysis, etc. [14].

Referring to the above understanding, it can be concluded that quantitative research method is a scientific method or technique used to obtain data on an object from research that has the aim of solving a problem. Thus, the research method that researchers use is a quantitative method because the data to be processed is ratio data and the focus of this research is to find out the extent of the effect between variables studied.

B. *Population and Sample*

The population and samples in this study the researchers chose a research location at SDN Kadudampit. Researchers selected the entire 4th grade of SDN Kadudampit, which amounted to 55 students, as the population. However, the sample taken was 50 people with a signification or error rate of 5% through sampling techniques. Researchers used a sample of all grade 4 elementary schools to find out in reality how gadgets affect student learning outcomes.

The population is all research subjects. When you want to check all the items in the research area, that is what is called the population [15]. The sample is part of the population, and samples taken from the population must truly represent the population under study [16].

The sample used by the researchers was purposive sampling with a Non-random Sampling technique. Purposive sampling is used when researchers want to target individuals with characteristics of interest in their study. Non-random sampling technique is a technique for data collection based on the selection of a characteristic or characteristic

to obtain relevant samples to achieve research objectives. The sample here is shown to students who have a device and know how to use it [17].

C. *Data Collection Techniques*

In this study, data collection was carried out through a survey of 11 indicators and there were 35 questions for questionnaires and 10 questions for interviews. The survey here conducts 3 ways, namely, questionnaires or questionnaires, structured interviews, and documentation. Data collection techniques can be carried out using:

1. An interview is a question and answer activity to obtain information. Interviews can be carried out in a structured or unstructured way: a) Structured interviews are applied in research as a data collection technique, if the researcher has known for sure what information will be obtained. b) An unstructured interview is a free interview, not using a systematic and complete guide to conducting structured interviews for data collection.
2. Questionnaire is a data collection method used in research by distributing a number of written questions or questions and answering them to respondents. Surveys can be closed or open questions/data and can be shared with respondents face-to-face or sent via the Internet.
3. Documentation is a method of collecting data in documents that are not directly related to the subject of the research but are in the form of research documents. The documents used are organizational structures, reports and other documents [18].

In this study, Data collection techniques used were structured interviews, questionnaires, and documentation. The interview method was carried out by conducting questions and answers to obtain information about the use of gadgets, the questionnaire method by providing a number of written statements to respondents to answer, and documentation method was carried out by collecting daily scores of mathematical tests to support this research.

D. *Data Analysis Techniques*

The research will be conducted using a Likert scale. Likert scale is applied in studies that measure attitudes, opinions, and perceptions of individuals or groups towards social phenomena. In your answer, the weight values for each answer item are:

1. The SS answer strongly agreed was given a score of 4.
2. Answer S agrees to be given a score of 3.
3. TS's answer disapproving was given a score of 2.
4. STS's answer strongly disagrees with being rated 1.

With a Likert scale, the variables to be measured are lowered into variable indicators. Then these indicators become the starting point for assembling each instrument which can be in the form of statements or questions. So, the statement can be processed into a conclusion.

The processing of the data obtained is processed through correlation analysis. Correlation is a term used untuk measure the strength of relationships between variables.

Correlation analysis is a way untuk know whether there is a relationship between variables.

There are two data analysis techniques applied in the research, namely descriptive analysis techniques and statistical analysis techniques. Descriptive analysis techniques were applied to process data from questionnaires/questionnaires, observations and interviews, while statistical analysis techniques were used to process data from questionnaires/questionnaires and to test research hypotheses. The statistical analysis technique applied in the research is simple linear regression with significance level = 5% (0.05).

3 Results and Discussion

A. *Result*

1) *Normality Test*

Because the sample data in this study was 48, which means that > 30, the sample data owned has been considered normal. Because based on the empirical experience of statisticians, da ta that has a large amount and more than 30 numbers (n > 30),it can already be consumed as normally distributed. The normality test was conducted to test and detect the regression model, the independent variable and the dependent variable, or both which were normally or not normally distributed. If the variables are not normally distributed, the statistical test results will be poor.

However, to provide certainty, the data should still use the normality test. The following are the results of the normality test using a kolmogorov one-sample from the results of the study.

In Table 1, it was found that the normality test of the Kolmogorov one-sample showed normal or abnormal data from the research results obtained. Through sig = 0.200 so that (sig > 0.05) which, can be concluded because the signification value is greater than 0.05, it can be concluded that the data that has been distributed in normal form.

2) *Correlation Test*

After the data that has been distributed is expressed in normal form. So, the next step is to do a correlation test. Correlation test is used to find the relationship and hypothesis

Table 1. One-Sample Kolmogorov-Smirnov Test

N		48
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	11.44429404
Most Extreme Differences	Absolute	.099
	Positive	.099
	Negative	-.087
Test Statistic		.099
Asymp. Sig. (2-tailed)		.200[c,d]

Table 2. Correlations

Pemakaian Gawai			Hasil Belajar
Gedget User	Pearson Correlation	1	-.303*
	Sig. (2-tailed)		.036
	N	48	48
Learning Result	Pearson Correlation	-.303*	1
	Sig. (2-tailed)	.036	
	N	48	48

*. Correlation is significant at the 0.05 level (2-tailed).

of the relationship of two variables [13]. Thus, this study intends to find the relationship between variable x (Use of Gadgets) and variable Y (Learning outcomes).

Based on the results of data processing using a correlation test, the following data were obtained:

In the data from the correlation test results, which are contained in Table 2, it is known that the significance value in the data is worth 0.036. Based on the guidelines of the degree of relationship in the correlation test, which is:

- Significance Value < 0.05 = Correlated or related
- Significance Value > 0.05 = Uncorrelated or related

Based on the results obtained, the significance value of 0.036 when compared to the value of 0.05, the significance value is lower than the value of 0.05 ($0.036 < 0.05$). Thus, it can be concluded that the variables X (the use of gadgets) and Y (learning outcomes) are correlated or related.

Furthermore, for the correlation value (pearson correlation) for both variables is -0.303. Which, for the form of the relationship between the two variables is negative because there is a minus sign. And based on the guidelines for the degree of relationship the correlation value of 0.0303 is included in the weak correlation value. Then, because the relationship between the two variables is negative, the higher the value of the variable X (device usage) the lower the value of the variable Y (learning outcomes). Likewise, if variable X goes down then variable Y goes up.

3) *Overview of The Level of Use of Student Gadgets*

Based on data from interviews from students, data were obtained on the level of device usage by students. The data obtained are as follows (Table 3):

The data shows the level of time span of using the device by students every day. Of the 48 study samples, 21 samples had a low level of device usage time per day with an average usage of less than one hour in one day. Then, 23 samples had a moderate level of device usage time span per day with an average time span of one hour to less than 3 h. As for the 4 samples, it has a high level of time span for using the device per day, which is three hours or more than three hours in one day.

Table 3. LEVEL OF TIME SPAN OF USING THE DEVICE BY STUDENTS EVERY DAY

Interval	Frequency	Category
< 1 jam	21	Low
≥ 1- < 3 Jam	23	Keep
≥ 3 Jam	4	Tall

4 Overview of The Use of Student Gadgets

Then, based on the data from interviews from students, data were obtained regarding the use of gadgets by students. The data obtained are as follows (Fig. 1):

From this data, it is known that from 48 research samples, 37 samples often use gadgets for learning needs. Then, 36 samples used gadgets to play games, 29 samples used gadgets to access social media, and 8 samples used gadgets to communicate.

Discussion

The relationship between variable X (Device usage) and variable Y (learning outcomes) is essentially related because they are correlated with each other. However, the correlations contained in both variables are low correlation and negative correlation. Which, if the value of X goes up then the value of Y goes down and vice versa if the value of X goes down then the value of Y goes up. One of the phenomena that occurs in students as a research sample, especially regarding the Y variable, can be seen in the following diagram (Fig. 2).

In diagram 2, it shows rat a-average score data from students during grade 2 (before having a device), grade 3 (initially getting to know the device), grade 4 (terbiasa with the device). We can understand that the average value data, which is essentially a learning outcome, has decreased along with the pattern of participants in knowing and getting used to the use of gadgets. This is in line with the results of the correlation test which has a negative correlation in it.

In its implementation, students are essentially accustomed to using gadgets normally because the majority of students' device usage is in the medium and low categories.

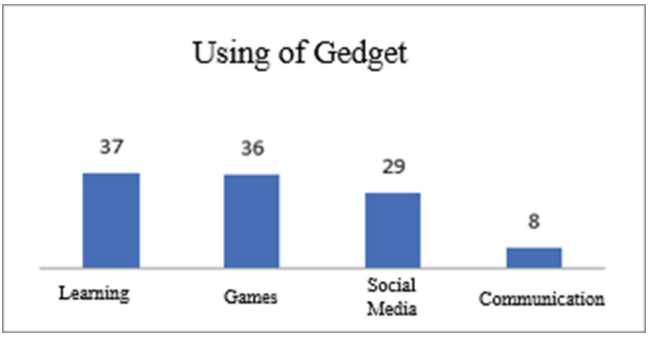

Fig. 1. Using of Gedget

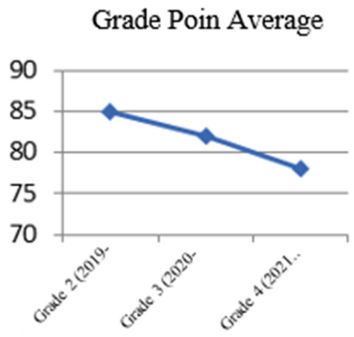

Fig. 2. Grade Poin Average

Meanwhile, in the high category, there are still limited in number. So, it can be known if the students who use gadgets for more than 3 h or are in the high category continuously and consistently. Of course, it will have an influence on the learning outcomes of students who are losing.

Then, when viewed from the use of gadgets, the majority of students still often use the devices they have to learn. However, it is undeniable that the use of gadgets by students to play games and access social media is still still high. This is what actually has the main correlation that affects student learning outcomes.

The increase in the quantity of the use of gadgets to play games and access social media will certainly have a significant impact and correlation in increasing the correlation of the relationship between the two variables. Which, if students continue to get used to doing this, it will strengthen the correlation that occurs in reducing the varibel value of Y (learning outcomes).

However, if the use of gadgets (Y) the time span is lowered and the use of gadgets is focused on learning. Of course, this will increase the value of the learning outcome (X) as well as, the concept of a negative correlation that essentially occurs in the two variables.

5 Conclusion

After the data processing process, the results of this study are obtained which are described in the following paragraphs.

That the results of this study show the relationship and correlation of the two variables, namely between variable X (use of gadgets) and variable Y (learning outcomes). Where, it is known that the significance value in the data is worth 0.036. The significance value when compared with the value of 0.05, the significance value is lower than the value of 0.05 ($0.036 < 0.05$). So that the variables X (use of gadgets) and Y (learning outcomes) are correlated or related to each other. However, because the Pearson correlation value for both variables is –0.303 and that means that the correlation that occurs in both variables is negative. Thus, if the use of gadgets (variable X) continues to be increased, the value of learning outcomes (variable Y) will decrease. Vice versa, if the use of gadgets is lowered, the value of learning outcomes will increase. So that it can be

concluded, there are relationships and correlations that influence the use of gadgets on learning outcomes. Outcomes.

Acknowledgments. Praise and gratitude we pray to God Almighty because by His grace we were able to carry out and complete this research. Thank you to our supervisors in this research, who always provide input, guidance, and support to us in completing this research. We also thank the principal and all teacher of class 2, 3, and 4 SDN Kadudampit who have opened and given us permission to carry out research activities at the school, and thank you for the good cooperation during our research activities there.

Authors' Contributions. PA participates in conducting field observations, compiling research instruments, arranging research survey agendas in the fields, conducting interviews and research survey, documenting research activities, processing statistical data from research results that have been obtained. NI participates in conducting fields observations, arranging research survey agendas in the fields., conducting interviews and research data obtained, and processing statistical data. NA participated in compiling research instruments, collecting research reference data, conducting interviews, conducting research by distributing questionnaires in the field, and documenting research activities. SP participating in designing and directing research, assisted by statistical analysis and assist in the preparation of the text.

References

1. Demitrius Kristiyono. "Pengaruh Karakteristik Website, Karakteristik Dan Demografi Konsumen Terhadap Kepercayaan Pada Website. Ekonomika45". Jurnal Ilmiah Manajemen, Ekonomi Bisnis, Kewirausahaan, 3(1), 1–6. Retrieved from https://jurnaluniv45sby.ac.id/index.php/ekonomika/article/view/24 2015
2. Widiawati,SugimandanEdy. "BabII Kajian Pustaka PengertianBelajar" . http://eprints.uny.ac.id/66463/4/4.%20Bab%20II. df. Accessed 13 March 2022. 2015
3. Müller, J. "Share of population owning a mobile phone in Indonesia from 2010 to 2018". Statista. 2019
4. Widiawati,Sugimandan Edy."BabII Kajian Pustaka PengertianBelajar" http://eprints.uny.ac.id/66463/4/4.%20Bab%20II.pdf. Accessed 13 March 2022. 2015
5. Rachmawati, P., Rede, A., & Jamhari, M. "Pengaruh Penggunaan Gadget Terhadap Hasil Belajar Mahasiswa Pendidikan Biologi Angkatan 2013 Fkip Untad Pada Mata Kuliah Desain Media Pembelajaran". E-Jip Biol, 5(1), 35–40. 2017
6. Widyaningsih, Octaviany. "Penerapan Pembelajaran Online (Dalam Jaringan) di Sekolah Dasar". Trapsila: Jurnal Pendidikan Dasar | p-ISSN 2685–7642 | e-ISSN 2685–8207 Vol.2 No.2 Desember 2020 | Hal 50–60. 2020
7. Surakhmad. "BAB II Kajian Pustaka Pengertian Pengaruh." http://repostory.um-palembang.ac.id. Accessed 13 March 2022. 2012
8. Rusmono. "Bab II Kajian Pustaka Hakekas Hasil Belajar.. Accessed 13 March 2022. 2017
9. Sudjana, N. "Penilaian Hasil Proses Belajar Mengajar", Bandung: Remaja Rosdakarya. 2011
10. Abidin, Z. Dkk "Pengaruh Metode Jarimatika Terhadap Prestasi Belajar Matematika Siswa Tunanetra Sekolah Dasar Slb Negeri 1 Pemalang". Jurnal Psikologi Undip 10. (2), Hlm. 115–125. 2011

11. Harahap, Rizky Septia. Rosma Elly. Intan Safiah. ”Pengaruh Gadget terhadap Hasil Belajar Siswa Kelas V SD Negeri 12 Banda Aceh”. Jurnal Ilmiah Pendidikan Guru SekolahDasarKIP Unsyiah.Volume3, Nomor 1,119–126. http://www.jim.unsyiah.ac.id/pgsd/article/view/8649, Accessed 13 March 2022. 2018
12. Sujarweni, V. ”Metodologi Penelitian”. Yogyakarta: Pustaka Baru Press. 2014
13. Sugiyono. ”BabIII Metodologi Penelitian”. https://elibrary.unikom.ac.id/id/eprint/2274/9/UNIKOM_RIZKY%20BAGAS%20PRATAMA_14.%20BAB%20III%20METDOLOGI%20PENELITIAN pdf. Accessed 20 March 2022. 2011
14. Sutama, ”Metode Penelitian Pendidikan Kuntitaif, kualtatif, PTK,dan R&D”. Kartasura: Fairuz Media. 2016
15. Arikunto, Agus. ”Metodelogi Penelitian, Edisi Kelima, Graha Ganesha”, Bandung. 2019
16. Sugiyono. ”Metode Penelitian Kuantitatif, Kualitatif, dan R&D”. Bandung: Alfabeta. 2018
17. Dana P. Turner. Sampling Methods in research Design. Headche: The Journal of Head and Face Pain, https://doi.org/10.1111/head.13707. https://headachejournal.onlinelibrary.wiley.com/doi/abs/https://doi.org/10.1111/head.13707. Accessed 18 March 2022. 2020
18. Agung, A. A. P., & Yuesti, A. “Metode Penelitian Bisnis Kuantitatif dan Kualitatif”. 2019