

# IMPLEMENTATION OF GABIDROID MEDIA TO INCREASE THE ABILITY OF INTEGERS COUNT OPERATION

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**Abstract** —The purpose of this research is to improve students' counting ability. The research method used is One Group Pretest-Posttest Design. The subject of the research is the fourth grade students of Sendangmulyo 2 State Primary School in Semarang city. Data collection is done by test method that is the ability of counting operation of integers of class IV students. Data were analyzed using normality test and two sample test. The results showed normal distributed samples with sig values more than 0.103. The ability of the fourth grade student to increase operation after being treated with an average of 74.43. Gabidroid media able to increase the ability of the student's integers count operation.

**Keywords**—*Gabidroid, media, count operation*

## I. INTRODUCTION

Mathematics is one of the foundations for the development of science and technology. Therefore, mathematics needs to be given to students starting from elementary school to understanding the nature of the application. The purpose of learning mathematics is the formation of reasoning abilities in students which are reflected through the ability to think critically, logically, systematic, and have an objective, honest, disciplineto the problems solving both in mathematics, other fields, and in everyday life. [1] state the mathematics as an abstract object, of course is very difficult to digest for student in elementary school.

Integer material is an abstract material, but in daily life many events are related to integer

matter, especially integer count operations. The operation of integer counting is the subject of integer material taught in grade 4<sup>th</sup> in even semester of elementary school. The subject of integer count operations includes the operations of calculating the addition and subtraction of positive or negative integers. The results of the interview with the teacher grade 4<sup>th</sup> stated that the ability to count students was still having difficulty in mastering, because the concept of integers was abstract.

Teaching mathematical concepts in elementary school is not easy. This is because mathematics teaches abstract things; the mistake of planting mathematical concepts during basic education will cause misuse of concepts at the next level of education. At this elementary school level, the ability of students is still lacking in accepting abstract things.[2] states the student with ages around 11 years are operational congressional

At this stage the cognitive abilities of the child develop and make it possible to plan and implement a congruent idea. Therefore, in teaching mathematics to students, they should prefer a variety of approaches, strategies, methods that are appropriate to the situation so that the planned learning objectives will be achieved. The carrying of this material to the real world will lead students into mathematics learning activities so that it is expected that the student's operating ability will increase

To create for fun atmosphere to mathematics learning, one of them is by using the help of learning media. Schramm [3] states that learning media is a messenger technology that can be used for learning purposes. Briggs [3] suggests that learning media are physical means to convey learning content / materials such as books, films, videos, slides, and so on.

[4] suggests that learning media can be understood as anything that can deliver or channel messages from sources in a planned manner, resulting in a conducive learning environment where the recipient can carry out the learning process efficiently and effectively. Romiszowski [5] states that learning media is an effective medium for carrying out well-planned teaching processes. With this learning media, we can describe abstract things to the real thing through the help of the learning media.

Quoted from viva.co.id, currently children can never be separated from gadgets, especially tablet computers which are sold cheaper. Parents are also happy to buy this tablet computer because needs of lifestyle, to following the development of the environment, and also the fussiness of their children every time they go home from school. Therefore, GABRIDOID Media can be used as a means to play and learn through smartphone or tablet devices based on the Android operating system.

The problem in this study is whether the implementation of the gabidroid media can improve the ability of integer count operations of the fourth grade students. The purpose of this study was to improve the operational capability of integer class IV students marked by (1) an increase in the average operating ability of students counting, and (2) the ability to calculate students' operations after Gabidroid Media was implemented well than before.

Android-based application that describes the use of number lines in understanding the concept of integer count operations. GABIDROID media can create student interest in understanding integer count operations, due to its ease of use and can be accessed in various places. Media Gabidroid can be downloaded for free via Playstore on a smartphone or tablet based on the android operating system or via the <https://play.google.com/store/apps/details?id=air.gabidroidv2.A7>.



Figure 1. Gabidroid Media in Playstore

Febrian (2017) states that GABIDROID Media will answer the misconceptions in integer count operations, including: (1) Use of physical props or number lines that deviate from its working principle; (2) Miss-interpretation of the form of the sum operation with a negative "a + (-b)" number is a subtraction operation or a subtraction operation with a negative number "a - (-b) is an addition operation;(3) There are still many teachers and students who cannot distinguish between a +/- sign as a count operation with a +/- sign as a type of number; (4) Lack of precise understanding of integers, and (5) Difficulty in giving an explanation of how to perform operations in integers in concrete and abstract terms (without using tools).

## II. METHOD

This research was conducted at State Elementary School (SDN) Sendangmulyo Semarang. The time of the study was carried out in the even semester of academic years 2017/2018. The sample in this study was the fourth grade students of 2017/2018 academic year as many as 28 students.

This research refers to pre-experimental design (non-design). This design has not become a serious experiment because there are still external variables that influence the formation of the dependent variable (Sugiyono, 2010). The research model chosen using One Group Pretest-Posttest Design is an experiment conducted in one group without a comparison group.

Table 1 Pretest-Posttest Design

Pretest	Treatment	Posttest
T <sub>1</sub>	X	T <sub>2</sub>

(Sugiyono, 2010)

Information:

T1 = Pre Test to measure students' initial ability before being treated.

X = Treatment with GABIDROID Media.

T2 = Post Test to measure students' abilities after being treated.

Data collection techniques use test techniques with multiple choice test questions. A total of 25 items were tested in the sample class. Data were analyzed using normality test and two sample comparison test. Normality test is used in this study to find out whether the sample is normally distributed. Meanwhile, a two-sample comparative test was used to compare the ability of a student to count whether there was an increase.

**III. RESULTS AND DISCUSSION**

The selection of State Elementary School (SDN) Sendangmulyo Semarang as a place of research is because it does not yet have a learning media regarding integer count operations and students' counting ability which is still low, especially in integer matter. Research is carried out in the even semester of academic years 2017/2018.



Figure 2 Gabidroid Media in Implementation at SDN Sendangmulyo 2

The design of this study refers to the One Group Pretest-Posttest Design. Pre-test is done to get data on the ability of students to count operations before being treated with GABIDROID Media. Pretest results are also used to analyze the normality of the sample class. Analysis of the normality test takes pre-test value by processing data using SPSS software. Normality test using One-Sample Kolmogorov-Smirnov Test. SPSS output for Normality Test can be seen in Table 1.

Table 1. Output Normality test

<b>One-Sample Kolmogorov-Smirnov Test</b>		
		Pre Test
N		28
Normal Parameters <sup>a,b</sup>	Mean	30,43
	Std. Deviation	10,174
	Absolute	,165
Most Extreme Differences	Positive	,165
	Negative	-,081
Kolmogorov-Smirnov Z		,872
Asymp. Sig. (2-tailed)		,432

a. Test distribution is Normal.

b. Calculated from data.

Based on table 1, the Asymptote value. Sig. (2-tailed) of 0.432 more than 0.05. It can be concluded that the data is normally distributed. The ability to

count students' operation after being treatment with GABIDROID media was netted through post-test. Post-test implementation in the study was carried out at the end of learning

To find out whether the student's operating count ability increased, an analysis of two samples was compared. Comparative test analysis of two samples took the pre-test value and post-test with data processing using SPSS software. Comparative test of two samples using Paired Sample T-Test. The results of pretest and posttest data processing are presented in table 2 and table 3.

Table 2 Comparison of Student Computing Operational Ability

Kriteria	Pretest	Posttest
Average	30,43	74,43
Highest score	56	96
Lowest score	16	52

Based on Table 2, the average of the student's counted operative ability before being treated with Gabidroid Media was 30.43 with the highest score of 56 and the lowest 16. Meanwhile, the average count of the operating ability of students after being treatment with Gabidroid Media was 74.43 with a value the highest is 59 and the lowest is 52. From Table 2 there is an average increase in operating capability count of 44.00

Table 3 Two sample comparative test Paired Samples Test

	Paired Differences				Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference	
				Lower	Upper
Pre Test					
Post Test	44,000	8,777	1,659	47,403	40,597
					,000

Based on Table 3, the Sig. (2-tailed) less than 0.05. That is, the ability to calculate student operations after being treated with GABIDROID Media is better than before.

From the pre-test and posttest data analysis, it can be concluded that the implementation of GABIDROID media is able to improve the ability of count operations in fourth

grade students of State Elementary School (SDN) Sendangmulyo 2 Semarang.

#### IV. CONCLUSION

The implementation of GABIDROID media is able to improve the count capability of the fourth grade students of State Elementary School (SDN) Sendangmulyo 2 Semarang. This is evidenced by the average value of the ability of the student count operation after being treated with gabidroid media better than the previous amount of 74.43.

#### REFERENCES

- [1] H. Hudojo, *Pengembangan Kurikulum dan Pembelajaran Matematika*. Malang: UM Press, 2005.
- [2] L. Rusli, *Strategi Pembelajaran Pendidikan Jasmani dan Kesehatan*. Jakarta: PP Universitas Terbuka, 2001.
- [3] R. S. dan C. R., *Media Pembelajaran*. Bandung: Jurusan Kurtekipend, 2008.
- [4] R. Asyar, *Kreatif Mengembangkan Media Pembelajaran*. Jakarta: Gaung Persada Perss, 2012.
- [5] B. W. dan F. Mukti, *Media Pengajaran*. Bandung: CV Maulana, 2001.
- [6] <https://www.via.co.id/blog/gadged/965212-gadget-bagi-siswa-sd-adalah-teman-sehati>.