



Number Bag Media and Math Outcomes in Elementary Students

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Abstract. This study aims to determine whether or not there is an effect of number bag media on the mathematics learning outcomes of grade 1 students in elementary schools. This research is a quantitative study using the Quasi-Experimental method with the Posttest-Only Control Group Design type. The population of this study included all first-class students at SDN Larangan 1 Tangerang City in the even semester of the 2022/2023 academic year. The sample studied was 64 students from classes IB and IC. The sampling technique is a saturated sample. The research instrument was an objective test in the form of multiple choice, namely a, b and c of 30 questions. This research was tested for validity using Biseral Point Correlation as many as 40 multiple choice questions with 30 valid questions and 10 invalid questions. Whereas in the reliability test using Cronbach's Alpha 0.05 by obtaining $r_{count} 0.933 > r_{table} 0.349$, the data has a reliable instrument. Furthermore, the data were analyzed by the requirements test, namely the normality test using the Liliefors Error Estimation test. Then the normal distribution of data obtained from the experimental class was $Sig > \alpha (0.05)$ or $0.096 > 0.05$ and the control class was obtained $0.200 > 0.05$. The results of the homogeneity test calculation obtained $Sig. > \alpha (0.05)$ or $0.622 > 0.05$, the two data are homogeneous. The results of hypothesis testing using the t-test obtained $t_{count} > t_{table}$ or $Sig \text{ 2 tailed } < \alpha (0.05) = 4.105 > 2.042$ or $0.000 < 0.05$ indicating H_1 is accepted and H_0 is rejected. The results of this study can be concluded that in this study there was an effect of number bag media on the learning outcomes of grade 1 students in elementary schools.

Keywords: number pocket media, mathematics learning outcomes

1 Introduction

Factors influencing current classroom conditions include teachers continuing to apply the same learning approach, namely the lecture approach, and a lack of media or accompanying props [1]. With the existence of learning media, the teaching and learning process can determine student success in learning. It is expected that students understand the material in depth by using learning media, because this can have an impact on students' memory of what they have learned [2]. The right media will make each material easier to understand and remember.

The problems that I got from the results of interviews with grade 1 teachers showed that students were still experiencing learning difficulties which led to unsatisfactory learning outcomes. In this regard, it can be seen from the expressions of students when they want to learn mathematics, namely showing a gloomy face and seeming unenthusiastic. In fact, if questions were asked by the teacher, the students would only answer the same questions. Based on the results of interviews with grade 1 teachers, learning outcomes in mathematics are still relatively low. Of the 32 students in the class, there were 14 of them who had scores above the KKM,

while there were 18 of them who had scores below the KKM. Students are not active in class learning, and teachers do not use media in teaching. From the KKM it is known that there is a standard of thinking with reference to the KKM value by paying attention to 3 aspects, namely: student characteristics (intake), subject characteristics (complexity of material/competence), and the condition of the educational unit (carrying capacity) in the process of achieving competence.

Students in elementary schools are basically in the concrete operational phase, which means they are still involved with real objects that can be accessed by their five senses. This is contrary to the abstract learning of mathematics [3]. Therefore, students need media as a tool in learning. In this study, the use of number bag media was used. Number bag media is a learning tool that allows students to perform addition and subtraction operations by making it easier for them to know the place value of numbers.

Learning is a person's attempt to change his overall behavior as a result of his own behavior and interaction with his environment [4]. Changes in individual behavior resulting from activities within the individual's environment. means according to [5] is a change in behavior, which includes all aspects of the body or individual, including knowledge, skills, and attitudes.

Behavior change takes action in a different way. This ability to act may not translate directly into behavior [6]. One of the behaviors considered as a learning activity is when a person notices a change or at least feels a change in himself as a result of the learning process, such as knowing that his knowledge has increased.

Learning is an integral part of life that is inseparable from human life. Since birth, humans have fulfilled their needs and developed themselves [4]. Through this activity, students have the opportunity to develop themselves well. what is meant by self-development. Self-development is defined as Efforts made and aimed at achieving something desired through the development of knowledge, skills and abilities to set an appropriate step through heart, mind, speech and action. At low grades, parents and teachers must help their students or children in self-development to improve their ability to achieve better results. Self-development includes activities that help students better understand who they are, identify their talents and potential, and realize their dreams and aspirations.

Learning can be understood as a stage of change in all individual behavior that is relatively sedentary as a result of experience and interaction with the environment which involves cognitive processes [7]. Interaction is an activity carried out by a person consciously. Interaction is carried out by everyone as an activity that cannot be avoided from one another, all humans need interaction with other humans to learn from each other [8].

Learning outcomes are the result of the interaction of acts of learning and acts of teaching. As which explains that learning outcomes are changes in student behavior according to the experiences students make in interacting with the environment [4]. According to [9] defines learning outcomes as abilities or talents possessed by students after completing the learning process.

Based on the explanation of "talent" can be known according to [10] Talent is an original ability that still needs to be developed or trained. Basically, everyone has talent in certain fields, along with different qualities, which allow a person to develop in the field he is engaged in. To achieve this requires training, knowledge, and moral encouragement, such as social morale and environmental support.

Learning outcomes is a sentence consisting of two words, namely results and learning, each of which has a different meaning [11]. Therefore, before understanding what learning outcomes are, it is better to study each problem first to get a better understanding of the meaning of these words.

Learning mathematics is a process of providing student experience through a series of planned activities so that students achieve proficiency in the mathematical material being studied. Here, the learning in question is the activity carried out by the teacher to ensure that the media used by students has a safe and enjoyable learning experience.

Mathematics learning in elementary schools does not only lead to the ability of mathematics material, but mathematics material is positioned as a tool and even a means for students to acquire a competency. Mathematics in elementary schools is very interesting to develop. Using good resources, such as learning media, is an alternative way to develop them. Learning facilities and infrastructure are anything that can make learning processes or efforts easier and more effective, and this can be equated with learning facilities.

Mathematics is an interesting subject to improve in elementary school. Mathematics is an exact science, so it has abstract or intangible objects. Mathematics has abstract or intangible objects, which cause many students to experience difficulties in learning.

[12] defines that learning mathematics must be taught to students as their provision includes the ability to think logically, analytically, systematically, critically, creatively and the ability to work together. [4] Number bag media is a learning tool that uses the principle that place value is used to teach addition material in pockets. Number bag media is a tool that can be used to facilitate students in learning number operations in Mathematics lessons, including multiplication, division, addition and subtraction. The use of this number bag media will be more efficient if it is applied to students in lower grades. the use of number bag media can assist students in developing a conceptual understanding of number operations, by utilizing this media students can think concretely about the concept of number operations, especially addition and subtraction.

Media pocket numbers are made in the shape of a pocket as a storage area and attached to a piece of paper or cloth. The number bag media is made of cardboard/plastic which is cut into squares and then pasted on cardboard which is larger in size as a support for the bag that has been made. During the process of studying Mathematics in Elementary Schools, there were still teachers who were not able to provide lessons contextually to students so that there was a lack of interest in the process of learning Mathematics which was difficult for students to understand. This condition causes students to become bored in learning and their learning outcomes are small. Therefore, researchers want to implement visual media-based learning in the form of number bags which are carried out during classroom learning. Through this number bag visual media-based learning students can involve themselves actively and have high learning motivation in the way of learning activities to understand the concept of learning material.

2 Research Methods

This research approach used by researchers is a quantitative experiment and the research method used is the Quasi Experiment method. In this study there were 2 groups, namely the experimental group and the control group. Then in the 2 groups one was selected to be given a media experiment and one that was not given a media experiment. This method is used to determine whether there is or is not a significant increase in the influence of the use of number bag media on student learning outcomes in class 1 discussion in elementary schools. The technique used is Non Probability Sampling, namely saturated samples or boring sampling.

Saturated sampling is a sampling technique when all members of the population are used as samples [13]. So the sample in this study were all first grade students in elementary schools,

totaling 96 students. The students used in this study were 64 students. This research was conducted to see an increase in students' mathematics learning outcomes using number pockets in class I of SDN Larangan, namely the experimental class in class 1B numbered 32 students with a total of 17 boys and 15 girls. Meanwhile, for the control class in class 1C with a total of students, namely with 17 boys and 15 girls.

Table 1. Sample size

Class	Female	Male	Total
Experiment(1B)	15	17	32
Control(1C)	15	17	32
Total	30	34	64

3 Results and Discussion

For this study, there were four meetings; two meetings were held for class IB as the experimental class and two other meetings were held for class IC as the control class. This meeting was held according to the Mathematics subject schedule in each class. Learning to use number bag media improves student learning outcomes because they are more motivated to learn and better understand the topic, which can be seen from the increase in the value of the questions compared to before. The first time the researchers conducted a validity test at SDN Larangan 1 Tangerang City class 1A on March 17 2023. When the researchers calculated the instrument questions which totaled 40 multiple choice questions to find out whether they were valid or not, it turned out that the results of the calculation contained 30 valid questions. Then test the reliability of the instrument obtained $r_{count} = 0.933$ while $r_{table} = 0.349$. Because $r_{count} > r_{table}$, the results of the reliability test are declared reliable. In class IB, experiments using number pockets to logically order number names resulted in better learning outcomes. Most students scored 77–83, or 28.1%. Calculations or numbers explained are easier for students to understand. The teaching and learning process becomes more fun and interesting when students are actively involved. Meanwhile, in the IC class which is considered as the control class, the lecture method is used. That is, students are only asked to work on questions that are already on the blackboard and only work on questions that have been prepared by the teacher for evaluation. Because teachers do not use media as a support in the learning process, many students still experience difficulties in this learning. This causes student learning outcomes to decline, as shown by the results of the study: 10 students, or 31.2%, scored 58–66. After conducting the research, proceed with calculating the normality test using the Kolmogorov Smirnov test which is significant by the Liliefoers test for the experimental class to obtain data with a probability value (Sig.) > 0.05 , namely $0.096 > 0.05$, while the control class obtains data with a value probability (Sig.) > 0.05 ie $0.200 > 0.05$. Both of these data are normally distributed and feasible for homogeneity test. After carrying out the normality test, the next step is testing homogeneity, whether the data has the same variance or not.

Homogeneity testing using the Levene test obtained variance data for the two groups, namely the experimental group and the control group. Viewed from the Statistics Based On Mean, a probability value (Sig.) was obtained (Sig.) 0.622 which far exceeded 0.05, which means that the research data for each sample is the same or homogeneous. After calculating homogeneity, then the t-test calculation is performed which is obtained from a significant level $\alpha = 0.05$ which is 2.042 with degrees of freedom (dk) = 30 with $t_{count} = 4.105$ $t_{table} = 2.042$. Because t_{count}

\geq ttable and its significance value is less than 0.05 ($p = 0.000 < 0.05$) then H1 is accepted, which means that there is a significant effect on the average mathematics learning outcomes between the experimental class using number bag learning media and the control class do not use number bag learning media. Based on the explanation above, it can be concluded that the experimental class that uses pocket media has many students who are involved in the lesson and dare to share what they know. As a result, students can share information with their friends. While the control class only uses the lecture method, many students still experience difficulties in this lesson. Even the most active students could only count on their fingers. As a result, the class looks inactive and unpleasant. From the differences that exist media bags force students to think logically indirectly, the differences that exist indicate that students have better learning outcomes and can attract students to participate actively in learning.

4 Conclusions

Based on the description and analysis of the data that has been presented in the previous chapters, it can be concluded that the learning outcomes of students who are only taught through the lecture method and students who use number bag media are very different. This conclusion is proven by the t-test which proves that tcount is 4.105 greater than ttable 2.042 or p value < 0.05 ($0.000 < 0.05$). Mathematics learning in elementary school students. through the number bag media is better than using the lecture method. This was proven in the experimental class which was higher than the average value of the control class, which was $79.59 > 66.21$. students in learning Mathematics cannot be separated from the teacher's ability to plan and prepare facilities and preparation of learning materials.

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