

IMPROVING THE CALCULATING SKILLS OF SUBTRACT AND ADDING INTEGER USING BEADING PROVIDERS FOR CLASS VI STATE 3rd ELEMENTARY SCHOOL KUWASEN JEPARA

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Abstract: This research aims to improve the Mathematics learning outcomes of class VI students using Beads teaching aids in 2023/2024 at SD Negeri 03 Kuwasen, Jepara Regency, Jepara Regency. This classroom action research was carried out in two cycles. The subjects in this research were students in class VI of SD Negeri 03 Kuwasen, Jepara District, Jepara Regency, totaling 18 students. In data collection techniques, test techniques are used, and in data analysis, percentages of learning outcomes between pre-cycle and cycles I, and II are used. The results before the research was carried out were that in the pre-cycle only 5 students or 49% achieved the km, in the first cycle this increased to 6 students who achieved the kkm, or 61%, and in the second period, it increased. A total of 16 students achieved the KKM, namely 76%. This research was successful because it provided more value than the KKM, namely $\geq 76\%$ of all students with $KKM \geq 70$. It was concluded that learning with beaded teaching aids can improve learning outcomes in mathematics subjects such as subtracting and adding integers.
Keywords: Subtraction and Addition of integers, Learning Results, Beads.

INTRODUCTION

Mathematics subjects, especially at the State Elementary School level, focus on students to think logically and have attitudes and skills. Mathematics learning is a process of teaching and learning activities where students can apply their abilities to solve problems. Therefore, mathematics learning starts from simple concepts to more advanced concepts based on students' thinking. Until now, students still view learning mathematics as a mathematics subject that is very feared and very difficult for state elementary school students. There is evidence that many students do not like mathematics, namely that students are asked not to understand it at all. Overall the learning process went well, but several problems arose during the learning process. This proves that the expected learning objectives have not been completed. Therefore, to achieve completeness with the desired learning, student teachers are expected to play an active role in and be interested in Mathematics lessons (Ismiyati, 2016:2).

Mathematics subjects in public elementary schools need to teach students skills, creativity, and teamwork. The skills students need to obtain and use information for increasingly advanced conditions and learning. We need to know mathematics as a basic science in all subjects. Therefore, in preschool education, which is often called PAUD, from public elementary schools to universities, mathematics is included in the learning that is mandatory for the National Examination (Suwangsih, E & Tiurlina, 2018:2). The results of research in class VI of SD Negeri 03 Kuwasen Jepara in this subject show that there are still students who are not yet able to solve the problem. Based on the information received from the teacher, students can solve math problems with guidance. Students know how to complete tasks that require memorizing mathematical formulas. They have not been able to perfect their skills in solving mathematical

problems in the form of story problems, beaded props have not been used in learning activities, and students do mathematics in their way, even imitating questions tested by the teacher. This is also reinforced by the results of student interviews that the mathematics learning process takes place by presenting material, presenting questions, and working on practical questions. The description of students' answers shows that they do not know how to understand the questions given. It is difficult to understand what is known about the question and what is asked in the question. This can be caused by several factors, such as a lack of problem-solving and student attention to learning, inappropriate teaching methods or models, and environmental conditions that do not support students in the classroom. Therefore, teachers should find learning models that develop problem-solving skills by giving students problems that require creative and innovative thinking.

Some students still have difficulty and are not interested in studying Mathematics subjects, and these students do not pay attention to the material being presented, which creates negative behavior or students don't like it during class learning. After conducting a pre-cycle and interview with the class VI teacher. When the teacher holds a group discussion, only some students work, and some chat along with other friends. Teachers are seen teaching, giving lectures, giving assignments, and sometimes asking and answering questions with students. Apart from that, students' ability to solve mathematical problems is still very weak. It can be seen from the students' daily problem-solving tests with questions that have not reached the minimum KKM of 70. Of the 18 students, 16 students have not reached the KKM. Situations like this must be addressed immediately, both by supervising students and the learning models used in mathematics learning so that students are more interested.

Mathematics learning so that students are more interested in this media can be in the form of tangible objects (for example geometric shapes, shirt buttons, sticks, dice, pictures or concept illustrations, and so on) or also a set of tools that must be followed in their use and the principles can be applied specifically to its operation. for example: number line blocks, Beads, Cuisenaire rods, number scales, Dienes blocks, etc. Each of these tools can be used to explain the arithmetic operations of a particular number system. One device that can be used to explain the topic of integers is an art device. In particular, beads can be used to explain subtraction and addition of whole numbers. Media can be real objects such as shirt buttons. Each of these tools can be used to explain the arithmetic operations of a particular number system. One environment that can be used to explain the topic of integers is the Beads environment. In particular, beads can be used to explain the arithmetic operations of subtraction and addition of integers. The banknote material consists of two colors, one color represents or represents positive integers, while the other color represents negative integers.

Beads props are used because Beads are very interesting and simple, specifically explaining the process of calculating integers, through Beads students can easily learn the concept of integer calculation operations, students can directly apply integer calculation operations, it is not dangerous, students can more easily understand positive and negative integers, neutralize numbers, are interesting and continuous and easy to do.

METHOD

This research uses a qualitative approach with classroom action research (PTK) methods, namely planning, implementation, observation, and reflection stages (Arikunto et al, 2021). This research was carried out in two cycles, each consisting of two sessions of subtracting and adding integers. In general, this class action will be carried out in five pre-cycle meetings in cycles I, and II, namely 2 meetings in the first cycle and 2 meetings in the second cycle.

The PTK flow that is used as a reference by researchers:

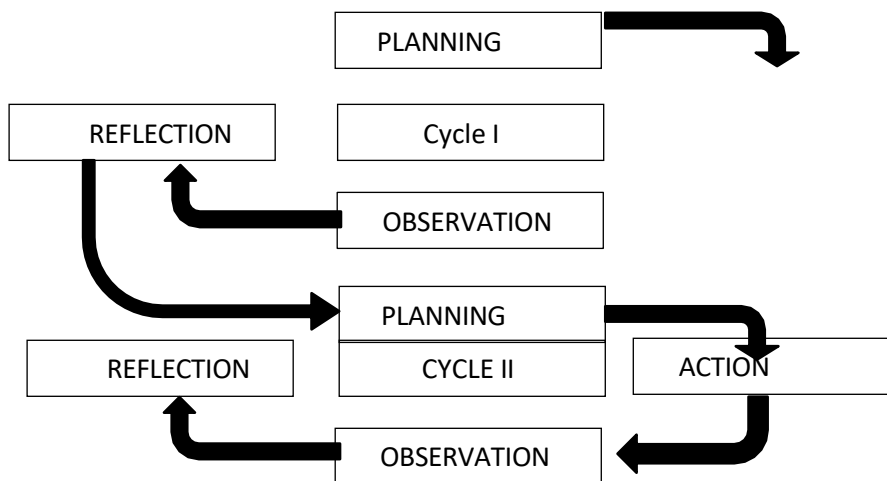


Figure 1. Cycle PTK (Arikunto dkk, 2014)

Cycle 1 has four stages, namely planning, implementation, observation, and reflection. The first step that needs to be taken is the design stage. At this point, the researcher explains the 5W+1H procedure. So that research results can be maximized, it is hoped that there will be a collaboration with teachers, here researchers collaborate with colleagues. Preparing lesson plans using beaded props (shirt buttons), preparing materials and tools used, preparing teacher and student observation sheets, and compiling grids along with test questions. After learning, an evaluation can be taken, namely, the researcher acts as a teacher who observes the student process through an evaluation task sheet immediately after handing over the material via the Beads teaching aid. Reflection, at this stage the researcher examines what has been learned, and what has not been achieved, solves problems that arise, and prepares various ways to solve these problems so that the next cycle can be achieved more.

Cycle II is almost the same as Cycle I, namely. planning, implementation, observation, and reflection. The aim of implementing cycle II is to follow up so that the results of cycle I can be completely successful. After cycle II is completed and the problem is resolved, this research can be stopped.

All 19 class VI students (9 boys and 9 girls) were the subjects. This research data is qualitative and quantitative data. Qualitative data consists of mathematics learning observation data in the form of student and teacher activities, the use of beads as learning props, and checklists for aspects observed in the survey. Meanwhile, quantitative data was obtained from the results of mathematics learning assessments using formative test instruments to measure student understanding. This question has 5 short essay questions.

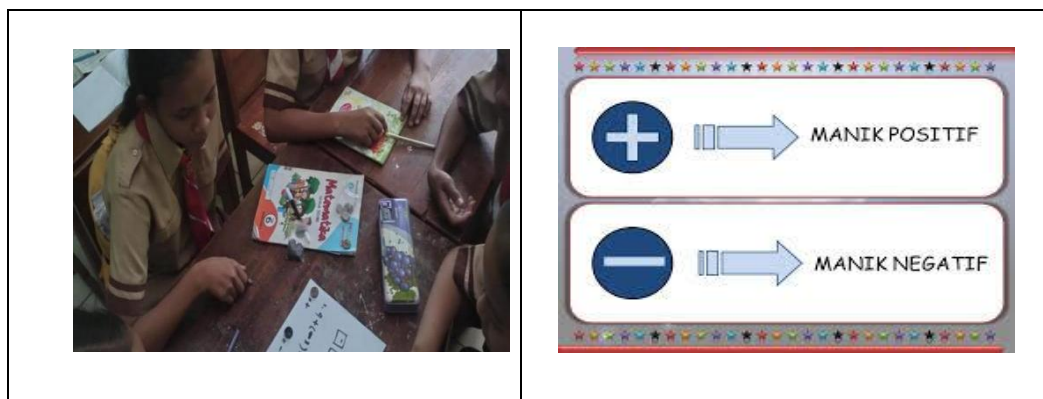
Learning is said to end when the overall student assessment results reach the KKM or 70 set by the school.

RESULT AND DISCUSSION

In this research, two cycles were carried out, where the meetings were divided into two meetings, and at the end of each cycle, an assessment test was required to assess students' understanding of the material presented. Mathematics learning cycle 1 material subtracting and adding integers, the researcher as a teacher uses explanations of the material and pictures on the blackboard. The obstacles that occurred in cycle I were some students were still confused because the instructions were not clear.

Apart from that, in cycle I the learning atmosphere was not conducive because the learning process was still individual so students carried out off-topic activities and some students did not pay attention to the learning process. Other obstacles faced by researchers are time management that has not been divided properly, and learning objectives that have not been explained by the teacher so that students still experience difficulties. At the second meeting, the researcher had prepared all the media well so that the lesson time could be adjusted. These obstacles will be followed up in cycle II where researchers can manage their time wisely.

At meeting II, the researcher changed the individual system to a group (discussion) and invited all students to be directly involved in the learning process using mediated teaching tools. Each student is allowed to fill in, match, add, and subtract whole numbers in the column based on their sign. In the second cycle, the students were more interactive and their learning motivation increased. This influences students' increasing understanding because the teaching aids are more interesting. As in Figure 2, namely, the media of bead props is a very interesting and simple prop and video.



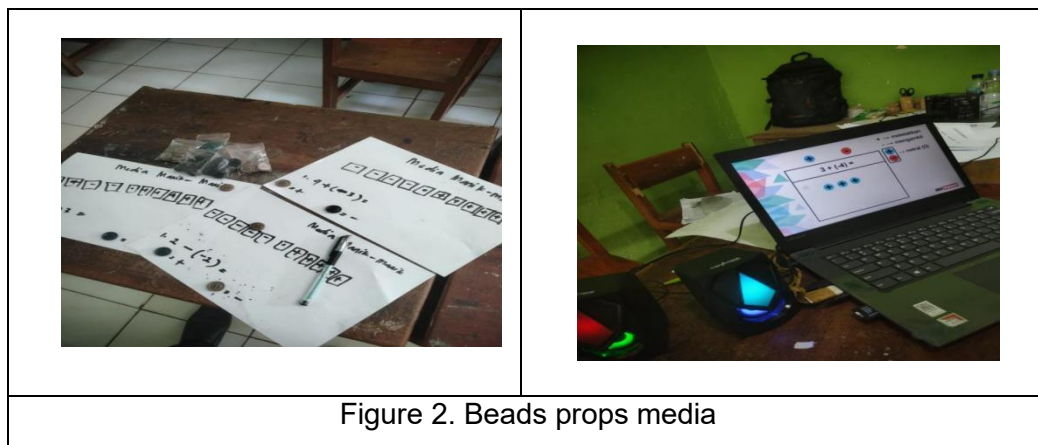
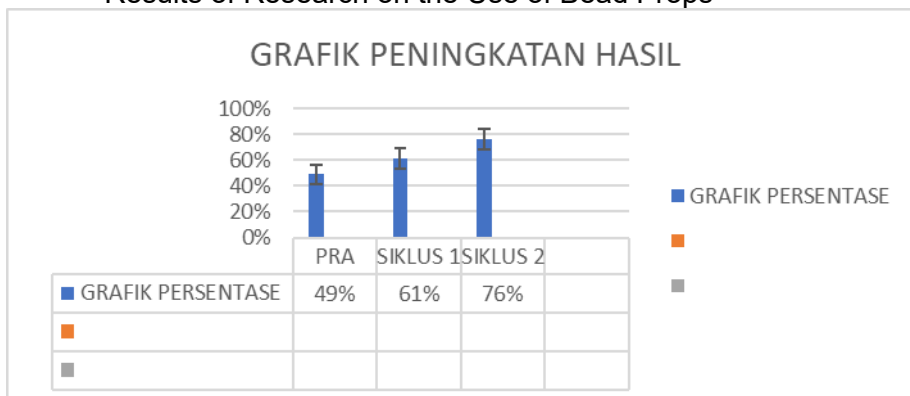


Figure 2. Beads props media

Data obtained from student activities shows that students' understanding of mathematics learning regarding addition and subtraction of integers using Beads teaching aids has increased. The students' activities showed that the level of students' understanding of the Mathematics learning material for Subtracting and Adding Integers using the aid of Beads teaching aids gradually increased. It can be seen from the results of observations regarding interactions before and after using the Beads props from pre-cycle to cycle II. Observations took the form of questions about the existence of teaching aids as supporting media for students. Meanwhile, in the pre-cycle, the observation results showed a 49% increase in student learning outcomes by 61%, then in the second cycle there was an increase of 76%. The following is an increase in understanding of student activities using Beads props.

Table 1.

Results of Research on the Use of Bead Props



All students showed great enthusiasm for participating in learning so that they could improve students' understanding significantly. Based on the presentation of the results of students' understanding using the teaching aids described by the researcher above, it can be linked to the evaluation results in the form of test scores carried out during pre-cycle, cycle I, and cycle II in the recapitulation of scores below.

Based on the results of data analysis, the results of student evaluation can be described using a test instrument where the KKM Mathematics score in the elementary school is 70. The symbol (T) is the total number of good students who have a score of more than 70 and less than 70. Symbol (P) is the

percentage of gain calculated from the grades obtained by students. Accumulated into an average score and percentage of completeness where in the pre-cycle students had an average score of 4.89 with a percentage of completeness of 49%, in the first cycle there was an increase to 6.05 with a percentage of completeness of 61%, and in the second cycle the average increased again. value 7.63 with a percentage of 76%.

Student learning in mathematics with the material of adding whole numbers in class VI of SD Negeri 03 Kuwasen Jepara using beads as a teaching aid shows that this is following learning and students are actively involved in learning. Previous research supports this conclusion. The use of bead teaching aids has the potential to increase students' understanding of mathematics learning for both teachers and students.

This research results are consistent with previous research. As in Meni Kuswati's (2018) research "Improving Integer Learning Results Using Beads", Zuriasmiati et al. (2020) "Increasing students' understanding of subtracting and adding negative integers using Beads teaching Aids" and Dharni Research (2021) "Improving counting skills using colored bead aids in class I students at National Elementary School 223 Kampung Baru Sinjai Wholesale". Research by Betty Biliya Anggrahen (2022) "Skills for Subtracting and Adding Whole Numbers Using Beads Teaching Aids in Class 4 of Balanganteras State" and Research by Suratinah (2017) "Implementation of NHT Teaching Materials Using Beads in the Integer Chapter. Results Previous research shows that academic achievement increases after learning with the help of Beads teaching aids.

CONCLUSION

Based on the results of the research "Improving Numeracy Skills, Subtracting and Adding Whole Numbers using Class VI Bead Props at SD Negeri 3 Kuwasen Jepara" was able to improve the understanding of class VI students at SDN 03 Kuwasen Jepara. This is shown by increasing student understanding and the evaluation results obtained starting from cycle 1, namely 61% of students did not understand. In cycle II students' understanding increased to 76%. The increasing student learning outcomes show that the pre-cycle average was only 2 students who passed with a percentage of 49%. In the first period, there was an increase, the number of students who passed was 6 students, and the average score was 61 with a percentage of 61% in the second period there was an increase, namely. the number of students who graduated was 16 students. the average score is 76 with a percentage of 76%. Thus, in this research, teachers at SD Negeri 3 Kuwasen Jepara can use Bead teaching aids as a teaching tool so that students can be proficient in counting. However, the results of this study require further research to improve student achievement in elementary school mathematics subjects.

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