

**APPLICATION OF NUMBERS LINE MEDIA ON ROUND NUMBER
MATERIALS TO IMPROVE MATHEMATICAL LEARNING
OUTCOMES STUDENT CLASS VI
SD N 105425 MALASORI**

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Abstract: The Application of Number Line Media on Round Number Material to Improve Mathematics Learning Outcomes of Students of Class VI SD N 105425 Malasori. The purpose of the study was to improve student learning outcomes by applying media line numbers on integer material in class VI SD N 105425 Malasori. This study uses a Class Action Research design which consists of three stages: planning, implementing actions, and reflecting. The subjects of this study were 30 students of grade VI SD N 105425 Malasori. The method applied in this research is observation and test. While the data collection instruments use learning outcomes tests. Research data were analyzed quantitatively. The results of this study indicate that an increase in student learning outcomes by 13 , 23 %, from 78.57% in the first cycle to 91.80% in the second cycle. The conclusion of this study is that the learning of integer materials using number line media can improve student learning outcomes in grade VI SD 105425 Malasori. Therefore, teachers can use media in learning to improve student learning outcomes.

Keywords: Line number media; learning outcomes

Abstract : Penerapan Media Garis Bilangan Pada Materi Bilangan Bulat Untuk Meningkatkan Hasil Belajar Matematika Siswa Kelas VI SD N 105425 Malasori. Tujuan penelitian adalah untuk meningkatkan hasil belajar siswa dengan menerapkan media garis bilangan pada materi bilangan bulat di kelas VI SD N 105425 Malasori. Penelitian ini menggunakan rancangan Penelitian Tindakan Kelas yang terdiri dari tiga tahap yaitu: perencanaan, pelaksanaan tindakan, dan refleksi. Subjek penelitian ini adalah 30 siswa kelas VI SD N 105425 Malasori. Metode yang diterapkan dalam penelitian ini adalah observasi dan tes. Sedangkan instrumen pengumpulan datanya menggunakan tes hasil belajar. Data penelitian dianalisis secara kuantitatif. Hasil penelitian ini menunjukkan bahwa terjadi peningkatan hasil belajar siswa sebesar 13,23%, dari 78,57% pada siklus I menjadi 91,80% pada siklus II. Kesimpulan dari penelitian ini adalah bahwa pembelajaran materi bilangan bulat menggunakan media garis bilangan dapat meningkatkan hasil belajar siswa kelas VI SD 105425 Malasori. Oleh karena itu, guru dapat menggunakan media dalam pembelajaran untuk meningkatkan hasil belajar siswa.

Kata kunci: *Media garis bilangan; hasil belajar*

INTRODUCTION

In the perspective of national education policies contained in Law no. 20 of 2003 concerning SISDIKNAS , Education is a conscious and planned effort to create an atmosphere of learning and learning process so that students actively develop their potential to have spiritual spiritual strength, self-control,

personality, intelligence, noble character, and the skills needed by themselves , the community , nation and country . The world of education has a very important task in preparing students / students to face this era of globalization .

The era of globalization is marked by the rapid development in all fields, especially in the field of science and

technology. The development of science and technology in a globally and competitive world requires a generation that has the ability to obtain, choose, manage, and utilize information in order to be responsive to changing circumstances. Such a capability would be more effective if supported by the ability to think logically, systematically, analytically, critically, and creatively. Various thinking abilities can be developed through learning mathematics, as one of the basic sciences that has essential values that can be applied in various fields of life. Therefore, learning mathematics becomes very important in managing students' thinking abilities, reasoning, solving problems, communicating, linking mathematical material to the real situation, and being able to use and utilize technology.

According to Schoenfeld (1994, ed in the mathematics learning assessment book, 2014) the term mathematics as a solid mathematical product; learning mathematics is finding something solid (through explanation or presented for self-development). Furthermore Schoenfeld (1994) argues that learning to think mathematics means developing views on mathematics, assessing the process of mathematical and abstraction and have a tendency to apply it and develop competence design with mathematical tools, use it to achieve the goals of understanding mathematical structure, and present something that makes sense. All learning objectives can be said to be learning outcomes.

Mathematics is learning that requires high concentration. Seeing this reality, it is not unusual if some students still find it difficult to understand the mathematics lesson that the teacher is conveying. Based on the results of observations and interviews conducted by researchers during KKN (Real Work Lecture) on August 6, 2019 in grade VI elementary school, it is known that some

students complain because it is difficult to understand mathematics. Mathematical problems involve complicated numbers, the operation of a large number of signs, besides the application problems are also very confusing.

In observations made by researchers in collaboration with Mr. Suryadi S.Pd as a grade VI teacher with students about how the learning process of integer count operations in class, researchers found several problems in learning mathematics integer operations in class VB as follows: 1) Teachers does not include the use of innovative learning media in learning. 2) Lack of understanding of the initial concepts of addition and subtraction of integers makes students confused when solving more difficult questions about addition and subtraction of integers which include positive integers and negative integers. This is due to the teacher directly providing an existing concept without giving an initial explanation of the concept's discovery.

In integer material, specifically addition and subtraction, students lack understanding of the concepts of addition and subtraction of integers. The learning done by the teacher is explaining the material using incomplete concepts to students without using concrete media. These conditions cause learning outcomes measured at the time of evaluation of learning the material addition and subtraction of integers shows that of 100% of students in the class with a minimum completeness criteria (KKM) at the education unit level is 75, obtained 20% or 6 students from 30 students who reached KKM and 80% or 24 students out of 30 students got grades below the KKM limit.

According to Indah (2014) states that to embed certain ideas or definitions in students' minds, they must master the concept by trying it out and doing it themselves, so students will understand it better. If in the process of formulation and

preparation of such ideas dissertation help concrete objects which is a tool to help or media, then students will more easily remember the idea of the idea that he learned it.

Based on the above problems researchers interested in pursuing math on material integer operations into a lesson interesting and fun, which is more important is to improve student learning outcomes in a matter of addition and subtraction of integers with increasing mastery of the concept will be the operation of addition and subtraction of integers up first through concrete learning media.

From these problems, it is necessary to have improvements in the learning process of integer operations . Efforts to improve learning to improve student learning outcomes is to use the media of number lines in learning integers for students in grade VI SD 105425 Malasori TA. 2019/2020.

Thus, the use of media can help students master the concept of integer operations. By mastering the concept of integer operations will make it easier for students to solve problems related to integer operations.

That way, it is possible to improve student learning outcomes. This study aims to improve the learning outcomes of students in grade VI SD 105425 Malasori after participating in learning integers using number line media.

Number Line Media With Step Determinants

According to Indah, 2014 Lines of numbers with step makers are included in the three-dimensional media in a modified graphic form. Where the number line media with step determinant is a concrete media object in the form of a number board made of cardboard blocks with scale as a number line. The scale of the line is in the middle of the cardboard beam. The scale in the middle of the

number line shows the number (0). The lines of elongated arched numbers represent the scale of negative integers to the left and positive integers to the right of the zero (0) as well as the object as a determinant of this step in the form of a cartoon character Ipin that is moved right and left.

As for how to play the number line, namely: (1) First the object is placed at zero position. (2) Looking at the first number in the problem, i.e. (a) If the first integer is a positive integer, the object is facing right (positive integer). (b) If the first number is a negative integer then the object is facing left (negative integer). (3) Running the object above the number line according to the distance of the first number. Looking at the second number in the problem, to determine the continuation of the object's journey, with the following rules: (a) If the second number is a positive integer then the object is confronted to the right (positive integer). (b) If the second number is a negative integer then the object is facing left (negative integer). (4) In the sum calculation operation, the object goes forward. (5) In the subtraction count operation, the object goes backwards. (6) Put the object in the last position of the trip of the number line. (7) Henceforth, the final result is indicated by the direction of the arrow. (8) Then record the last position of the object as a result of the calculation operation in question. (9) Repeating steps from the beginning with different problems to train students to understand the concepts of addition and subtraction of integers.

METHOD

Based on the opinion of Arikunto (2010: 2) this research is a quantitative descriptive study with Classroom Action Research (CAR) because all its activities are carried out in the classroom and

focused on the teaching and learning process.

The Classroom Action Research (PTK) location was conducted at VI SD 105425 Malasori. The choice of location for this research is based on the suitability of the actual work schedule held by the university. The research subjects in this study were students of class VI SD N 105425 Malasori with a total of 30 students consisting of 23 female students and 7 male students.

Research design

In accordance with the formulation of the research title above, this research follows the Classroom Action Research procedure. The implementation procedure outlines consists of three stages in each cycle, namely planning, implementation, and reflection cycle.

Phase I is the stage of drafting a plan or plan of action (planning). Researchers prepare plans or plans for implementing learning. In this stage the researcher only follows subject matter that has not been discussed in class VI.

Phase II, namely the stage of implementing the action (Acting). Researchers will carry out an action that has been designed or planned. The activity at this stage is to carry out plans that have been made based on material that has not been discussed that day.

Phase III is the reflection phase (Reflecting). Activities undertaken by researchers in the reflection stage are reviewing the results of observation. Discuss with the observer to find out the successes and shortcomings that need to be fixed in the next cycle. Analyze data. Conduct an evaluation to determine whether the actions that have been taken need to be repeated or corrected. If the results of the reflection of the first cycle and are associated with indicators of success there are deficiencies so that student learning outcomes are not as

expected, it will be continued in the second cycle.

The research data collection technique taken is the test technique, the research instrument needed is a learning outcome test sheet using written questions which are used as an evaluation tool for learning activities given at the end of learning. The test given aims to determine student learning outcomes after participating in learning mathematics integer operation material using the media line numbers.

From the test results data were analyzed using reference to the minimum level of completeness criteria (KKM) of students towards the material. A student is said to have finished learning if he has scored ≥ 75 according to the KKM determined by the school.

Classical completeness (the class completes learning) is achieved when all students in the class have reached $\geq 80\%$. To calculate the percentage of classical completeness used the formula:

Information :

$$P = \frac{\sum n}{N} \times 100\%$$

P : Percentage of classical learning completeness

$\sum n$: Number of students who get a grade of ≥ 75

N : The number of students

(Aqib , et al , 2011: 41)

RESULTS AND DISCUSSION

The results of this study were carried out in two cycles, with each cycle consisting of one meeting or the same as the allocation of learning time 2 x 35 minutes. Based on existing procedures, the implementation of each cycle includes three stages: planning, implementing actions and observations, and reflection.

The realization of the cycle will be explained as follows:

Cycle I

The planning stage, in the first cycle, there were as many as one meeting. The meeting was held in 2 x 35 minutes. The meeting was held on Tuesday, August 7, 2019. The research was carried out according to the schedule when there were 30 students attending grade VI elementary school classes. The researcher prepares the teacher's book and student books and test results for learning outcomes

The implementation phase of the action, this stage is the application of the plan prepared by the previous researcher. Implementation is adjusted to the planning stage by involving the media line numbers. Student learning outcomes data obtained through learning outcomes tests conducted by researchers in class. At this stage the researcher used 30 student learning outcomes tests. The implementation of activities will be presented regarding the value of classical completeness achievement test material integer operations six graders in the first cycle was 78, 57% in both categories.

Reflection Stage, after going through the implementation phase of the action it can be seen that the learning process of integer operating material using the media line numbers has been going well. But the average score of student learning outcomes does not meet the indicators of research success that have been determined by researchers. Therefore, the researcher and the homeroom teacher conduct a discussion about the deficiencies that occur in teaching and learning activities that have been implemented in the first cycle and plan some improvements in the next cycles. Because the deficiencies in cycle I include the teacher less motivating students so that there are still some students who are less focused in learning, teachers still have difficulty organizing and guiding students

to take tests, students are less conducive and unable to share assignments with their groups and classical mastery of learning outcomes students in the first cycle of 78, 57% of these results have not met the classical completeness that is equal to 80%.

Cycle II

Cycle II is carried out in one meeting. This meeting was held on Friday, August 9, 2019. The research was attended by 30 students of SD N 105425 Malasori.

Planning Phase

Based on cycle I, this research will be continued in cycle II. The results of these reflections need to be replanned again to improve the existing constraints in Cycle I. It is expected that by implementing Cycle II the learning of integer operations will run well and student learning outcomes will improve more than Cycle I.

Action Implementation Stage

This stage is the application of the planning that was prepared by the previous researcher. Learning activities carried out at this stage. Researchers must master the class more. At this stage the researcher is also guiding students in working on the learning outcomes test so that student learning outcomes can experience a significant increase. The classical completeness value of the learning outcomes of integer operation material for grade VI elementary school students in cycle II was 91, 80% in the excellent category.

Reflection Stage

At this stage, the researcher conducted an evaluation with the sixth grade homeroom teacher regarding integer operating material in cycle II, namely the student test result data. Basically learning in cycle II is far better than learning done

in cycle I. overall learning activities have been going very well. Deficiencies that occur in cycle I can be overcome in cycle II.

The data obtained from the second cycle is the data of mathematical test results of integer operating material reached a score of 85 , 57 with a classical completeness of 91.80%. The indicators of research success that have been determined are students said to be successful in learning if individually students get siswa 75 and completeness classically reaches 80%. Based on the description of the data obtained in the second cycle, it can be seen that the learning carried out in the second cycle has met the research indicators. Thus the study was not continued in the next cycle.

DISCUSSION

Based on the above study, student learning outcomes in integer operations material on the second cycle going very well with an average value of 85 , 57 so that the percentage of classical completeness reaching 91.80%. This percentage shows an increase of 13.23 % from the percentage of student learning outcomes in the first cycle, namely 78.57%. Thus, the achievement of the second cycle percentage has reached the success target in accordance with the success indicator $\geq 80\%$. Classical completeness diagram of student learning outcomes in cycle I-cycle II

CONCLUSION

Based on the analysis and discussion of research data on the use of media line numbers to improve learning outcomes of integer operations for students of class VI SD N 105425 Malasori, it can be concluded as follows student learning outcomes in grades VI SD N 105425 Malasori after participating in learning integer operations using media the number line in the study for two cycles

increased and was very good. Improving student learning outcomes, namely from 78.57% in the first cycle to 91.80% in the second cycle.

SUGGESTION

Based on the conclusions from the research results obtained from SDN 105425 Malasori, the researchers gave the following suggestions 1) in learning, teachers are advised to use the media of number lines to improve learning outcomes of integer operating materials, because through this media students can manipulate concrete objects in understanding concept and can work on problems related to the material. 2) when learning takes place, the teacher should act as a facilitator and guide students both in explaining the material, working on the exercise questions and in groups that have been formed so that students feel encouraged to like the mathematics given and complete assignments well and on time.

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