Swakarya: Jurnal Penelitian Sosial dan Pemberdayaan Masyarakat
ISSN: 2987-9620
Volume 1 Nomor 2 Tahun 2023
https://afeksi.id/journal3/index.php/swakarya

INCREASING THE ACTIVENESS AND LEARNING OUTCOMES OF MATHEMATICS ON THE MATERIAL OF MATHEMATICAL SENTENCES AND CALCULATIONS THROUGH THE REALISTIC MATHEMATIC EDUCATION (RME) APPROACH FOR GRADE IV STUDENTS OF SDN 2 CEPEDAK

Turyanti [1], MufliKhul Khaq[2], Rintis Rizkia Pangestika[3]
Universitas Muhammadiyah Purworejo
yaanti98@gmail.com

Abstract

Improving the Activeness and Learning Outcomes of Mathematics on Mathematical Sentences and Calculations Through the Realistic Mathematic Education (RME) Approach for Grade IV Students of SDN 2 Cepedak". Thesis. Elementary School Teacher Education. FKIP, University of Muhammadiyah Purworejo. 2023. This study aims to determine whether there is an effect of the realistic mathematics learning approach on the mathematics learning outcomes of fourth grade students of SDN 2 Cepedak, Bruno District, Purworejo Regency, Central Java. This type of research is Classroom Action Research. The research was conducted in the second semester of the 2022/2023 school year with the research subjects being fourth grade students of SDN 2 Cepedak with a total of 20 students. The data collection instruments used in this study consisted of interview sheets, observation sheets, and evaluation tests. The data collection techniques used were observation, tests, interviews, field notes, and documentation. The data obtained are student learning outcomes and observation of student activeness. This research uses qualitative data analysis and quantitative analysis. Based on the action research, it can be concluded that the RME learning approach can improve activeness and learning outcomes in the material of mathematical sentences and calculations in class IV SD.

Keywords: Math sentences and calculations, learning outcomes, engagement, learning method, RME.

INTRODUCTION

Mathematics learning is a subject that has a very important role in everyday life, all the material taught is useful and plays an important role in human life. Broadly speaking, the Mathematics learning program according to Karso (2007) in Hapsari & Kristin, (2021), has objectives such as: preparing students to face changes and developments in world life. In accordance with this assumption, Mathematics functions to develop the ability to count, measure, derive and use Mathematical formulas needed in everyday life.

Based on the results of observations and interviews conducted on August 29, 2022 at SD N 2 CEPEDAK, several obstacles were found. The obstacles include: 1) Mathematics is one of the lessons that in the process of understanding requires a long time, explained in the learning process is still difficult for students to accept and understand; 2) Mathematics is one of the subjects whose learning achievement results are still low. This is supported by data on the results of daily assignment scores obtained by 55% of 20 students scoring below the KKM. so that Mathematics is one of the subjects with low learning outcomes; 3) the low mastery of students in understanding Mathematics subject matter. These problems make students passive in the learning process; 4) teachers still use unidirectional learning methods, where the teacher is an educator and facilitator, while students only listen to explanations

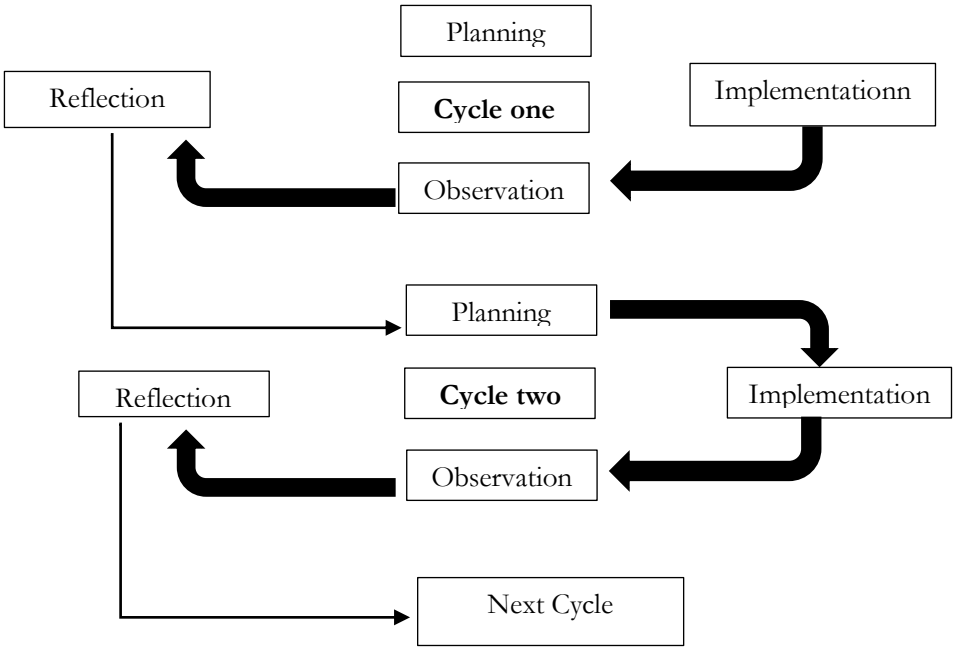
from the teacher and take notes delivered by the teacher. As well as teachers still use a teacher centered approach, which means that the source of all knowledge received by students is only obtained from the teacher; 5) In the Mathematics learning process, it appears that students have not been exposed to the real life of everyday students, which contains mathematical problems.

Referring to the problems above, one of the efforts that can overcome these problems is by improving learning with an approach that can result in the achievement of better Mathematics learning outcomes, an approach that can be used is the RME (Realistic Mathematics Education) approach (Solissa et.al, 2023). Realistic Mathematics Education (RME) or in Indonesian is often called Realistic Mathematics Education (PMR), which is a Mathematics approach where the classroom is no longer a place to transfer from teachers to students, but where students explore real problems so that students can rediscover Mathematics concepts and ideas. This is in accordance with the results of research by Khotimah and As'ad (2020) that the success of learning in students who take part in learning with Realistic Mathematics Education (RME) is better than classes with conventional learning. So it can be concluded that the realistic mathematics education approach has an influence on the mathematics learning outcomes of students in elementary school. Based on the description above, the researcher is interested in conducting a study entitled "Increasing the Activeness and Learning Outcomes of Students on Mathematical Sentences and Calculations through the RME (Realistic Mathematic Education) Approach for Class IV Students of SDN 2 Cepedak".

RESEARCH METHODS

The research entitled Improving the Activeness and Learning Outcomes of Students on Mathematical Sentences and Calculations through the Realistic Mathematic Education Approach for Class IV Students of SDN 2 Cepedak. This research uses Classroom Action Research (CAR). According to Arikunto, et al, (2019) Classroom action research is research conducted by educators who act as researchers. The application of research is aimed at several subjects who are the target, namely students. The purpose of action research is to make the quality of learning experience increased improvement.

This data collection is carried out by organizing learning activities with several stages, the initial stage is pre-action research, then next goes into the first cycle and the last is the second cycle. Each cycle lasts for two meetings, each meeting has four lesson hours with an allocation of 75 minutes. At the second meeting of each cycle there is an evaluation test to measure the improvement of students' learning outcomes. Meanwhile, the assessment of students' learning activeness was carried out every meeting in both cycles. The learning process was carried out by the researcher as a teacher. The teacher acts as a guide when learning activities take place. Researchers prepare the learning tools needed, including lesson plans, syllabus, teaching materials, evaluation questions, learning activeness observation sheets, and group activity sheets.



(source: Arikunto, 2017)

Picture 1: Schematic of Classroom Action Research

RESULTS AND DISCUSSION

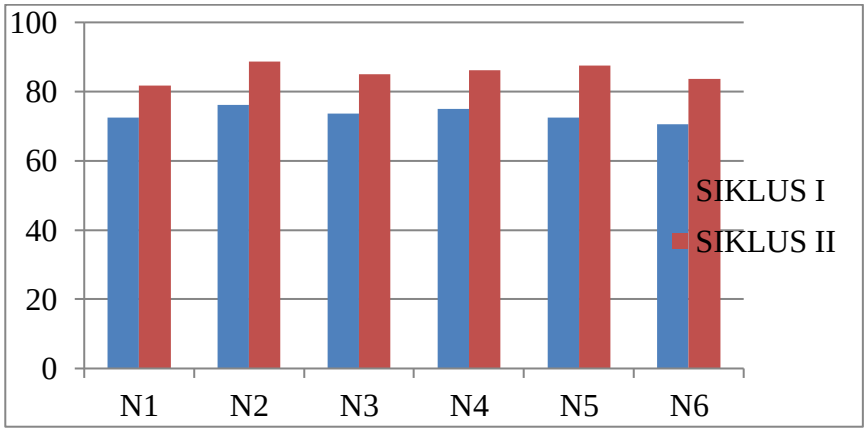
Learner's Learning Activity

The learning activeness of students using the RME approach was assessed by researchers through observation. Observations were made during the learning process using the learner activeness observation sheet that had been provided. The assessment sheet in the form of a table contains a column of activeness aspects in the form of (1) Paying attention and listening to the teacher's explanation. (2) Active in the group. (3) Answering teacher questions. (4) Ability to remember the material presented by the teacher. (5) Expressing opinions to the teacher or friends. (6) Dare to ask questions. Each aspect has a choice of scores 1-4, researchers can determine the score obtained from observations during the learning process (Arif dan Ali, 2021). The activeness of students in learning Mathematics the material of Mathematical sentences and calculations in class IV in cycle I and cycle II has increased. This is in accordance with the results of observations that have been made in accordance with the guidelines. The following is a diagram of the average assessment of student activeness in cycles I and II. The activeness of students has increased, in cycle I shows an average percentage of 76.2% in cycle II to 88.1% with a good category. The increase in learner activeness from cycle I to cycle II is 11.9%.

Table 1. Results of Increasing Student Learning Activeness

Indicator	Cycle I	Cycle II
Number of students	20	20
Maximum score	480	480
Average	76, 2	88.1
Criteria	Good	Good

The following is a diagram consisting of the average percentage of class learning activeness of students in cycle I and cycle II.



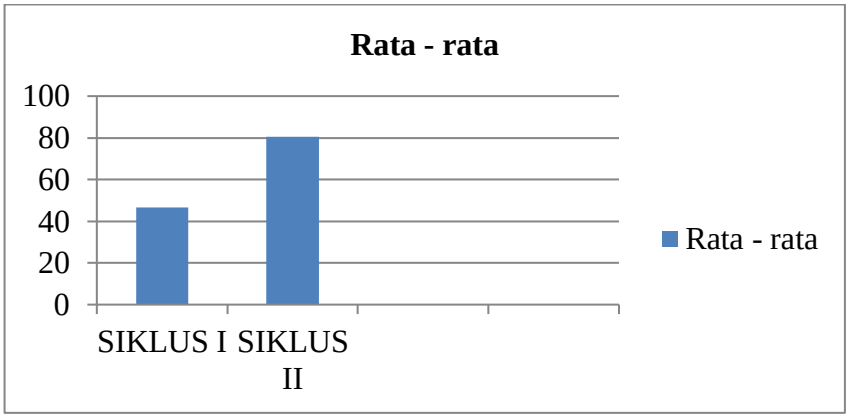
Picture 2. Diagram of Students' Learning Activeness

Learner Learning Outcomes

Researchers conducted an assessment of learning outcomes to students after providing material on mathematical sentences and calculations as a whole. Assessment of learning outcomes in the form of fill-in questions. The success indicator of learning outcomes is 80% of students are complete. Assessment of cycle I learning outcomes was carried out on Friday, March 13, 2023. The following are the learning outcomes of students in cycle 1 with the material of Mathematical sentences and calculations.

Indicator	Cycle I	Cycle II
KKM	70	70
Number of students	20	20
Average	46, 7	80,5
Criteria	Sangat Kurang Baik	Baik

The following is a diagram consisting of the average percentage of class learning activeness of students in cycle I and cycle II.



Picture 3. Diagram of Learning Outcomes

Based on the table and diagram above, it can be concluded that the learning outcomes of students on the material of Math sentences and calculations have increased. At the first cycle stage, the average learning outcomes of students were 46.75 with a very poor category. At the second cycle stage, the average learning outcomes of students increased to 80.5 with a good category. The increase in learner learning outcomes is influenced by two factors, namely internal factors and external factors. These internal factors include fatigue factors, physical factors, and psychological factors. While external factors include school, family and community factors (Karina et al., 2017).

Discussion

Increased Student Learning Activeness

Learning Mathematics and its calculations at SDN 2 Cepedak with the RME approach found that there was an increase in student activeness. It can be seen in the results of the assessment of student activeness in cycle one with an average of 76.2% increasing in cycle II with an average of 88.1%. The increase in learner activeness from cycle I to cycle II is 11.9%. The activeness of students at the first meeting of cycle I is still less optimsl, seen in students who are still passive when the teacher explains about the material stating Mathematical sentences, shy to answer when asked by the teacher, and interaction between students is still not optimal when working in groups.

The activeness of students at this meeting showed an optimal improvement, there was an increase in each aspect. The aspect with the highest score is the active aspect in the group, seen from the excitement of students when working on problems with the group, giving each other opinions to friends and respecting friends' opinions (Abidin et.al, 2023). The lowest score at this meeting was in two aspects, namely the aspects of daring to ask questions and paying attention and listening to explanations from the teacher. The activeness of students at the first meeting of the second cycle showed a fairly optimal increase, there was an increase in each aspect (Syahrial et.al, 2020). The aspect with the highest score is the active aspect in the group, seen from the excitement of students when working on problems with the group, giving each other opinions to friends and respecting friends' opinions (Abidin et.al, 2023). The lowest scores at this meeting were in two aspects, namely the aspects of daring to ask questions and paying attention and listening to explanations from the teacher. At the second meeting of the second cycle, the results of observations of student activeness reached the success indicator with an activeness score of ≥80% with an active category (Astalini et.al, 2020).

Improved Learning Outcomes of Students

Student learning outcomes have increased in cycle I showing an average learning outcome of 46.7. In cycle II it increased to 80.5. The increase in student learning outcomes from cycle I to cycle II is 33.8.

Cycle I learning outcomes that have been measured by evaluation tests given by the teacher, have not shown the achievement of optimal results can be seen from the average score of students who are still below the KKM (Wandi et.al, 2019). it affects the achievement of student learning outcomes that are still not optimal, this is measured by the answers to the tasks given in groups. This happens because students do not understand story problems and write them in mathematical sentences, so they cannot answer according to the questions given (Kuswanto 2020). Another thing that also affects the learning outcomes of students is that students are not accustomed to working on problems with the "knowing and being asked" method as a first step to analyze the question of the problem and what is listed in the problem, so that it can make it easier for students to answer questions and minimize errors during calculations. Learners still seem confused about using this method. So that when they get a story problem, students misinterpret the question and the answer given is wrong (Ikhlas et.al, 2021).

Furthermore, the final test is given covering all material from cycle I to cycle II. The results showed that students experienced a significant increase in learning outcomes in the complete category with a percentage of 80.5 with KKM at SDN 2 Cepedak, which is 70 in the material of Mathematical sentences and calculations. Learners are active in playing roles and using everyday problems as something they can solve, this can increase the motivation of students in learning. Learners are also active in groups, actively interacting between students and students and students with teachers. So, what students do not understand, they will dig up information from students or teachers (Azhary et. Al, 2020). The results of the cycle I and cycle II tests show that the Realistic Mathematic Education (RME) approach can improve the learning outcomes of students on the material of Mathematical sentences and calculations for fourth grade students of SDN 2 Cepedak.

CONCLUSIONS

Based on the results of research and discussion of increasing the activeness and learning outcomes of students on the material of Mathematical sentences and calculations for class IV students of SDN 2 Cepedak, it can be concluded that: The activeness of students has increased, in cycle I shows an average percentage of 76.2% in cycle II to 88.1% with a good category. The increase in learner activeness from cycle I to cycle II is 11.9%. The learning outcomes of students increased in cycle I showed an average learning outcome of 46.7. In cycle II it increased to 80.5. The increase in learner learning outcomes from cycle I to cycle II is 33.8.

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