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IMPROVING MATHEMATICS LEARNING OUTCOMES USING PIPETTE MEDIA IN STUDENTS AT SDN 17 KUALA MANDOR B

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Abstract

This research was a classroom action research conducted in three cycles, each cycle consisting of planning, action, observation, and reflection. The aspects observed in each cycle were the activities of students and teachers, as well as the learning process of the subject matter in fractions using a simple medium named Pipette. The subjects were 15 students. The results of the study of students' abilities in the chapter of fractions, each cycle has increased. Cycle I, the average score of students was 51.93 with a percentage of completeness 13.33%. Students who reached KKM were 2 students. Based on the result of cycle I and cycle II, the average score of 85 students with a percentage of completeness 86.67%. Students who reached KKM were 13 students. From the two cycles applied, there was an increase in the ability of students in the subject matter of fraction addition. Based on the indicators of success in the second cycle, that the applied papita media can improve the ability of students in the chapter of fraction addition in V grade students of SDN 17 Kuala Mandor B, Kubu Raya Regency.

Keywords: *Learning Outcomes, Mathematics, Pipette Media*

Introduction

The current development is demanding a significant change in the learning process in the education unit. Education can prepare students to face the demands of the development. Education that teaches students in accordance with the age they lived and faced. Learning that requires teachers to develop active, innovative, creative, and fun learning to produce students who have the skills to think critically, creatively, communicatively, and collaboratively, which is called 21st-century learning.

The teacher plays an important role in achieving the National Education Goals. The teacher in the class as a facilitator, mediator, motivator in creating quality learning conditions. And teachers should have competence in creating learning that makes students do "learning" activities. Learning is not just changing students from not knowing to know. But more than that, changing students from not being able to be through the direct experience they feel in the learning process. Learning is not just a one-way process, teachers transfer and enters knowledge directly to students. But a pleasant process so that creativity continues to be developed.

The teacher in the class is a director who designs a learning scenario that makes students feel a meaningful learning experience. The teacher presents appropriate and innovative methods and media so that students easily capture the message that the teacher wants to convey. Student-centered method and media support students to build knowledge, attitudes, and skills based on experiences gained in the learning process. However, seeing the current

reality, sometimes the class becomes a prison for students. They seem to be confined physically and psychologically, so what happens is they only wait for break time and after school hours. With these conditions, learning is not quality in improving learning outcomes. And learning only becomes a heavy burden for them. It is because teachers in the classroom are not able to create a pleasant atmosphere for students. Though the world of elementary school is the world of play. In the classroom, the teacher must be able to design fun learning by learning while playing. So that students enjoy every moment of learning that presented for better learning outcomes.

In addition, lecture methods that are still often used by teachers in learning tend to make students passive in learning. Learning should create meaningful interactions that can hone their competencies in critical thinking, collaborate in problem-solving, communicate effectively, and have high creativity in producing something. Therefore teachers must be open to renewal and innovation to design learning that can meet the demands of learning in the 21st century.

Identification of the problems carried out in this study are: (1) the process of learning mathematics has not been maximized; (2) mathematics learning achievement is lower than other subjects; (3) student achievement in learning about fraction knowledge and its symbol is still low; (4) lack of learning media in schools; (5) Students have difficulty understanding the learning material being studied; (6) students have difficulty adding and subtracting different types of fractions; (7) the method used in the mathematics learning process is not appropriate; (8) learning process activities have not been focused on students; (9) Elementary school teachers rarely receive training in mathematics, especially the fraction material and its symbols and sequences. Based on the phenomena mentioned above, this research will be more focused on efforts to improve mathematics learning outcomes that have been poor so far, with this improvement effort, researchers want to improve understanding of mathematics learning material through active, innovative, creative, effective, and fun learning to motivate interest learner learners. Students were not interested in learning something, do not expect that they will succeed well in learning something, it is better if students learn with interest, then it can be expected that the results will be better. Among the strategic steps that allow teachers through the use of learning methods that use media to enable children to improve learning outcomes.

Based on the identification and limitation of the problem, then in this study, the problem statement can be detailed as follows: "Can Pipette media improve student mathematics learning outcomes in the subject matter of fractions in V grade at SDN 17 Kuala Mandor B?". This study aimed to improve students' mathematics learning outcomes on the subject matter of fractions using pipette media in fifth-grade students of SDN 17 Kuala Mandor B.

The benefits of this research were expected: (1) Developing concepts of learning design in elementary school mathematics subjects is part of learning technology so that it can carry out active, innovative, creative and fun learning; (2) To apply theories about the use of media in activating and improving students' learning achievement. Practically this research is useful: (1) For teachers to be able to improve their performance as learning agents with quality, variety and work professionally; (2) For students to increase student motivation, not verbalism, train intelligence, dexterity, skills, and achieve maximum achievement; (3) For schools as providing input and helping to facilitate learning media and learning tools in quality as well as quantity.

Sardiman (2011) said: Learning is doing, doing to change behavior, so doing activities. There is no learning if there is no activity, that is why the activity is a principle that is very important in teaching and learning interactions ". Some experts in the world of education provide a different definition of learning, but in principle have the same intent, as stated by Hamalik (1997: 204) that learning is a form of growth and change in real learners and continuous training, a change from don't know to know. Based on the opinion of the experts it

can be concluded, that learning is an individual process of students in their interactions with the environment, thus causing the occurrence of behavioral processes as a result of experience and the results of interactions with these environments.

In the process of teaching and learning mathematics, a student can not know the higher level without going through the basics or things that are prerequisites in the continuation of further teaching programs. To learn mathematics requires the readiness of students to accept lessons, readiness in question is intellectual maturity and learning experiences that children have so that learning outcomes are more meaningful to students.

Ruseffendi (1989: 23) states that mathematics is organized from elements that are not defined, definitions, axioms, and postulates, where the postulates after being proven to be generally valid, that's why mathematics is often called deductive science. According to Nasution that mathematics can be seen as an idea produced by mathematicians and the object of reasoning can be objects or creatures, or can be imagined in our minds. Based on the descriptions above about the notion of mathematics can be concluded that mathematics is a collection of ideas that are abstract, with deductive structures, have an essential role in the development of science and technology. According to Dienes (2010: 21) that basically mathematics can be considered as a study of structures and categorizing the relationships between structures. Peaget suggested that mathematical concepts presented in concrete form would be well understood. This implies that objects in the form of games have a very important role when it is well surpassed in mathematics learning as well as mental development, that from the initial stage to the final stage of continuous development. The stages of learning according to Dienes, there are six stages in sequence, as follows: (1) the stage of Free Play; (2) the stage of play, (3) the stage of Examining the Similarities of Nature, (4) the stage of Representation; (5) Symbolization stage; (6) Formalization stage.

Research Method

The research design used in this research was Classroom Action Research, with a recycled study consisting of four stages, namely planning, action, observation, and reflection. Based on the flow, the first thing to do is to plan the teaching and learning process, carry out the action of learning, observe the actions taken, and finally reflect on the learning outcomes so that they can do more mature planning. So the stages of activities continue every cycle.

The study was carried out at SDN 17 Kuala Mandor B, Kubu Raya Regency. SDN 17 Kuala Mandor B has six classes. The study was conducted in the even semester of the 2017/2020 school year commencing from July to September 2017. The implementation of CAR was in accordance with the lesson schedule, and the study would continue until it reached the determined indicators. The subjects of this study were even semester of V grade students at SDN 17 Kuala Mandor B in the academic year 2017/2018, with the number of students was 15 students. The research personnel consisted of V grade teachers as researchers and peers/collaborators as well as classroom teachers at SDN 17 Kuala Mandor B, Kubu Raya Regency.

The classroom action research procedure consists of two cycles. Each cycle is carried out in accordance with the changes to be achieved. The class action research cycle uses Mc Taggart's procedure, which consists of several stages, namely (1) planning, (2) implementing actions and observations, (3) evaluating activities, (4) reflection. In more detail, the stages of the research procedure can be described as follows.

The activities carried out in this plan were: (1) preparing learning units in the form of syllabi and lesson plans (RPP); (2) dividing students into three groups. Each group consists of 5 students who are grouped heterogeneously; (3) arranging students' worksheets and prepare media in the form of smart pipettes as fraction media as a trick to adding fractions and

subtracting fractions quickly; (4) compiling an evaluation tool in the form of a test sheet to assess.

In the implementation of the action was consisted of several cycles, where each cycle of activities: (1) the initial activity was greeting, praying, student attendance and preparing learning tools, then the teacher conveys indicators, learning objectives, giving apperception and motivation; (2) core activities, the teacher offered questions that have been formulated; dividing students into several groups according to the number of students to find answers to existing questions; during learning and discussion the teacher gave examples of how to demonstrate the pipette as the media in sorting fractions. Furthermore, students drew conclusions guided by the teacher and did on the questions and presented the results of the discussion in the future; (3) closing activities, where to reassign essential concepts that must be mastered by students, at the end of the cycle a test of learning outcomes was carried out to find out the learning outcomes of students on the material that has been learned and filling out the questionnaire of interest in learning.

The next stage is the observation of the evaluation process of the written test results to determine the learning outcomes of students of learning activities carried out in each cycle, for each meeting evaluation of the worksheets of students is conducted. Assessment of students' learning outcomes is obtained through a test of the ability of learning outcomes at the end of each cycle. After learning is completed in each cycle, a reflection is carried out to find out the deficiencies in the implementation phase of each cycle, so that learning can be improved for the next cycle.

The type of data used in this study was quantitative data in the form of student learning outcomes obtained from the description of the test scores during learning and teacher performance data. Data collection techniques in this study were test techniques. The test technique is carried out to obtain quantitative data about student learning outcomes. The type of test used is in the form of a formative test.

The technique used to collect data in this study was a test. Tests are a series of questions or exercises or other tools used to measure the skills, knowledge, intelligence, abilities, or talents of an individual or group. The data analysis technique used in this study was quantitative. Student learning outcomes are analyzed by determining the percentage (%) completeness of student learning outcomes. In this study, the learning completeness of students to be achieved was 75%. Then an evaluation is carried out, namely the process of giving meaning or determining the quality of the measurement results by comparing the figures of the measurement results with specific criteria. Criteria as a comparison of the process and learning outcomes can be determined before the measurement process or can also be determined after the implementation of the measurement. This criterion can be a minimum process/capability required or a success threshold. It can also be the average ability of a group's performance and various other benchmarks.

Before conducting an evaluation, it is a must to prepare a test tool in the form of questions. The test is a set of tasks that must be done or a number of questions that must be answered by students to measure the level of understanding and mastery of the scope of material required and in accordance with specific teaching objectives. The next activity is arranging questions. The test questions were in the form of essay. Learners answered the questions by explaining the fractions and their order with Pipette media.

The test instrument that was made was tested before being used, to get good validity. The test instrument was tested in V grade at SDN 17 Kuala Mandor B, Kubu Raya Regency. From the test results of the test instruments, the scores obtained will be analyzed to determine the level of success of students explaining the fractions and their order with Pipette media.

Result and Discussion

This classroom action research was conducted in V grade at SDN 17 Kuala Mandor B. This study paid attention to the development of students during the learning process using media. The learning process proves the development of student learning activities and learning outcomes.

This research was conducted in 2 cycles, where at the end of each cycle, an evaluation was conducted to measure the ability of students to master the material that was submitted by the teacher. The learning outcomes of students in the first cycle were known based on the results of the evaluation which obtained class average in the first cycle of 53.80, where two people or 13.33% of students with an average of 85 while 13 other students were incomplete with an average learning outcome of 46.08.

From this study, the score of the ability of learning outcomes of students with good category amounted to 2 students with a percentage of 13.33% the ability of students with fair category amounted to 1 student with a percentage of 6.67% and the ability of learning outcomes with poor category amounted to 12 students with a percentage of 80.00 %. Overall, the average ability of student learning outcomes in the first cycle was 53.80 with the category was not good. The percentage of learning outcomes in cycle 1 is:

Based on the action results of the first cycle of and observations did by the teacher in carrying out learning using Pipette objects media, there were still many obstacles faced by the teacher. In addition to factors from the research teacher, the management of learning is still not proper due to the students themselves, for example (1) students were not seriously paying attention to the explanations and demonstrations of the research teachers; (2) students were not familiar with the learning provided by the research teacher; (3) lack of cooperation between students in discussions used LKS, and communication; (4) in the presentations, each group had not used the media and some students were noisy or chatting with students. With the data above, the research teacher must improve learning in cycle II to activate the students during the learning process further

In cycle II, the class average of 85 indicated that classically, students had completed or reached the KKM that had been set at 75. In this cycle II, two students or 13.33% of students were not yet completed with an average of 60 and 13 students, or 86.67% of students completed with an average learning outcome of 91.53.

Data on the ability of learning outcomes obtained from this study with an average score of mathematics learning outcomes was 77.33 in the good category, the ability of student learning outcomes in good category amounted to 13 students with a percentage of 86.67%, the learning outcomes of students with fair category amounted to 2 students with a percentage of 13.33%, and the ability of learning outcomes of students with poor category was zero. The increase in learning outcomes is due to students getting used to the learning methods applied by the teacher. The frequency of students who were in the range of 65 to 100 reached a percentage of 86.67%. So that in this second cycle, the fifth-grade students of SDN 17 Kuala Mandor B have been completed, namely on the addition of fraction using pipette media.

Conclusions and Suggestions

Based on the results of research and discussion, it can be concluded that the application of Pipette media in mathematics learning can increase the average score of student learning outcomes in each cycle. In the first cycle, the learning outcomes of students 51.93 with the fair category, in the second cycle, the learning outcomes of students reached 85 with good categories.

Based on the findings and results of classroom action research, students in V grade of SDN Kuala Mandor B in Kubu Raya Regency 2017/2018 Academic Year, can be concluded as follows: (1) the application of papita media can improve student learning outcomes in mathematics on the subject matter of fraction addition; (2) the learning process explains the addition of fractions in each cycle to apply pipette media and is guided by researchers and collaborators. The results of research in the first cycle, the score of mathematics learning outcomes of students, an average of 51.93, and students who reached KKM 2 students (13.33%). In cycle II, the average score of student learning outcomes reached 85 or increased by 86.67%.

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