APPLICATION OF FRACTIONAL DOMINO MEDIA TO IMPROVE STUDENT ACTIVITIES AND LEARNING OUTCOMES IN ELEMENTARY SCHOOLS

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Abstract: This study aims to determine the implementation and improvement of 5th grade mathematics learning outcomes through the use of fractional domino media. The research method uses Action Research Classroom in two cycles with the research procedure consisting of four stages, namely: 1) planning stage, 2) implementation stage, 3) observation stage, and 4) reflection stage. The subjects in this study were 28 fifth grade students at SDN Sentul 3 Blitar City. Research data in the form of observations of student learning activities and test data on learning outcomes. From the data collected, it was obtained that the learning activities of students increased from 70.36% (good) in the first cycle to 87.50% (very good) in the second cycle. Student learning outcomes have also increased from 54% with an average 73,21 in the first cycle to 93% with an average 83,56 in the second cycle.

INTRODUCTION

As an educator teaching mathematics is an art. Teachers must use their abilities to prepare activities that foster imagination, create learning experiences, and increase resources (Yohana Setiawan, 2020). One of the mathematical concepts that are difficult to understand concretely and allow for misconceptions and verbalism is the concept of fractions. Theoretically, a fraction is a more difficult topic than integers (Laila Kodariyati & Budi Astuti, 2016).

Based on the initial study, the learning outcomes of 5th graders at SDN Sentul 3 are still low. For mathematics learning, especially the teaching of fractions addition to being active, creative, practical learning, and learning outcomes can be increased, one way

that is quite effective is through the application of a cooperative learning model with the Student Team Achievement Divisions (STAD) type (Takus et al., 2018) For fractional teaching activities to run well, it is necessary to develop good or quality open-ended card media so that students can learn and play at the same time that they can improve the creative thinking skills of elementary school students on fractional material (Amir & Wardana, 2017).

Student learning activities, especially in mathematics, can be improved, one of which is using games. In the learning process, both physical and mental activities must be interrelated (Imas Komariyah & Rostina Sundayana, 2017). Interest in learning is defined as someone interested in a lesson and will have a feeling of interest in the class. He will study hard and continue to understand all the knowledge related to the field, he will follow the lessons enthusiastically and without any burden on him (Siti Hasanah & A Sobandi, 2016).

RESEARCH METHODS

This study used Classroom Action Research (CAR) and was conducted on fifth-grade students at SDN Sentul 3 with a total of 28 students. Each cycle consists of two meetings. Each cycle includes four stages, namely the planning, implementation, observation, and reflection stages (Kemmis and Mc. Taggart in Arikunto, 2013:138.)

The instrument of data collection in this study used guidelines for observing student activities and end-of-cycle tests. Furthermore, the data were analyzed using qualitative descriptive analysis which includes the stages of reduction, presentation, and conclusion (Huberman in Sugiyono, 2015:338). The observation guide is used to observe student activities during the implementation of STAD-type cooperative learning, then the percentage of student learning activities is calculated using the formula below.

$$\text{Percentage of Student Learning Activities} = \frac{\sum score}{\sum max\ score} \text{ x } 100$$

The percentage of student learning activities is then calculated on average and analyzed into predetermined criteria. The criteria for student learning activities are written in table 1

Table 1. Student Activity Criteria (Sumber: Riduwan dan Akdon, 2009:16)

No.	Execution value	Criteria
1.	81-100	Excellent
2.	61-80	Good
3.	41-60	Average
4.	21-40	Poor
5.	0-20	Failure

After the researchers got the percentage of students' activities in participating in learning and managing learning at each meeting, the percentage was calculated on the average per cycle so that the assessment of the activities of students and educators in participating in learning and managing classes was seen from the average percentage per cycle if it reached 75%, then the activities of students and the activities of educators in managing learning are considered very good. Meanwhile, to determine and find the average student learning outcomes can be calculated by the following formula.

$$\bar{x} = \frac{\sum x}{n}$$

Description:

$\bar{x} = mean$

$\sum x = $ score

$n = $ total subject score

Based on the implementation instructions, a student is said to have achieved completeness or success if he has reached a grade level of 70. Meanwhile, a class can be said to have completed learning if in the class there are 75% of students who have achieved a score of more than equal to 70 (reference to the KKM class).

Table 2. student learning completeness criteria

Percentage	Criteria
81% - 100%	Excelent
61% - 80%	Good
41% - 60%	Average
21% - 40%	Poor
< 21%	Failure

The data from the analysis can then be presented through a table and given a discussion.

RESULTS AND DISCUSSION

This Classroom Action Research was conducted on October 1-18, 2022. The activity began with pre-cycle activities and then continued with cycle I to cycle II. Each cycle carried out 2 meetings. Each meeting is held for 3x35 minutes in class V SDN 3 Sentul. In Cycle I and Cycle 2, the teacher provides problem-based mathematics learning using domino media which requires students to carry out a series of activities together with their groups. The following are the results of increased activity and student learning outcomes.

1. Increasing Student Activities

The percentage of student activity based on observation activities in cycle I and cycle II can be seen from the following table.

Table 3. Comparison of Student Activities in First Cycle and Second Cycle

Student activity aspect	Cycle I				Cycle I Average	Cycle II				Cycle II Average
	Meeting I		Meeting II			Meeting I		Meeting II		
	Students	Percentage	Students	Percentage		Students	Percentage	Students	Percentage	
1	20	71.42%	21	75.00%	73.21%	24	85.71%	26	92.86%	89.29%

2	22	78.57%	26	92.86%	85.71%	28	100.00%	28	100.00%	100.00%
3	14	50.00%	19	67.86%	58.93%	20	71.43%	21	75.00%	73.21%
4	14	50.00%	21	75.00%	62.50%	21	75.00%	26	92.86%	83.93%
5	18	64.29%	22	78.57%	71.43%	25	89.29%	26	92.86%	91.07%
Rata-rata					70.36% (good)	Rata-rata				87.50% (excellent)

Description:
Student activities:
1 = Group discussion.
2 = Paying Attention to Teacher.
3 = Asking a question.
4 = Answering questions.
5 = Concluding the lesson.

Observations carried out by each STAD mathematics learning using domino media for fifth-grade students got good results. Based on the table, it can be explained that the average student activity in discussing with their group in the first cycle and the second cycle has increased from 73.21% to 89.29%. Student activity in paying attention to the teacher when delivering material on average in cycle I and cycle 2 has increased from 92.86% to 100%. The average student activity in asking questions in cycle I and cycle 2 has increased from 58.93% to 73.21%. The average student activity in answering questions in cycle I and cycle 2 has increased from 75% to 93.93%. The average student activity in asking questions in cycle I and cycle 2 has increased from 78.57% to 91.07%. Based on the average of each aspect, it can be concluded that the student activity data increased from 70.36% (good) in the first cycle to 87.5% (very good) in the second cycle.

From the observation of activities at the end of the cycle, students who actively discussed with their groups had reached the excellent category, students who paid attention to the teacher's explanations had reached excellent categories, students who asked questions had reached good categories, students who could answer questions had reached excellent categories. and students who concluded that learning had reached the excellent category. The results of observations explain that the learning activities of students who want to be improved in this study have reached the predetermined success indicators, at least 75% of all students. This means that student learning activities have increased.

2. Improving Student Learning Outcomes

In addition to increasing learning activities, student learning outcomes also increase. This can be seen from the score and the number of students who have completed (the score is above the KKM). The percentage of students' mathematics learning outcomes after participating in mathematics learning using domino media can be seen in the following table.

Table 4. Comparison of Student Values in Mathematics in Pre-Cycle, Cycle I and Cycle II

No	Nilai	Pre Cycle		Cycle I		Cycle II	
		Jml siswa	Persen	Jml siswa	Persen	Jml siswa	Persen
1	Tuntas	8	29%	15	54%	26	93%
2	Tidak tuntas	20	71%	13	45%	2	7%
Jumlah		28	100%	28	100%	28	100%

Based on table 4, the results of the comparison of mastery learning outcomes in mathematics can be seen an increase in the number of students who reach the KKM 75 in the mathematics lesson content, as evidenced by the initial conditions (pre-cycle) there are still many students who have not reached the KKM, then after the Cycle 1 action the number of students who reach the KKM increased to 15 students and in the second cycle the number of students who reached the KKM also increased by 26 students. Thus, learning carried out using the STAD model using domino media can improve students' mathematics learning outcomes.

Student Learning Outcomes after using the fractional domino media explained that there was an increase from first cycle and second cycle. This can be seen from the table of student learning outcomes which shows that when learning through fractional domino media increase the seriousness of student learning and also improve achievement and learning outcomes. After remedial action was taken by providing special learning to students who did not understand the material, it was recorded that the number of completeness increased to 26, classical completeness was 93%, and the class average was 83.56. Second cycle learning outcomes increased significantly, apart from improvements in the steps given, this was also due to the material being studied in second cycle not much different from the questions asked during student learning. Comparing first cycle and second cycle above and improving the actions taken, it is very clear that the actions given in the learning process have a significant impact on improving student learning outcomes, the better the results obtained.

CONCLUSIONS AND SUGGESTIONS

Based on the reflection of the first cycle and second cycle, it can be concluded that the application of fractional domino media increased student activity and learning outcomes. The activity of the fifth-grade at SDN 3 Sentul, Blitar City, in the implementation of STAD learning assisted by fractional domino media, has increased. From the data collected, it was found that student learning activities increased from 70.36% (good) in the first cycle to 87.50% (excellent) in the second cycle. Student learning outcomes also increased from 54% of students completed with an average of 73.21 in the first cycle to 93% of students completed with an average of 83.56 in the second cycle.

This research has a positive impact on learning mathematics, especially to increase students' learning activities in learning mathematics which has an impact on increasing student learning outcomes. Through fractional domino media, students can be actively and directly involved in every learning activity. This research can be an alternative learning and can be used as a reference for further research. Suggestions for the next researcher, research can be focused on the influence of fractional domino media on learning to find out how deep the understanding of the fraction concept that students have learned is.

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