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## INCREASING MATHEMATICS LEARNING OUTCOMES THROUGH COOPERATIVE MODEL TYPE TEAMS GAMES TOURNAMENT ASSISTED WITH BINGO MEDIA

Bintang Fahlia Lestari<sup>1\*</sup>, Andika Adinanda Siswoyo, S.Pd, M.Pd<sup>2</sup>, Elvina  
Octavia<sup>3</sup>, Wijining Tri Wulan Suci<sup>4</sup>, Ineke Putri Wicandara<sup>5</sup>

<sup>1,2,3,4,5</sup> Elementary School Teacher Education, Faculty of education, Universitas Trunojoyo  
Madura, East Java, Indonesia

correspondence e-mail: : [190611100241@student.trunojoyo.ac.id](mailto:190611100241@student.trunojoyo.ac.id),  
[andika.siswoyo@trunojoyo.ac.id](mailto:andika.siswoyo@trunojoyo.ac.id), [190611100244@student.trunojoyo.ac.id](mailto:190611100244@student.trunojoyo.ac.id),  
[190611100247@student.trunojoyo.ac.id](mailto:190611100247@student.trunojoyo.ac.id), [190611100271@student.trunojoyo.ac.id](mailto:190611100271@student.trunojoyo.ac.id)

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### ABSTRACT

*One way to improve students understanding of mathematics is to present mathematics learning in the form of games. The purpose of this study was to determine the increase in mathematics learning outcomes for third grade students at SDN Kedung Peluk 1 due to the application of the TGT type cooperative learning model with bingo media. The data in the study were collected using observation, interview, documentation and test techniques. The research was conducted in 2 cycles with reflection in each cycle. Based on the analysis of the data obtained, the third grade students of SDN Kedung Peluk 1 experienced an increase from cycle 1 to cycle 2. In cycle 1 students obtained an average score of 68, while in cycle 2 obtained an average score of 90. When carrying out learning observations carried out by observer, which proves that the team games tournament (TGT) cooperative learning model is very well applied in learning, so that students experience an increase in learning outcomes and are expected to be used as references for the next teaching and learning process. Thus, it can be concluded that the team games tournament (TGT) cooperative learning model assisted by bingo media is effectively applied during the teaching and learning process.*

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## **A. Introduction**

Many people consider mathematics to be the most difficult subject (Kholil & Sulfiani, 2020). Even so, everyone should learn it. This is because mathematics is a global science that is always there and needed in other sciences as well as a way to solve problems in everyday life (Rahmah, 2013). Actually, there are many factors that cause concepts in mathematics to be difficult for students to understand, one of which is students' bad perception of mathematics before they even learn it, causing anxiety, lack of motivation to learn and getting bored easily (Siregar, 2017). Another factor is the lack of practice questions and the absence of learning media that are able to make mathematical concepts more concrete and fun that are different to the maximum to improve student learning (Amir, 2016). Therefore, the teacher must provide mathematics learning that is more fun and meaningful, and motivates students to do a lot of practice questions.

Since the past, the process of learning mathematics in class is almost always carried out in the usual way with the order of presentation: (1) theory/definition/theorem is taught by announcement, (2) given examples, and discussed, then (3) practice is given questions. This is also a contributing factor, the quality of education in Indonesia, especially in mathematics is still low. Another thing that causes difficulties in learning mathematics is that mathematics is often presented as an abstract science because mathematics is related to abstract things. To understand and like abstract mathematics, the learning process of mathematics, especially the subject of the concept of arithmetic operations, must be delivered in a meaningful and interesting way, while at the same time it must show the benefits of mathematics in solving various problems in life (Gazali, 2016).

In mathematics learning, students are expected to have good mathematical skills, especially for each core skill identified in the mathematics curriculum. The success of students in learning mathematics will bring changes in students' thinking and behavior changes. The success of students in mastering mathematics topics can be seen from the Mathematics Learning Outcomes. Students are said to be successful if their mathematical results are good. The Minimum Completeness Criteria (KKM) for mathematics subjects have been determined by each school. On the other hand, if a student receives a grade lower than the specified standard for completeness, the student cannot be said to be successful in mathematics.

Learning mathematics in the classroom often prioritizes giving explanations. Such learning gives rise to a passive and undemocratic learning model, because the teacher has an important role. To fulfill this, teachers must be able to take useful alternative steps to improve student achievement in the acquisition of mathematics learning. Teachers should strive to create a student-centered learning process. In other words, teachers can adopt learning strategies that treat students as active learning objects, while teachers only act as facilitators. In addition, in the learning process, teachers must also create a pleasant learning atmosphere for interaction between teachers and students.

The results of initial observations conducted at the Kedung Peluk 1 State Elementary School, there are the following symptoms: 1) Students tend to be bored in participating in Mathematics lessons, 2) students' lack of curiosity about the lessons delivered by the teacher in class, and 3) during learning the teacher tends to explain the material, give examples of questions and give exercises in a monotonous way.

Based on these symptoms, it is necessary to make improvements and updates in learning activities. It is necessary to adopt a learning model that can activate students directly in general, giving students the opportunity to develop their full potential. At the same time, develop personality aspects such as cooperation, responsibility and discipline. One of the fun models to support learning is to use a collaborative learning model such as the Team Games Tournament (TGT) group or it can also be interpreted as an inter-team tournament or a match between teams, because there are elements of the game, character understanding, situation, participation and self-actualization. in discovering one's own talents and potential.

Cooperative learning is a learning method by conditioning students to work together so that the success achieved is not an individual success that is competitive, but a mutual success that is mutually helpful and complementary. Thus, cooperative learning allows opportunities for the growth of a social spirit and positive behavior from within students (Ali, 2021). In addition, through cooperative learning, students will have the opportunity to work with other students on structured tasks. Thanks to cooperative learning too, a student becomes a source of learning for his friends. There are several learning models that are classified as cooperative learning, one of which is the Team Game Tournament (Rahmawati, 2018).

Team Game Tournament is a type of cooperative learning that places students in study groups consisting of 5-6 students with different abilities, gender, and syllables or segments (Astuti, 2013). The teacher provides support for students to work in their own groups. In group work, the teacher distributes worksheets to each group and group members do the assigned tasks. If one member of the group does not understand the assigned task, it is the responsibility of the other group members to provide answers or explain them, before asking questions to the teacher.

The Team Game Tournament (TGT) cooperative learning model is a type or model of cooperative learning that is easy to adopt, involves the activities of all students, regardless of status, relative to the role of students as fellow tutors and contains elements of play and reinforcement (Widhiastuti, 2014). Students work on the activity sheet as a group to master the topic. Students play slots academic games seamlessly with three-player tournament tables. The score of each team is calculated based on the performance points of the members, and the team will be recognized if they successfully pass the predetermined criteria

One of the mathematics learning strategies that are considered appropriate for problem solving is the application of learning with the game method. As has been proven by (Dwirahayu & Nursida, 2016) from their research that learning presented in the form of games can improve students' numeracy skills. When applying the game method, students must participate actively, not only some students but all students witness the learning. In addition, good communication is established between students and other students as well as with the teacher so that the message conveyed by the teacher is the same as the message conveyed by the students. One, the type of game method is the bingo game method.

Bingo is a teacher's attempt to solve problems that arise in the classroom. The problem solving ability of students through bingo shows that students with high abilities, students with average abilities, or students with low abilities can all improve academic achievement. In addition, learning with bingo can also increase student enthusiasm and activity. Student learning outcomes can be seen from the test results before bingo and after bingo (Setiawan, 2018).

The study describes the role of mathematical bingo as a background for elementary school students to understand the concept of Fraction Counting Operations, as well as the student's learning process that develops from playing activities into figurative, meaningful and interesting activities. This game is in the

form of a numbered board, students who solve problems correctly in horizontal, vertical or diagonal rows will get points, which will affect the group's score. By playing, students are easier to learn and more motivated. In addition, with this method, it is hoped that the learning process can create conditions for students to work together, tolerate each other, respect each other, control emotions, communicate and be creative in learning, practice to make it easier to master mathematics.

Based on the description that has been stated above, the researcher wishes to conduct a study with the title "Efforts to Improve Thematic Learning Outcomes of Fractional Mathematics Content Through Cooperative Learning Models of Team Games Tournament (TGT) Type, Game Methods Assisted by Bingo Media in class III at SDN Kedung Peluk 1.

## **B. Method**

The subjects of the research were third grade students of SDN Kedung Peluk 1 Candi sub-district, Sidoarjo district with a total of 21 students and Ms. Nuna as third grade guardian. The research was conducted on third grade students of SDN Kedung Peluk 1, Candi sub-district, Sidoarjo district which is the place where the research was conducted. The research was conducted in 2 cycles, with the implementation of each cycle 1 meeting. This research is a classroom action research which was conducted 2 times. In this study, there are 4 stages, namely: activity planning, implementation, observation and reflection. Qualitative data collection techniques were taken from data from observation sheets, tests, documentation and interview guidelines in order to obtain data about the situation during the teaching and learning process and quantitative data obtained from the results of evaluation tests on students in each cycle. Sources of research data came from observers, teachers and third grade students at SDN Kedung Peluk 1 Candi.

## **C. Result and Discussion**

### **Cycle 1**

The results of the study from the observation sheet on students when carrying out cycle 1 obtained data that, at the preliminary stage students paid attention to the teacher's explanation, expressed opinions and answered the teacher's questions, asked things that were not clear, paid attention to the

explanation of the material, recorded material, submitted opinions or answered questions. the teacher, asking things that are not clear, answering the teacher's questions, responding to the teacher's explanations, expressing opinions or reasons, commenting on the opinions of friends. However, students did not record the learning objectives. At the core stage, students are willing to become members, accept the existence of the group, are willing to work together, are familiar with the group, pay attention to the explanation of group assignments, ask questions that have not been understood, divide tasks according to agreement, divide tasks in turns, read individually, try to understand worksheets. , ask the teacher when they don't understand, carry out individual tasks, carry out group assignments, complete worksheets, be active in groups, guide and respect friends who have medium and low knowledge, encourage each other to work with friends who have medium and low knowledge, guide each other friends and respect the group, help build the spirit of group cooperation and at the closing stage students ask if something is not clear, answer the teacher's questions, appreciate the answers of friends to the teacher's statement and students complete the answers of friends.

The results of the research from the interview guide with Nuna's mother as a third grade homeroom teacher when carrying out cycle 1 obtained data that, during the learning process in class, students could only focus for approximately 30 minutes. The rest, students follow the lesson with a lot of people, walking around so that the class is not conducive. The methods during the learning process so far are: lectures, question and answer, assignments and occasionally use the media to help make it easier to convey the material. During the thematic learning process, mathematics content does not always use media. Sometimes also use learning media during the teaching and learning process, because it depends on the material to be delivered. Obstacles in the teaching and learning process of thematic content of mathematics, namely the lack of enthusiasm of students in learning and students find it difficult to complete their tasks. The solution to overcome obstacles in the classroom during the thematic teaching and learning process for mathematics is to encourage students to continue learning, answer students' questions clearly, invite students to study in groups and use the media occasionally. The teaching and learning process so that students do not get bored easily, that is, sometimes by forming groups, so that students can complete them together with their members. Thus, students are not easily bored and find it difficult

to do assignments, the facilities and infrastructure at school are adequate for the teaching and learning process.

Student learning outcomes in the thematic content of fractions material assisted by bingo media are as follows:

**Table 1.** Student Learning Outcomes in Cycle I

| No                           | Criteria Completeness | Group   | Total Student | Score | Total Score |
|------------------------------|-----------------------|---------|---------------|-------|-------------|
| 1.                           | Complete              | Group 1 | 5 Students    | 75    | 425         |
|                              |                       | Group 2 | 6 Students    | 80    | 510         |
| 2.                           | Not Complete          | Group 3 | 5 Students    | 55    | 375         |
|                              |                       | Group 4 | 5 Students    | 60    | 300         |
| Total Score                  |                       |         |               |       | 1.430       |
| Average                      |                       |         |               |       | 68          |
| Number of Completed Students |                       |         |               |       | 11          |

When the implementation of the first cycle of action almost reached the expected provisions according to the planning, namely the implementation of solutions to the problems that had been found using a team games tournament (TGT) cooperative learning model with the help of bingo media. Then, in the planning of cycle 2 activities, it fills the shortcomings of cycle 1, namely in applying models and media during learning.

## Cycle 2

The following are the results of the research from the interview guide with Mrs. Nuna as the third grade homeroom teacher when carrying out cycle 1 to obtain data that, during the learning process in class, students can only focus for approximately 30 minutes. The rest, students follow the lesson with a lot of people, walking around so that the class is not conducive. The methods during the learning process so far are: lectures, question and answer, assignments and occasionally use the media to help make it easier to convey the material. During the thematic learning process, mathematics content does not always use media. Sometimes also use learning media during the teaching and learning process, because it depends on the material to be delivered. Obstacles in the teaching and learning process of thematic content of mathematics, namely the lack of enthusiasm of students in learning and students find it difficult to complete their tasks. The solution to overcome obstacles in the classroom during the thematic teaching and learning process for mathematics is to encourage students to continue learning, answer students' questions clearly, invite students to study in groups and use the media occasionally. The teaching and learning process so that students do not get bored easily, that is, sometimes by forming groups, so that students can complete

them together with their members. Thus, students are not easily bored and find it difficult to do assignments, the facilities and infrastructure at school are adequate for the teaching and learning process.

Student learning outcomes in the thematic content of fractions material assisted by bingo media are as follows:

**Table 2.** Student Learning Outcomes in Cycle II

| No                           | Criteria Completeness | Group   | Total Student | Score | Total Score |
|------------------------------|-----------------------|---------|---------------|-------|-------------|
| 1.                           | Complete              | Group 1 | 5 Students    | 95    | 475         |
|                              |                       | Group 2 | 5 Students    | 90    | 450         |
|                              |                       | Group 3 | 6 Students    | 85    | 510         |
|                              |                       | Group 4 | 5 Students    | 90    | 450         |
| Total Score                  |                       |         |               |       | 1.885       |
| Average                      |                       |         |               |       | 90          |
| Number of Completed Students |                       |         |               |       | 21          |

Student learning outcomes in cycle 2 have increased from cycle 1 which has been done. In cycle 2. Furthermore, the shortcomings in cycle 1 can be anticipated in cycle 2. So that the thematic learning of the mathematics content of fractions with a cooperative learning model of learning the type of teams games tournament (TGT) assisted by bingo media in class III SDN Kedung Peluk 1 can be applied by good, for that it takes the spirit and understanding of the teacher so that the teaching and learning process gets satisfactory results.

Self-study outcomes according to (Sahidin & Jamil, 2013) are a measure of the level of success of students after undergoing the learning process, to reveal the results the teacher or supervisor uses an assessment tool or test which is really expected to detect how big the level of student mastery of the lesson is. has been given. So, learning outcomes can be obtained after students receive the learning experience.

Based on the description above, learning outcomes are used to measure the level of understanding of a student, which can be measured based on the criteria set by the teacher. The learning outcomes shown to students are with better behavior than before the learning activities took place continuously. This classroom action research was conducted to improve student learning outcomes in Class III SDN Kedung Peluk 1 by adding mathematics subject matter repeatedly. Based on the results of data analysis in cycle 1 to cycle 2, it can be seen that learning outcomes increase and students get scores above the KKM.

**Table 3.** Summary of Test Results in cycles I and II

| No. | Description | Cycle 1 | Cycle 2 |
|-----|-------------|---------|---------|
| 1   | Low Score   | 55      | 85      |

|   |                                  |    |    |
|---|----------------------------------|----|----|
| 2 | High Score                       | 80 | 95 |
| 3 | Number of students who completed | 11 | 21 |
| 4 | Average                          | 68 | 90 |

After seeing the table above, the test results of the students of SDN Kedung Peluk 1 class experienced an increase in the thematic learning outcomes of the mathematics content of fractions.

#### **D. Conclusion**

Based on the results of classroom action research that has been carried out in class III at SDN Kedung Peluk 1 using two cycles using the Teams games tournament (TGT) type of cooperative learning model, assisted by bingo media on the thematic content of mathematics fractions mathematics can improve student learning outcomes. In learning activities with the Teams Games Tournament (TGT) type of cooperative learning model, the teacher must be able to make the classroom atmosphere conducive and manage the time allocation so that learning becomes effective and efficient. In the results of research and discussion, students experienced an increase in the average value from 68 to an average value of 90. From the results of the data obtained during carrying out the research, it can be concluded that the use of cooperative learning model type team games tournament (TGT) assisted by bingo media can improve student learning outcomes.

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