



Application of the Teams Games Tournament Learning Model Based on the Number Monopoly Game in Improving Elementary School Students' Mathematical Understanding

Penerapan Model Pembelajaran Teams Games Tournament Berbasis Permainan Monopoli Bilangan dalam Meningkatkan Pemahaman Matematika Siswa Sekolah Dasar

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Abstract

This research aims to improve mathematics learning outcomes on statistics and data in class V at Inpres Durian Elementary School by implementing the Teams Games Tournament learning model assisted by the number monopoly game. This research uses the classroom action research method, with four stages: planning, implementation, observation and reflection. This research consists of two cycles, each consisting of 8 meetings for teaching and learning activities and one meeting for learning outcomes tests. The subjects of this research were 18 class V students at Inpres Durian Elementary School. The data collection techniques used are tests of student learning outcomes, observation of student and teacher activities and documentation. The results of this research show that the application of the Teams Games Tournament learning model assisted by the number monopoly game on the subject of statistics and data can improve the learning outcomes of class V students at SD Inpres Durian from a pre-cycle average score of 48.33 to 72.22 in cycle I and 85.55 in cycle II. In addition, classical learning completeness in the pre-cycle was 15.78%, increasing to 66.67% in cycle I and 88.88% in cycle II. The results of observing teacher activities in cycle I were very good and continued to persist in cycle II. Meanwhile, the results of observations of student activities increased from the adequate category in cycle I to very good in cycle II. Referring to the research success indicators, which set a KKM of 70 and a classical completion score of 85% in the good category, it can be concluded that implementing the Teams Games Tournament learning model assisted by the number monopoly game in class V at Inpres Durian Elementary School can improve learning outcomes in the mathematics subject.

Keywords: Teams Games Tournament, Monopoly Game, Mathematics Learning.

Abstrak

Penelitian ini bertujuan meningkatkan hasil belajar matematika pada pokok bahasan statistika dan data pada kelas V di SD Inpres Durian dengan menerapkan model pembelajaran Teams Games Tournament berbantuan permainan monopoli bilangan. Penelitian ini menggunakan metode penelitian tindakan kelas, dengan 4 tahapan, yaitu perencanaan, pelaksanaan, pengamatan, dan refleksi. Penelitian ini terdiri dari dua siklus dan setiap siklus terdiri dari 8 kali pertemuan untuk kegiatan belajar mengajar dan satu pertemuan untuk tes hasil belajar. Subjek penelitian ini adalah peserta didik kelas V SD Inpres Durian yang berjumlah 18 orang. Teknik pengumpulan data yang digunakan yaitu tes hasil belajar peserta didik, observasi aktivitas peserta didik dan guru serta dokumentasi. Hasil penelitian ini menunjukkan bahwa penerapan model pembelajaran Teams Games Tournament berbantuan permainan monopoli bilangan pada pokok bahasan statistika dan data dapat meningkatkan hasil belajar peserta didik kelas V SD Inpres Durian dari nilai rata-rata pra siklus sebesar 48,33 menjadi 72,22 pada siklus I dan 85,55 pada siklus II. Selain itu, ketuntasan belajar secara klasikal pada pra siklus sebesar 15,78% meningkat menjadi 66,67% pada siklus I dan 88,88% pada siklus II. Hasil observasi aktivitas guru pada siklus I telah berada pada kategori yang sangat baik dan terus bertahan pada siklus II. Sementara itu, hasil observasi aktivitas siswa meningkat dari kategori cukup pada siklus I menjadi sangat baik pada siklus II. Mengacu pada indikator keberhasilan penelitian, yang menetapkan KKM sebesar 70 dan nilai ketuntasan klasikal sebesar 85% dengan kategori baik, maka dapat disimpulkan bahwa dalam menerapkan model pembelajaran Teams Games Tournament berbantuan permainan monopoli bilangan pada kelas V SD Inpres Durian dapat meningkatkan hasil belajar pada mata pelajaran matematika.

Kata Kunci: Teams Games Tournament, Permainan Monopoli Bilangan, Pembelajaran Matematika

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INTRODUCTION

One of the subjects that students in elementary school must master is mathematics. Learning mathematics has always been considered problematic by some students because this lesson requires a lot of memorization and understanding of formulas and rules, so students become lazy in learning or feel unhappy with learning mathematics, which ultimately affects the achievement of their learning outcomes (Krisdiana, Apriandi, & Setyansah, 2014; Permatasari, 2021).

Learning models are fundamental to improving students' mathematics learning outcomes. A learning model is a plan or pattern used to guide classroom learning or learning in tutorials and determining learning tools. The process of mathematics learning activities, of course, requires the ability of teachers or educators to implement effective and innovative learning models that are fun and attract students' attention to learning (Salsabila, Habiba, Amanah, Istiqomah, & Difany, 2020).

The results of the researcher's observations in class V of Inpres Durian Elementary School showed that the learning carried out so far seemed monotonous using a direct learning model. The application of the direct learning model relies only on learning in the form of lectures, questions and answers, and assignments, which are still limited to material books. Besides that, teachers are still participating in innovative mathematics learning workshops. This phenomenon ultimately influences the low learning outcomes of students with a Minimum Completeness Criteria (KKM) score of 65 below standard. Monotonous learning models make students feel bored and unmotivated to participate in learning. Learning activities become less exciting and uninteresting. This is because students are not actively involved in learning activities.

From the researchers' analysis, one innovative and exciting learning model to improve student learning outcomes is the Team Games Tournament (TGT) learning

model. The TGT learning model is a learning model that uses academic tournaments, quizzes and a progress score system, where students compete as representatives of their team with members of other teams. Assessment is based on the total scores obtained by the group (Al-Tabany, 2017). The choice of the TGT learning model is, of course, arbitrary. The first reason the researcher chose the TGT learning model was because the researcher observed that elementary school-age children aged 6 to 12 years preferred to learn while playing. After all, when learning and playing, students can hone their cognitive, thinking, and argumentative abilities in solving problems or answering questions found in learning. Second, researchers chose the TGT learning model because the advantages of this learning model are that it can make students with low abilities active and have an essential role in their group. Students become more enthusiastic because educators will give awards to the best groups, and in-game activities make Students happier when participating in learning activities.

The TGT learning model will collaborate with game-based learning media in this research. The TGT learning model in the third and fourth stages is the stage of playing games and tournaments so that researchers choose a game that is interesting and liked by students. The Monopoly game is one of the children's games that can be applied to mathematics learning because the Monopoly game can be a game that contains mathematics lessons so that students can play while learning mathematics (Wicaksono, Wahyuno, & Kustiawan, 2016). So the researcher chose the number monopoly game because remembering that this monopoly game is a game that children often play, it is easy to implement in the third and fourth stages in the game-based TGT learning model and is also easy to implement in mathematics learning. Combining the TGT learning model with the Monopoly game in statistics and data material in elementary schools is expected to create a fun and meaningful learning experience, increasing students' motivation, involvement and understanding of statistical and data concepts.

Several previous researchers have studied the impact of using the TGT learning model with the help of the number monopoly game. With their research findings, Sakundari and Rizqi (2024) explain that using the monopoly-assisted TGT learning model effectively improves students' numeracy and collaboration skills. Subsequent research by Aftiani, Mandasari, and Rosalina (2023) found that applying a cooperative learning model assisted by monopoly media could significantly increase elementary school

student's understanding of social studies. A study by Agustin, Yuniasih, and Wahyuningtyas (2021) found that TGT learning with monopoly assistance significantly improved online learning outcomes. From various previous studies, the use of TGT learning with the help of monopoly has been proven to increase students' understanding of various aspects, but the amount is still limited, especially in efforts to improve students' mathematics learning outcomes. Thus, this research seeks to examine using the TGT learning model with monopoly assistance to overcome low student learning outcomes.

The low level of student mathematics performance based on observation results and the lack of previous research regarding the impact of implementing the TGT learning model with the help of monopoly games on students' mathematics learning outcomes prompted the exploration of this research in a classroom action research design. This research aims to explore applying the Teams Games Tournament (TGT) learning model with the help of the number monopoly game to improve student learning outcomes at SD Inpres Durian. This research will help teachers to apply innovative learning models to improve learning outcomes in the classroom.

RESEARCH METHODS

This research uses classroom action research. Classroom Action Research is research carried out collaboratively between teachers and researchers in the class to determine the consequences of actions applied to a research subject. Classroom Action Research is carried out through stages known as cycles. Each cycle in Classroom Action Research is divided into four stages: planning, action, observation and reflection (Kemmis & McTaggart, 1988).

This classroom action research will be carried out in two cycles, each consisting of seven meetings for teaching and learning activities and one meeting for conducting tests in cycles I and II. In this pre-cycle, the researcher, with the teacher, will carry out several activities, including 1) communicating with the class teacher regarding the implementation of the research, 2) explaining to class V students the aims and objectives of the research that the researcher will carry out, 3) conducting a pre-cycle test to see the learning results from students before applying the Teams Games Tournament (TGT) learning model assisted by the monopoly game (Figure I).



Figure I. Monopoly Game Design

In cycle I, the research followed Kemmis and McTaggart's steps, starting with planning activities. In the planning activity, the researcher started by determining the material that would be taught during the research; then, the researcher designed the Number of Monopoly game media. Then, prepare a Lesson Plan composed of ten numbered objective questions for the first cycle test. Finally, an observation sheet of teacher and student activities in the learning process should be made. At the implementation stage, researchers and teachers carried out learning activities using the TGT learning model assisted by the Monopoly game. The main essence of the learning design of this research is that each group holds a tournament in the number Monopoly game and answers the questions in the Monopoly game plot. At the observation stage, this observation stage is carried out simultaneously with the implementation stage. At this stage, observations are made of the learning process using the TGT learning model with the help of the number monopoly game using an observation sheet. Observation sheets are prepared to observe student and teacher activities in the learning process. Finally, at the reflection stage, the results obtained at the observation stage are analyzed based on achievement indicators. If this is not achieved, it will be continued in the next cycle by improving at the planning stage.

If continued in Cycle II, it will focus on perfecting actions based on the results of Cycle I. In addition, at the planning stage, actions are carried out based on data and reflections from cycle I to be more focused and based on experience. Lastly, the development and improvement stage optimizes the results achieved in the previous cycle. An illustration of the research procedure can be seen in Figure 2.

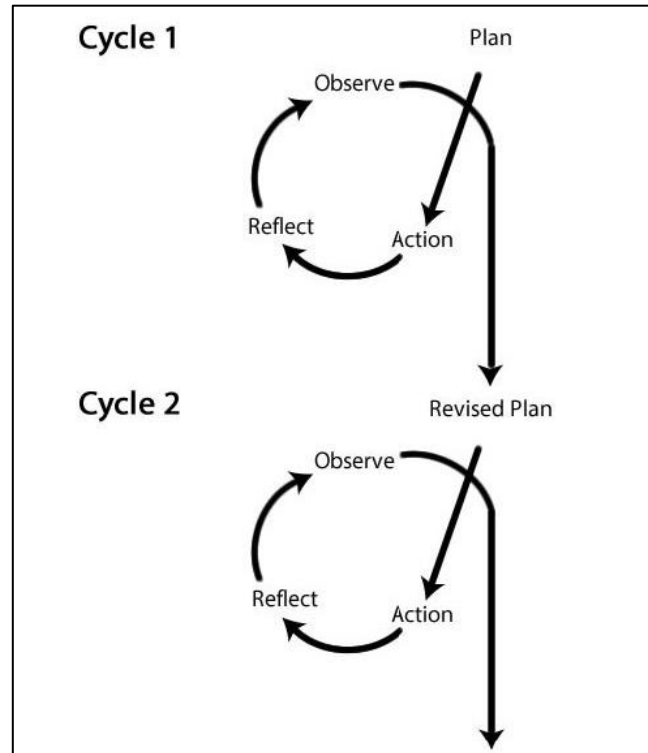


Figure 2. Research Procedure

The data collection techniques used in this research were learning outcomes tests at the end of cycle I and cycle II and observation of teacher and student activities. Data on student learning outcomes in class V can be collected using a learning outcomes test instrument in the form of objective questions (multiple choice) consisting of 10 questions in each cycle. Teacher and student activity data was obtained at the observation stage using teacher and student activity observation sheets, which were prepared based on teacher and student activity indicators with four assessment criteria, namely four choices. Score 1 is poor, 2 is sufficient, three is good, and four is very good.

Observation data will be analyzed using criteria for the success of teacher and student activities by determining the average value, which is calculated using a formula:

$$\text{Average value} = \frac{\sum \text{the sum of all students' grades}}{\sum \text{Number of students}} \times 100\%$$

$$\text{Presentation of each aspect} = \frac{\sum \text{completed students}}{\sum \text{Number of students}} \times 100\%$$

$$\text{Level of success} = \frac{\sum \text{score obtained}}{\sum \text{assessment aspect}} \times 100\%.$$

Meanwhile, student learning outcomes scores from cycle I and cycle II were analyzed by counting the Number of questions answered correctly. Student scores are obtained using a formula:

$$S = \frac{B}{N} \times 100 \text{ (Range 0 – 100)}$$

Explanation :

B = Number of correct answers

N = Number of Questions

To find the average student score, the researcher added all the student scores ($\sum x$) in the class and then divided them by the Number of students (n). This average value is obtained using a formula:

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

Explanation :

$\bar{X}$ = Average Value

$\sum x$ = Total Score

n = Number of Subjects

To calculate the Percentage of classical student learning completeness, use the following formula:

$$P = \frac{\sum \text{students who have finished learning}}{\sum \text{number of students}} \times 100\%$$

Explanation:

P = Percentage of learning completeness

The application of the Times Games Tournaments (TGT) learning model assisted by the number monopoly game in mathematics subjects in class V of SD Inpres Durian is said to be successful in improving students' learning outcomes if they meet learning completeness in the good category with a Minimum Completeness Criteria score of 70. On the other hand, classical completeness is met. If the Percentage of classical learning reaches a minimum of 85%, it is in the good category.

RESULTS AND DISCUSSION

Research result

Pre Cycle Results

The results of this pre-cycle were obtained by the researcher conducting an initial test (pre-test) to determine the results of mathematics learning at the beginning of the meeting before carrying out cycle I. The results of the pre-cycle showed that only three students, or only 17% (Figure 3) of the students, achieved learning mastery with an average score of 48.33; this result is still in the very low category. Fifteen students have

not achieved learning completeness. Referring to the results of the researcher's observations, this is due to several factors, including 1) students are not enthusiastic about learning mathematics, which is characterized by not paying attention to the teacher's explanations 2) the learning model used is only centred on the lecture method teacher and without the use of learning media.

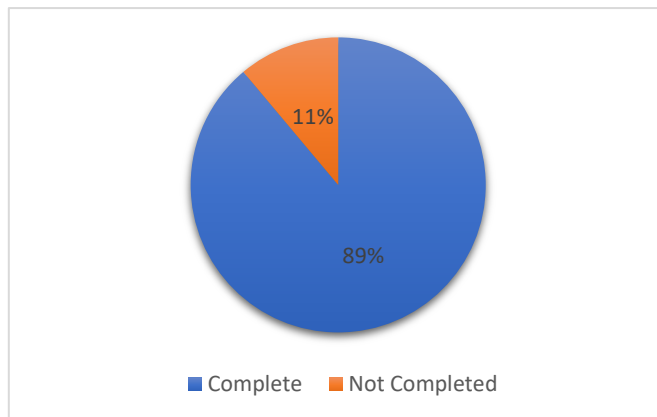


Figure 3. Pre-Cycle Student Learning Results

Cycle I results

In cycle I, student learning results showed that only 12 (66.67%) students (Figure 4) achieved learning completeness with an average score of 72.22. The results indicate that the implementation of cycle I has not met the desired completion target. The results of observing teacher activities in learning are in the good and very good categories. Maximum assessment, especially in conveying the learning objectives to be achieved, forming study groups and giving prizes to groups that get high scores. This means that these aspects have been running effectively and will continue to be maintained by teachers and researchers in the next cycle. However, the results of student activity observations were only in the sufficient category. Aspects of student assessment are low in attention in participating in learning and activeness in responding to teacher questions. This becomes material for reflection that requires handling in cycle II.

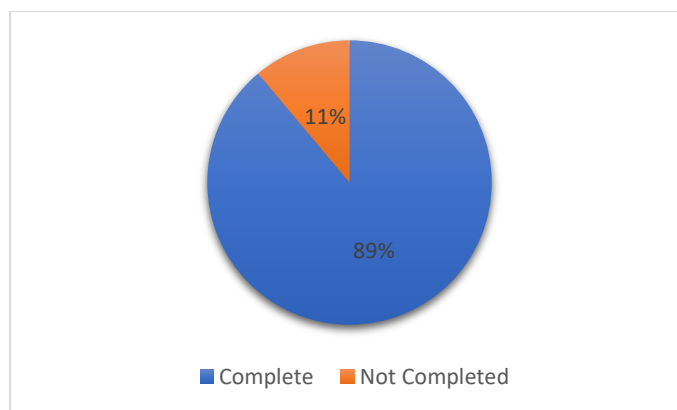


Figure 4. Cycle I Student Learning Results

Cycle II Results

The results of the learning outcomes test in cycle II showed that 16 (88.88%) (Figure 5) students had achieved completeness, so two remaining students had not achieved learning completeness with an average score of 85.55. This means that using the TGT learning model with the help of the number monopoly game can be said to be successful. In cycle II, researchers emphasize explaining the steps and rules of the Monopoly game in more detail so that students' understanding is better and group cooperation is increased in solving the problems given. In the results of observations of teacher activities in implementing learning, all observation items were in the very good category so that each learning component activity ran smoothly and as expected. Meanwhile, according to the results of student observations, what was previously in the moderate category improved to become very good. Students become more active in learning and answer teacher questions well.

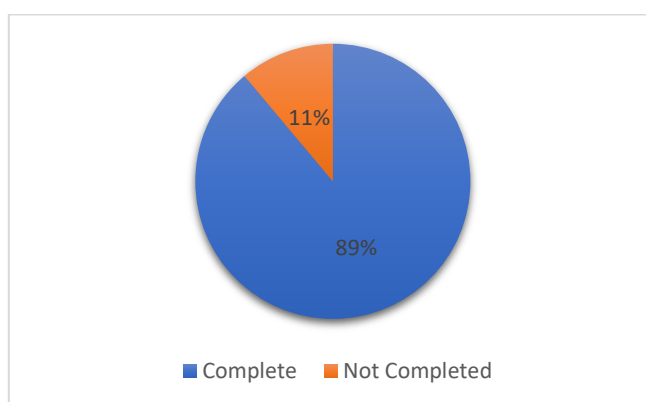


Figure 5. Cycle II Learning Results

Discussion

The findings of this research show that applying the TGT learning model with the help of the number monopoly game in class V of SD Inpres Durian can improve students'

mathematics learning outcomes. This aligns with previous research conducted by Aftiani, Mandasari, and Rosalina (2023), which explained that implementing the TGT-type cooperative learning model assisted by monopoly media was in the significantly complete category. Using this experimental research type, student learning completion reaches 95%. Even though this research focuses on different subjects in social studies lessons, effective student learning outcomes can explain the potential of TGT learning assisted by monopoly games in improving student learning outcomes.

Research conducted by Sakundari and Rizqi (2024) explains that using the monopoly-assisted TGT learning model is adequate for numeracy and collaboration skills. This study explains the factors that influence the success of using the monopoly-assisted Team Games Tournament (TGT) learning model in learning, namely helping and making it easier for students to work on the questions given because students learn by working together. In addition, because students can more easily interact with their peers during learning activities, it makes them more active, which creates a pleasant learning atmosphere and makes it easier for students to accept lessons.

Several factors may contribute to the role of the TGT learning model with the help of the number monopoly game in improving students' mathematics learning outcomes, namely 1) this learning model encourages increased student learning motivation (Sulistyo, 2016). The number monopoly game makes the learning process more fun and exciting. Students tend to be more motivated to participate when they enjoy the activities they are doing. Additionally, competition in TGT can encourage students to try harder to understand the material to win the game; 2) The TGT learning model increases student involvement and active participation (Sudimahayasa, 2015). By being directly involved in the game, students become active participants in learning, not just passive recipients of information. Likewise, each team member has a responsibility to contribute, which encourages each student's involvement in the learning process; 3) learning with games will encourage students to be more active, making it easier for them to understand the lesson material (Tunggali, Kadir, & Asma, 2023) and can increase students' learning motivation (Capinding, 2021).

CONCLUSION

This research uses a classroom action research approach to apply the TGT learning model with the help of a monopoly to improve students' mathematics learning outcomes. Student learning completion continues to increase from 17% in the pre-cycle to 66.67% in the first cycle and 88.88% in the second cycle. This means that the TGT learning model assisted by the number monopoly game in class V of Inpres Durian Elementary School has improved students' mathematics learning outcomes, which refer to indicators of research success. The findings of this research can help teachers make the TGT learning model with the help of the number monopoly game as reference material in implementing innovative learning models.

Future research can test the application of the TGT learning model with the help of the number monopoly on other materials in elementary school mathematics. This research only focuses on statistics and data, while other material that may be more complicated, such as geometry, requires an innovative, game-based learning approach to improve students' mathematical understanding.

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