

TEAM GAMES TOURNAMENT (TGT) TYPE COOPERATIVE LEARNING MODEL USING SNAKES AND LADDERS MEDIA TO IMPROVE MATHEMATICS LEARNING OUTCOMES OF GRADE IV STUDENTS OF MI DARUSSALAM

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Abstract: Low mathematics learning outcomes among elementary school students are often caused by limited student engagement and the use of less interactive learning models. To overcome this issue, cooperative and game-based learning approaches are needed. This study aims to examine the effectiveness of the Team Games Tournament (TGT) cooperative learning model assisted by snakes and ladders media in improving the mathematics learning outcomes of fourth-grade students. This research employed Classroom Action Research (CAR) conducted at MI Darussalam Lubuklinggau with 28 fourth-grade students. The study was carried out in two cycles, each consisting of planning, action, observation, and reflection stages. Data were collected through tests, observations, and documentation, and analyzed using descriptive quantitative techniques. The results showed a significant improvement in students' mathematics learning outcomes. The average score increased from 60 in Cycle I to 77.28 in Cycle II, along with an increase in learning mastery. These findings indicate that the TGT model supported by snakes and ladders media effectively enhances students' mathematics learning outcomes. This study recommends the use of game-based cooperative learning models in elementary mathematics instruction and suggests further research on different materials or grade levels.

Keywords: Team Games Tournament, cooperative learning, snakes and ladders media, mathematics learning outcomes

INTRODUCTION

Education is a process that not only develops students' basic intellectual skills such as reading, writing, and arithmetic, but also fosters their intellectual, social, and personal abilities optimally (Hidayat, 2019). Mathematics, as a fundamental subject in elementary education, plays an important role in developing students' logical, analytical, and reasoning abilities. It also helps students understand mathematical concepts that are applicable in everyday life (Yohanes, 2020). Strong mathematical skills are essential for students to face future challenges both in daily life and at higher levels of education.

However, in practice, many elementary school students still experience difficulties in understanding mathematical concepts, which results in low learning outcomes. This condition challenges teachers to continuously seek effective and innovative learning models that can actively involve students and improve their mathematics achievement. According to Erman Suherman (Rachmani, 2022), mathematics instruction should employ strategies, approaches, and methods that actively engage students mentally, physically, and socially to achieve optimal learning outcomes.

Based on observations conducted on May 19, 2025, at MI Darussalam Lubuklinggau, mathematics learning was still dominated by monotonous and less interactive teaching methods. As a result, students became bored, showed low interest in learning, and had difficulty understanding mathematical concepts. Interviews with the fourth-grade teacher revealed that many students struggled with topics such as integers, fractions, factors, and multiples, and demonstrated weak problem-solving skills. Students were also less active and enthusiastic during lessons, indicating that the existing learning model was ineffective in increasing motivation and participation.

These conditions indicate a learning problem in which conventional teaching approaches fail to create an engaging and meaningful mathematics learning environment. Therefore, an alternative learning model that emphasizes student activity, cooperation, and enjoyment is urgently needed.

Several recent studies have reported positive effects of the Team Games Tournament (TGT) cooperative learning model on students' mathematics learning outcomes. Rahmawati and Prasetyo (2020) found that the TGT model significantly improved elementary students' achievement and learning motivation in mathematics. Similarly, Wulandari et al. (2021) reported that the implementation of TGT enhanced students' active participation and problem-solving abilities in mathematics classrooms. In addition, Sari and Hidayat (2022) demonstrated that cooperative learning models, including TGT, effectively increased students' conceptual understanding and learning outcomes when compared to conventional teaching methods. More recent research by Putri et al. (2023) also showed that the integration of game-based learning strategies within cooperative learning models positively influenced students' engagement and academic performance in elementary mathematics.

Despite these positive findings, most previous studies have focused primarily on learning outcomes measured through written tests and have relied on conventional learning media such as worksheets or question cards. Furthermore, research integrating the TGT cooperative learning model with concrete and enjoyable educational game media, such as Snakes and Ladders, remains limited, particularly at the elementary school level. In addition, studies specifically conducted in Islamic elementary schools (Madrasah Ibtidaiyah) and using Classroom Action Research to improve mathematics learning outcomes are still scarce. This gap indicates the need for further research that examines the effectiveness of the TGT model supported by game-based media to create an engaging learning environment and improve students' mathematics learning outcomes.

This study addresses the following research problem: How can the Team Games Tournament (TGT) cooperative learning model assisted by Snakes and Ladders media improve the mathematics learning outcomes of fourth-grade students at MI Darussalam?

One instructional model considered suitable to overcome this problem is the Team Games Tournament (TGT) cooperative learning model assisted by Snakes and Ladders media. TGT emphasizes teamwork and structured competition among small groups of students to achieve shared learning goals. Through games and tournaments, students become more motivated and actively involved in the learning process (Istikhah, 2024). The integration of Snakes and Ladders as concrete learning media makes mathematics learning more enjoyable and helps students better understand abstract concepts.

The significance of this study lies in its contribution to both theory and practice. Theoretically, this research enriches the literature on cooperative learning models integrated with game-based media in elementary mathematics education. Practically, the findings are expected to provide teachers with an effective alternative learning strategy to improve students' motivation, participation, and mathematics learning outcomes. Furthermore, this study may serve as a reference for future research on the application of TGT and educational games in other subjects or grade levels.

METODOLOGI

This study employs a quantitative research approach with a pre-experimental design. The type of design used is the One-Group Pretest–Posttest Design, which involves one group of participants who are given a pretest before the treatment and a posttest after the treatment.

This design allows researchers to determine the effect of the Team Games Tournament (TGT) learning model by comparing students' learning outcomes before and after the intervention. The experimental design is illustrated as follows:

Pretest (O_1)	Treatment (X)	Posttest (O_2)
O_1	TPS Model	O_2

According to Arikunto (2017), the One-Group Pretest–Posttest Design is used to identify the effectiveness of a treatment by observing changes in learning outcomes before and after the intervention.

Research Subject

The subjects of this study were 28 fourth-grade students of MI Darussalam Lubuklinggau. The research was conducted during the even semester of the 2025 academic year. The sampling technique used was total sampling since the research focused on one class as the entire sample group.

Data Collecting

1. Test

Tests were used to obtain quantitative data on student learning outcomes. The test consisted of a pretest and a posttest, each containing 10 multiple-choice questions related to Mathematics.

2. Observation

Observation was conducted to monitor student activity and teacher performance during the learning process using the TGT model.

3. Documentation

Documentation included photos of learning activities, student attendance lists, test answer sheets, and records of pretest and posttest scores.

Data Analysis

The data were analyzed using descriptive quantitative analysis to determine the increase in learning outcomes before and after the application of the TGT model. The learning mastery percentage was calculated using the following formula (Sarah, 2021):

$$KB = \frac{T}{Tt} \times 100\%$$

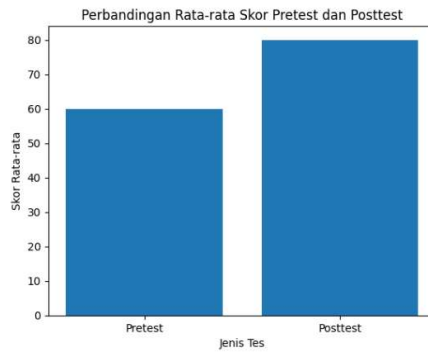
Where:

- KB = Learning Mastery
- T = Total score obtained by students
- Tt = Maximum score (100 × number of students)

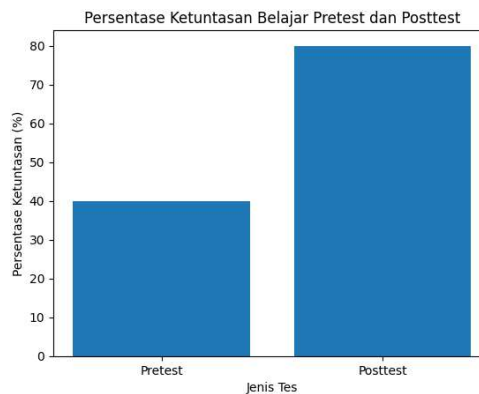
This analysis was used to determine (1) students' level of mastery before treatment, (2) mastery after treatment, and (3) the improvement in learning outcomes following the implementation of the TGT model

RESEARCH RESULT

This research was conducted in the fourth grade of MI Darussalam Lubuklinggau with a total of 28 students. The purpose of this study was to determine the effectiveness of the Team Games Tournamanets (TGT) model in improving learning outcomes in Mathemartics. Data were obtained from pretest and posttest results administered before and after the application of the TGT learning model.



Gambar 1. Perbandingan Rata-rata Skor Pretest dan Posttest



Gambar 2. Persentase Ketuntasan Belajar Pretest dan Posttest

Pretest Results Before the implementation of the TGT treatment, students were given a pretest to measure their initial understanding of the topic of Pancasila Education. Based on the pretest results, the average score achieved by students was 60, with only 40% of students reaching the minimum mastery criteria. This result indicates that most students have low initial knowledge and need a more engaging learning model to improve their understanding.

Posttest Results After the implementation of the Team Games Tournaments learning model, students were given a posttest to assess the improvement in learning outcomes. The results showed a significant improvement, with an average posttest score reaching 80, and 80% of students achieving learning mastery. This indicates that students were able to understand the material better after participating in TGT activities that encourage active thinking, discussion,

and sharing of ideas. Comparison of Pretest and Posttest Scores Comparison of pretest and posttest data showed a significant improvement in student learning outcomes. The average score increased from 60 to 80, indicating a 20-point increase. In addition, the percentage of students who met the mastery criteria doubled, from 40% in the pretest to 80% in the posttest. This increase proves that the TGT model effectively supports students in understanding and mastering Pancasila Education materials.

Interpretation of Findings The improvement in student performance can be attributed to the structured stages of the TGT model. The Think phase allows students to reflect individually, the Pair phase creates a collaborative environment for exchanging ideas, and the Share phase provides opportunities for students to articulate their thoughts confidently. These stages contribute to better cognitive processing and increased understanding. Overall, the research findings indicate that the Team Games Tournaments learning model contributes positively to students' academic achievement in Mathematics. Students become more active, engaged, and confident during learning, resulting in improved learning outcomes.

Discussion

The findings of this study indicate that the implementation of the Team Games Tournament (TGT) cooperative learning model significantly improved students' learning outcomes in Pancasila Education. The pretest results showed that students' initial understanding of the material was relatively low, with an average score of 60 and only 40% of students achieving the minimum mastery criteria. This condition suggests that conventional teaching methods were insufficient to facilitate students' comprehension and engagement, which is consistent with Slavin's (2015) assertion that teacher-centered instruction often limits students' active involvement and deeper understanding.

After the implementation of the TGT model, students' posttest scores increased substantially, with the average score reaching 80 and 80% of students achieving mastery learning. This improvement demonstrates that TGT effectively enhances students' academic achievement by creating an interactive and motivating learning environment. According to Slavin (2014), cooperative learning models such as TGT promote positive interdependence, individual accountability, and active participation, which are essential for improving learning outcomes. The significant increase in scores from pretest to posttest indicates that students benefited from the structured stages of the TGT model. Through group discussions and game-based tournaments, students were encouraged to think critically, exchange ideas, and learn

collaboratively. Johnson and Johnson (2017) emphasize that cooperative learning enables students to process information more effectively through peer interaction, leading to better cognitive development and retention of knowledge. In addition, the competitive yet enjoyable nature of TGT increased students' motivation, as learning activities were perceived as games rather than academic pressure (Huda, 2019).

Overall, the results confirm that the TGT learning model contributes positively to improving students' understanding of Pancasila Education. Students became more active, confident, and engaged during the learning process, which ultimately led to higher learning outcomes. These findings support the use of cooperative and game-based learning models as effective strategies for improving learning achievement in elementary education.

CONCLUSION

Based on the results of a study conducted on fourth-grade students at Darussalam Islamic Elementary School, Lubuklinggau, it can be concluded that the Team Games Tournament (TGT) learning model is effective in improving students' mathematics learning outcomes. This is demonstrated by an increase in the average student score from 60 on the pretest to 80 on the posttest, as well as an increase in the percentage of learning completion from 40% to 80%. These findings indicate a significant increase in student understanding after implementing the TGT learning model.

The research objective, to determine the effectiveness of the TGT model in improving mathematics learning outcomes, has been achieved. The TGT model creates an active, collaborative, and enjoyable learning environment, encouraging students to engage directly in the learning process. Group discussions, healthy competition, and interaction among students contribute to increased conceptual understanding and confidence in solving mathematics problems.

In general, the results of this study imply that the TGT learning model can be used as an effective alternative learning strategy in elementary school mathematics. Implementing this model has the potential to improve the quality of learning, learning motivation, and student learning outcomes. Therefore, teachers are advised to integrate the TGT model in Mathematics learning to create a more meaningful and student-centered learning process.

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