

The Implementation of the Teams Games Tournament (TGT) Learning Model on Students' Learning Outcomes in Mathematics Subject for Fourth Grade at MI Ma'arif 01 Punggur

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Abstract

Education plays an important role in shaping individuals who are intelligent, have noble character, and possess the necessary skills to face life's challenges. Mathematics, as one of the fundamental subjects, plays a major role in developing logic, reasoning, and problem solving abilities. However, the learning outcomes of fourth-grade students in Mathematics at MI Ma'arif 01 Punggur are still relatively low. This condition is caused by the lack of innovative learning models and limited student engagement during the learning process.

This study aims to improve students' learning outcomes in Mathematics through the implementation of the cooperative learning model of the TGT (Teams Games Tournament) type. The research method used is qualitative with a purposive sampling technique involving 18 students as research subjects. Data were collected through observation, interviews, questionnaires, pre-tests, post-tests, and documentation.

The results showed that the TGT (Teams Games Tournament) model was able to create an enjoyable learning atmosphere, increase student interaction, and help students understand the material more effectively. The application of this model also encouraged students to think critically, actively participate in discussions, and help one another in understanding concepts. Therefore, the TGT (Teams Games Tournament) learning model proved to be effective in improving students' Mathematics learning outcomes and is recommended to be applied continuously in the learning process.

INTRODUCTION

Education is a process of learning and developing individual potential to achieve knowledge, skills, values, and behaviors that are beneficial for life. Good education is not only capable of preparing students to achieve a certain profession. According to Law Number 20 of 2003, it is stated that the national education system advances access and quality of education: expanding individuals' potential to possess spiritual religious strength, self-control, personality, intelligence, noble character, and skills needed by themselves, society, the nation, and the State (Restiana et al., 2022).

Mathematics is a field of study that encompasses numbers, formulas, shapes, and quantities as well as their changes. It is an important field of study that has seen many

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significant innovations throughout history, including the development of algebra. Mathematics is also closely related to science, and there is a mutually beneficial interaction between the two fields (Nurhayati et al., 2018). Mathematics is a universal science that underlies the development of modern technology, plays an important role in various disciplines, and advances human reasoning. To master and create technology in the future requires a strong mastery of mathematics from an early age. Students' success in mastering mathematics materials can be seen from their mathematics learning outcomes (Ginanjar, 2019).

Many people view mathematics as the most difficult field of study. Nevertheless, everyone must learn it because it is a means to solve daily life problems, just like language, reading, and writing. Mathematical difficulties must be addressed as early as possible; otherwise, students will face many problems since almost all fields of study require appropriate mathematics understanding.

Mathematics learning in the fourth grade at MI Ma'arif 01 Punggur has shown a fairly good improvement. This is indicated by some students who have become more active in the learning process and have demonstrated better understanding of the material presented. However, there are still several students who have not shown significant improvement. Based on observations, it was found that the lack of innovative learning model implementation and the minimal use of supporting media are among the causes of low learning outcomes. In addition, some students are less active in participating in learning activities, find it difficult to understand the material explained by the teacher, and tend to complete assignments instantly without deep thinking, which affects their ability to solve problems accurately.

The cooperative learning model of the TGT (Teams Games Tournament) type is a learning model that is easy to implement and involves all students' activities without distinction, engaging students as peer tutors while incorporating games and reinforcement (Yunita et al., 2024). The application of the TGT (Teams Games Tournament) learning model aims to create a more conducive learning atmosphere because it fosters students' cooperation, mutual assistance, and active participation in responding to the given challenges.

A previous study conducted by Yenni Fitra Surya from Universitas Pahlawan Tuanku Tambusai, titled Penerapan Model Pembelajaran Kooperatif Tipe Team Games Tournament (TGT) Untuk Memajukan Hasil Belajar Matematika Siswa Kelas V Sekolah Dasar Negeri

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003 Bangkinang Kota, revealed that the TGT (Teams Games Tournament) model provides opportunities for students to develop their potential to the fullest while also enhancing personality aspects such as cooperation, responsibility, and discipline. This type of research is a classroom action research conducted in two cycles. Each cycle consisted of four stages: planning, implementation, observation, and reflection. The study involved 33 students as research subjects. Data were collected through teacher and student activity observation sheets, student learning achievement tests, and documentation. In cycle I, teacher activity reached 70% (Good) and increased in cycle II to 95% (Very Good). Student activity reached 66.7% (Moderate) and increased in cycle II to 91.7% (Very Good). The test results in cycle I were 60.6% (Critical) and in cycle II reached 87.9% (Good). Based on the data analysis above, it can be concluded that the implementation of the cooperative learning model of the TGT type can improve the mathematics learning outcomes of fifth grade students at SD Negeri 003 Bangkinang Kota (Surya, 2018).

METHOD

The type of research used in this study is qualitative research, which aims to deeply understand phenomena or events in daily life. This research is generally conducted in the field, where the research subjects carry out their activities or interactions.

The subjects in this study and the data collection methods include observation, interviews, questionnaires, pre tests, post tests, and documentation. The data collection instruments consist of observation guidelines covering school conditions, facilities and infrastructure, teaching tools, and observations of the learning process. Interviews were conducted with fourth-grade teachers and students at MI Ma'arif 01 Punggur. The documentation data relate to students' learning outcomes obtained through the implementation of the TGT (Teams Games Tournament) learning model for fourth grade students at MI Ma'arif 01 Punggur.

The researcher used data analysis techniques through three main stages: data reduction, data presentation, and conclusion drawing. The data were obtained from various sources such as observation, interviews, questionnaires, pre tests, post tests, and documentation conducted at MI Ma'arif 01 Punggur. The data collection process began with direct observation of school conditions and ongoing learning activities. Furthermore, interviews were conducted with fourth grade teachers and students to gather more in depth information. After the data were collected, they were organized systematically to facilitate

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understanding and analysis of relationships between components. In the final stage, conclusions were drawn by identifying patterns, meanings, and cause-and-effect relationships, which were then verified to ensure that the findings aligned with the actual conditions in the field.

FINDINGS AND DISCUSSION

In this study, the data obtained from field research include observations, interviews, questionnaires, pre-tests, post-tests, and documentation of students' learning outcomes. This research aims to determine the implementation of the TGT (Teams Games Tournament) learning model on students' learning outcomes in Mathematics for grade IV at MI Ma'arif 01 Punggur.

A. Implementation of the TGT (Teams Games Tournament) Learning Model

The TGT (Teams Games Tournament) learning model is an approach that combines teamwork elements and competition in the form of games. This model is designed to enhance student motivation, engagement, and understanding through activities that involve teamwork while utilizing game elements to make the learning process more enjoyable and engaging (Nurhikmawati et al., 2024).

The steps in implementing the TGT (Teams Games Tournament) learning model include class presentations, group formation, and games. At the beginning of the lesson, the teacher starts by stating the learning objectives for the day and providing an overview of the material to be studied. Afterward, the teacher briefly explains the contents of the Student Worksheet, which will be distributed to each group. The explanation is usually carried out using the TGT (Teams Games Tournament) learning model, so while the teacher explains, students are asked to focus to fully understand the provided explanation. After the teacher explains the material, students are divided into small groups consisting of 4 to 6 members. Each group is formed with a mix of students who have different academic abilities, so they can help and learn from one another (Susmiatiningsih et al., 2013).

The teacher then asks the students to rearrange the chairs and desks to form learning groups. The teacher also explains that they will work in the same team for several upcoming meetings. Group formation is based on the results of the previous daily tests, considering also gender, ethnic background, and race. The goal is for each group to consist of diverse members, with each group typically consisting of 4 to 6 students (Desiati, n.d.).

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The activity proceeds with a tournament between groups. The atmosphere in the classroom becomes more exciting and full of enthusiasm. Each team competes to be the best. The teacher provides questions or challenges, and each group must answer them quickly and accurately. Sometimes, students answer in turns, and at other times, they must work together as a team to solve more challenging problems. This tournament is not just about winning or losing, but also about developing teamwork, communication, and students' confidence when performing in front of their peers (Nabiila et al., 2024).

At the conclusion of the learning session, the teacher gives awards to the group that achieved the highest points during the tournament. The classroom atmosphere is filled with excitement and happy smiles from the students. The winning team receives simple prizes, such as candy or snacks, as a form of appreciation for their hard work and teamwork (Rahmawati et al., 2023).

Here, the author presents the results of a questionnaire on the application of the TGT (Teams Games Tournament) model, which was given to 18 fourth-grade students at MI Ma'arif 01 Punggur as follows:

No	Question	SS	S	TS	STS
1	The teacher explains the material about TGT (Teams Games Tournament).	10 (50%)	6 (30%)	2 (10%)	0 (0%)
2	The teacher teaches mathematics using the TGT (Teams Games Tournament) model.	12 (60%)	5 (25%)	1 (5%)	0 (0%)
3	The teacher re-explains the material learned with the students.	8 (40%)	7 (35%)	3 (15%)	0 (0%)
4	The teacher repeats the material until the students understand.	13 (65%)	4 (20%)	1 (5%)	0 (0%)
5	The teacher celebrates the students' success by giving them rewards.	11 (55%)	4 (20%)	3 (15%)	0 (0%)

Table 1: Results of the TGT (Teams Games Tournament) Model Questionnaire

Based on the results of the questionnaire given to 18 fourth-grade students at MI Ma'arif 01, regarding the application of the TGT (Teams Games Tournament) learning model, the data shows that most students gave positive responses to the teaching method used by the teacher. In the first statement, 80% of students agreed that the teacher explained the material about TGT (Teams Games Tournament).

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Furthermore, 85% of the students agreed that the teacher taught mathematics using the TGT (Teams Games Tournament) model. 75% of students felt that the teacher re-explained the material they had learned. Then, 85% of students agreed that the teacher repeated the material until they understood. Interestingly, 75% of students also agreed that the teacher celebrated their success by giving rewards. These results indicate that the application of the TGT (Teams Games Tournament) learning model has created an active and interactive learning environment, while also positively recognizing the students' processes and achievements. Through this approach, it is expected that the fourth-grade students at MI Ma'arif 01 Punggur will become more enthusiastic in learning mathematics, understand the material better, and achieve improved learning outcomes.

The collected data includes observations of student activities during lessons and interviews with teachers and students about their experiences with the TGT (Teams Games Tournament) model in mathematics lessons. From the results of the teacher's interview, it was conveyed that the application of the TGT (Teams Games Tournament) model is very effective in enhancing students' understanding of whole number concepts in mathematics. The teacher stated that the TGT (Teams Games Tournament) model provides students the opportunity to collaborate with peers and develop social skills, as well as significantly enhance their critical thinking abilities and strengthen their understanding of previously complex concepts. Interviews with students revealed that the TGT model allowed them to help each other and collaborate during discussions, teaching their peers to communicate effectively by delivering the material that had been explained. This helped students record their peers' explanations and encouraged them to ask questions if they didn't understand the material, leading to new conversations and clarifications.

B. Learning Outcomes from the Implementation of the TGT (Teams Games Tournament) Model

MI Ma'arif 01 Punggur is a primary educational institution (Islamic Elementary School) located in Punggur District, Central Lampung Regency. This school has a vision of producing a generation that is knowledgeable, morally upright, skilled, creative, and responsible in religious, national, and state life. In terms of facilities, MI Ma'arif 01 Punggur is equipped with various learning support facilities such as representative classrooms, a library, and other facilities that support teaching and learning activities. The school does not only focus on academic aspects but also actively develops students potential through various extracurricular activities to shape their character and improve their overall competencies. In

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its effort to improve the quality of education, MI Ma'arif 01 Punggur continues to innovate in the learning process. One of the innovations applied is the use of the cooperative learning model, specifically the TGT (Teams Games Tournament) model in mathematics lessons.

Mathematics may seem intimidating to students who dislike calculations, but it becomes enjoyable for students who enjoy numbers. However, many students tend to cheat when they find it difficult to solve problems. To address this, the teacher made mathematics more enjoyable through games, offering rewards to students who could answer the questions provided, and creating problems related to shopping, which helps students understand the material more quickly. This approach aims to prevent cheating, encouraging students to complete their tasks independently (Zebua, 2023).

The TGT (Teams Games Tournament) model uses various learning strategies involving cognitive, affective, and psychomotor aspects to enhance students' understanding and academic achievement. The TGT (Teams Games Tournament) model in fourth-grade mathematics emphasizes teamwork through discussions and games. Assessment is conducted on the group level, based on collaboration, material understanding, and presentations, while also including individual tests.

Based on observations and interviews with the teacher, student learning outcomes are evaluated in three domains:

- Cognitive: the ability to explain, answer questions, and complete tasks.
- Affective: students' attitudes towards cooperation, responsibility, and discipline.
- Psychomotor: skills in actively participating in the group and presenting discussion results.

This model creates a conducive learning environment and enhances students' learning outcomes.

According to Moore, the indicators of learning outcomes include three domains:

1. Cognitive domain: includes knowledge, understanding, application, analysis, creation, and evaluation.
2. Affective domain: involves acceptance, response, and value determination.
3. Psychomotor domain: involves fundamental movements, generic movements, coordinated movements, and creative movements (Fauhah & Rosy, 2021).

The learning outcomes indicators, according to Straus, Tetroe, & Graham, are:

1. Cognitive domain focuses on how students acquire academic knowledge through teaching methods or information delivery.

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2. Affective domain relates to attitudes, values, and beliefs that play a key role in behavior change.
3. Psychomotor domain refers to skills and self-development applied in skill performance and practical development (Rahmanto et al., 2022).

Therefore, this study focuses on the implementation of the TGT (Teams Games Tournament) model (Astuti & Kristin, 2017) in mathematics learning for fourth grade students at MI Ma'arif 01 Punggur to determine the improvement in their learning outcomes.

1. Planning

The planning stage for the TGT learning model at MI Ma'arif 01 Punggur is carried out systematically to support the success of mathematics learning in grade IV. The teacher prepares a learning module that integrates the TGT model with a positive, interactive, and enjoyable learning environment. The strategies applied include using concrete media, educational games, and question and answer methods to encourage active student participation and simplify mathematical concept understanding.

2. Implementation

The implementation of the TGT (Teams Games Tournament) model is carried out through stages that encourage an active, competitive, and collaborative learning atmosphere. The process begins with the teacher presenting the material, followed by dividing the students into groups based on ability, gender, and background (Nurhikmawati et al., 2024).

After the material presentation, students work in groups to understand the material and complete tasks together. The TGT (Teams Games Tournament) activity continues with games or tournaments in the form of quizzes, where students compete individually, but scores are accumulated as team points. This encourages responsibility and maximum contribution from each student. At the end, the teacher gives rewards to the best team, so the TGT model not only focuses on the material but also builds teamwork, responsibility, and motivation to learn (Krismanto, 2003).

3. Evaluation

The evaluation stage in the application of the TGT model aims to assess how successfully the learning objectives have been achieved by the fourth grade students at MI Ma'arif 01 Punggur. The cognitive domain focuses on students knowledge in understanding the mathematical concepts taught. The teacher administers written tests and quizzes to assess the students' understanding of whole numbers. Learning evaluation is not only focused on cognitive achievements but also includes the affective domain, particularly the students'

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attitudes toward mathematics after the TGT model was implemented. Throughout the lesson, the teacher observes student participation, noting their enthusiasm in engaging with the activities and their ability to collaborate in groups (Sartika, 2019).

In the psychomotor domain, evaluation is done by observing how students apply the skills they have learned in practical activities. Additionally, students are asked to explain the steps they took to solve mathematical problems in front of the class (Prisiska et al., 2017).

The implementation of the TGT (Teams Games Tournament) model in fourth-grade mathematics at MI Ma'arif 01 Punggur has been successful, following the lesson plans prepared by the teacher and effectively improving students learning outcomes. The classroom atmosphere has become more conducive, and students are more active. However, there are still a few students who need guidance in presenting the results of their discussions, so the teacher continues to innovate to support the improvement of student learning outcomes (Priyanto, 2021).

From the observations, it was evident that students showed increased engagement, became more confident in asking questions, and demonstrated higher self-esteem when providing answers, compared to conditions before the implementation of this method.



Figure 1. Learning Process Using the TGT (Teams Games Tournament) Model

No	Statement	SS	S	N	DS	SD	SS+S (%)
1	I can correctly give examples of whole numbers.	12	5	1	0	0	90%
2	I am able to arrange whole numbers from the smallest to the largest.	10	6	1	1	0	80%
3	I am confident in solving word problems involving whole numbers.	11	5	2	0	0	80%

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4	I am sure I can solve word problems involving whole numbers.	9	6	2	1	0	75%
5	I can state whole numbers from 0 to 10,000.	10	5	3	1	0	75%
6	I know the use of whole numbers in daily life.	12	4	2	0	0	80%
7	I understand the place value of digits in whole numbers (units, tens, hundreds, etc.).	10	6	2	0	0	80%
8	I feel confident completing all whole number problems independently.	11	5	2	0	0	80%
9	I feel capable of helping others understand whole numbers.	11	6	1	0	0	85%
10	I can mention the benefits of learning whole numbers in my life.	13	4	1	0	0	85%

Table 2: Questionnaire on Learning Outcomes Whole Numbers Topic

Based on the results of the cognitive learning questionnaire distributed to 18 fourth grade students at MI Ma'arif 01 Punggur, it can be concluded that, in general, students showed a very positive response toward mathematics learning on the topic of whole numbers. This is evident from the high percentage in the "Strongly Agree" and "Agree" categories, ranging from 75% to 90% across all statements. Additionally, the majority of students felt that the teacher presented the material in a way that was easy to understand and enjoyable, including the use of visual aids such as images or other learning media. Based on the pre test and post test results related to the Mathematics Learning Outcomes of Grade IV students at MI Ma'arif 01 Punggur, it was found that there was a significant improvement in students' learning outcomes after the implementation of the TGT (Teams Games Tournament) learning model. Before applying this model, data from the pre-survey at MI Ma'arif 01 Punggur showed that out of 18 students, only 9 students (45%) achieved scores above the Minimum Mastery Criteria (KKM) of 70, while 10 students (50%) were still below the mastery standard.

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However, after implementing the TGT (Teams Games Tournament) learning model, the post-test results showed a significant improvement, where the majority of students managed to score above the KKM. This improvement reflects that the TGT model succeeded in creating a more enjoyable, meaningful, and motivating learning environment, encouraging students to be more active in understanding the subject matter particularly mathematics resulting in a direct impact on overall learning achievement.

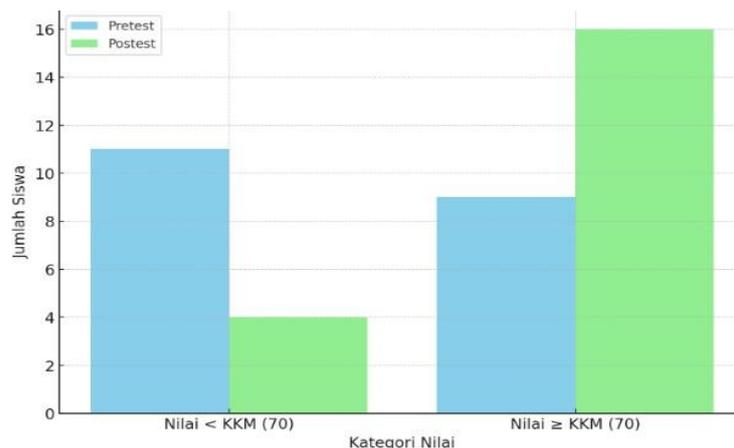


Figure 2. Pre test and Post test Learning Outcomes Comparison Chart

The comparison chart of pre-test and post-test results above shows a significant improvement in the mathematics learning outcomes of fourth-grade students at MI Ma'arif 01 Punggur after the implementation of the TGT (Teams Games Tournament) model. Before applying the model, 9 students (45%) scored below the KKM and only 9 students (45%) reached or exceeded the KKM. After the implementation, the number of students who had not yet achieved mastery dropped significantly to only 2 students (10%), while 16 students (80%) reached or exceeded the KKM.

This increase indicates that the TGT (Teams Games Tournament) learning model is effective in helping students understand mathematics material better through an interactive, enjoyable, and motivating learning approach. Overall, the research findings indicate that the implementation of the TGT (Teams Games Tournament) learning model in mathematics learning for Grade IV students at MI Ma'arif 01 Punggur has had a positive impact on student learning outcomes. Assessment of learning outcomes across the cognitive, affective, and psychomotor domains showed improvements in student understanding, motivation, and skills in solving math problems.

Data collection in this research was conducted using several methods: observation, interviews, questionnaires, pre tests, post tests, and document analysis to evaluate the impact

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of the TGT (Teams Games Tournament) model on mathematics learning outcomes in Grade IV at MI Ma'arif 01 Punggur.

Before Using the TGT (Teams Games Tournament) Learning Model: The teacher had already been using the TGT model, and learning outcomes had started to improve, but some students still showed limited progress.

After Using the TGT (Teams Games Tournament) Learning Model: All Grade IV students demonstrated improved learning outcomes. The implementation of the TGT model has made it easier for students to understand mathematics, especially the topic of whole numbers.

CONCLUSION

The implementation of the TGT (Teams Games Tournament) learning model has proven effective in improving student learning outcomes in mathematics at MI Ma'arif 01 Punggur. This model encourages active student engagement through enjoyable games, increases motivation, and enhances understanding of the material. The application of TGT (Teams Games Tournament) also strengthens students' collaboration skills in completing group tasks. Research findings show a significant improvement in learning outcomes, with students becoming more enthusiastic and performing better on tests. It is recommended that the TGT (Teams Games Tournament) model be implemented regularly, and that teachers receive training for more effective application.

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