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Improving Mathematics Learning Outcomes through the Teams Games Tournament (TGT) Cooperative Learning Model among Fourth-Grade Students

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Abstract

Mathematics learning outcomes of fourth-grade students at SDN Socah 3 were relatively low, particularly in plane geometry topic. This research aims to improve students' mathematics learning outcomes through the application of the Teams Games Tournamet (TGT) cooperative learning model. This classroom action research involved 24 fourth-grade students and was conducted in two cycles where each cycle consisted of planning, action, observation, and reflection stages. Data was collected using tests, observations, and documentation. The results of the study showed a consistent improvement in student learning outcomes. The average score increased from 48.54 in the pre-cycle stage with a completion percentage of 20.83%, to 62.58 with a completion rate of 54.17% in Cycle I, and then increased to 81.38 with a completion rate of 91.67% in Cycle II. These findings show that the TGT cooperative learning model can not only improve mathematics learning outcomes, but can also increase student engagement and participation during the learning process. Therefore, the TGT-type cooperative learning model can be considered an effective and contextual learning alternative to mathematics teaching in primary schools.

Keywords: *Teams Games Tournament, Cooperative Learning, Mathematics Achievement, Elementary School*

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1. Introduction

The goal of elementary school education is to maximize the potential of children by balancing cognitive, emotional, and psychomotor components. But in reality, the educational process in elementary school often concentrates only on the cognitive component, which lacks the active participation and emotional involvement of students (Putri & Jupriyanto, 2025). Students' low interest in learning, especially in mathematics, which requires logical, methodical, and critical thinking skills is a result of this situation. According to research in the field, most children still find math challenging and boring, which leads to poor learning outcomes (Wahida et al., 2025).

Low math learning outcomes indicate that the existing educational environment fails to provide an engaging and enjoyable learning environment for students. The *Teams Games Tournament (TGT) type cooperative learning model* is considered to be able to overcome this problem. By fostering a cooperative, competitive, and entertaining learning environment through academic games and group projects, this learning model has been shown to improve the mathematics learning outcomes of elementary school students. By the end of the learning cycle, more than 80% of students have succeeded in their studies thanks to the implementation of the TGT model (Sembiring et al., 2025).

Several previous studies have shown that the TGT type cooperative learning model is effective in improving the mathematics learning outcomes of elementary school students. This learning model not only contributes to improving learning outcomes, but is also able to increase student participation, motivation, and direct involvement during the learning process. Based on previous research that has been conducted by Apriliyah et al. (2025); Tawakal & Purnomo (2025); Asjudirja & Ulia (2025); Handayani et al. (2025) shows that through a combination of cooperation, academic games, and tournaments, the TGT-type cooperative learning model can create a more active, fun, student-centered learning environment compared to conventional learning that tends to be teacher-centered.

The results of previous research generally still focused on the effectiveness of the TGT type cooperative learning model in improving general mathematics

learning outcomes in various learning materials. Most of the research emphasizes on improving grades or learning completeness only, while studies on the application of the TGT type cooperative learning model to flat building materials in elementary schools are still relatively limited. In addition, studies that specifically associate the use of the TGT-type cooperative learning model with the characteristics of students who have high psychomotor activity, low concentration levels, and suboptimal learning involvement are still rare.

Initial observations of fourth-graders at SDN Socah 3 revealed that they often wandered around the classroom, had difficulty concentrating, and were less interested in their lessons. Students' inadequate understanding of mathematical concepts, especially geometric shapes, is affected by this circumstance. Learning strategies should be tailored to the developmental characteristics of elementary school students which include the desire for social connections, concrete assignments, and contextual learning (Barokah et al., 2024).

This problem shows that the characteristics of elementary school students are not in harmony with the cooperative learning paradigm. Students who are less actively participating in the learning process as a result of teacher-centered learning have lower motivation and learning outcomes. To make learning more meaningful and meet the developmental needs of elementary school students, a learning model is needed that actively engages students through social interaction and collaborative activities (Kurniasari et al., 2023).

One of the learning models that is considered suitable for elementary school students is the cooperative learning model where this learning model emphasizes social contact, cooperation, and active participation of students in the construction of knowledge. Students learn to communicate, work together, and take on roles in group projects in addition to understanding the subject matter through group activities. According to Agustin et al. (2025), cooperative learning can improve students' overall learning engagement across all cognitive, social, and emotional domains.

Based on the description above, the research gap in this study lies in the limited research that examines the effectiveness of the TGT type cooperative

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learning model on flat building materials for fourth grade elementary school students who have high psychomotor activity and low learning involvement. In addition, research on the application of the TGT type cooperative learning model in the context of real learning at SDN Socah 3 has never been done before.

Based on the problems and research gaps that have been explained earlier, the formulation of the problem in this study was prepared, namely "How can the application of the Teams Games Tournament (TGT) type cooperative learning model improve the mathematics learning outcomes of fourth grade students of SDN Socah 3 on flat building materials?"

Based on the formulation of the problem, this study aims to improve the mathematics learning outcomes of fourth grade students of SDN Socah 3 on flat building materials through the application of a cooperative learning model of the Teams Games Tournament (TGT) type.

This research has several significances both theoretically and practically. Theoretically, this research is expected to enrich the study of the application of the TGT type cooperative learning model in mathematics learning in elementary schools. Practically, the results of this research can be used as an alternative for elementary school teachers in choosing a learning model that is able to increase learning outcomes, participation, and active student involvement in the mathematics learning process.

2. Method

This study uses the methodology of Classroom Action Research (PTK) which aims to systematically improve learning outcomes and processes through actions made in response to actual classroom problems. PTK was chosen because it allows educators to evaluate and continuously improve teaching according to the needs of their students (Sari et al., 2025).

The four stages in the PTK cycle according to Handayani et al. (2025), namely planning, action, observation, and reflection, are referred to in the research design In each cycle, these four stages are repeated until the indicators of research success are met. By overcoming learning deficiencies in the previous cycle, researchers can optimize the learning process in the next cycle.

Three phases of research were carried out, namely pre-cycle, cycle I, and cycle II. Before the implementation of the intervention, the pre-cycle stage is carried out to ensure the initial condition of student learning outcomes. Based on the findings of previous reflection, learning activities using the Teams Games Tournament (TGT) type cooperative learning model were then practiced in cycle I and further improved in cycle II. To measure the improvement in student learning outcomes more clearly and quantitatively, the action is repeated several cycles (Artawiddi et al., 2024).

This research was conducted at SDN Socah 3 which is located in Socah District, Bangkalan Regency, East Java. A conducive learning environment at school and problems with student learning outcomes that are still relatively low are considerations in choosing a research location. The three phases of the research were carried out starting from the pre-cycle on February 26, 2026, the first cycle on March 3, 2026, and the second cycle on March 5, 2026. Each cycle is carried out in the allocated two hours of lessons.

A total of 24 fourth grade students at SDN Socah 3 were the subjects of this study. Fourth-grade students were selected based on the cognitive development characteristics of elementary school students who are still in the concrete operational stage and need hands-on, real-life learning experience to help them understand mathematical concepts. Because it can offer real learning activities through group projects and instructional games, the TGT type cooperative learning paradigm (Fauziah & Safari, 2025).

Planning, implementation, observation, and reflection are the four main phases of the research process. The researchers created learning modules, learning resources, observation sheets, and assessment tools during the design phase. To ensure that the learning process runs methodically and in accordance with the predetermined research objectives, this preparation is carried out (Patmawati et al., 2025).

The TGT type cooperative learning paradigm for flat building subjects is used to carry out the implementation phase of the action. To improve student focus and engagement throughout the class, visual aids and card-based games are

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incorporated into the learning process. Students are encouraged to participate more actively in communication, cooperation, and understanding math topics in a fun way through group activities and academic competitions (Cholida et al., 2025).

Observations are made throughout the learning process to see how lessons are applied and what students are doing. The level of student participation, group cooperation, focus during the session, and reaction to the use of the TGT type cooperative learning model were the main areas of observation. The efficiency of the actions carried out in each learning cycle is then assessed using the results of observation (Lail et al., 2025).

After the learning activities of each cycle are completed, the reflection phase is carried out. To determine the advantages and disadvantages of the measures implemented, the researcher then examined the results of evaluation and observation tests. To maximize student learning outcomes and activities, the reflection findings serve as a basis for improving the learning process in the next cycle (Listiani et al., 2025).

In this study, tests, documentation, and observation were used as data collection methods. Data on student participation and activities during the learning process were collected through observation. Before and during the implementation of the TGT-type cooperative learning model, tests were conducted to measure the improvement of student learning outcomes. The research data was strengthened and the validity of the research findings was supported by documentation in the form of study notes and photos of activities (Rahmadiana et al., 2025).

In the pre-cycle stage, the test instrument used is in the form of 5 description questions that measure students' initial ability to mention the characteristics of square flats, rectangles, rhombosis, parallelograms, and triangles.

Table 1. Grid of Question Pre-Cycle

Indicator	Question Form	Question No.
Mention the 4 properties of a square flat build	Description	1
Mention the 4 properties of a rectangular flat build	Description	2
Mention the 4 properties of a rhombus flat building	Description	3
Mention the 4 properties of parallelogram flat building	Description	4
Mention the 4 properties of a triangular flat build (general)	Description	5

In Cycle I, the test instruments used were in the form of 5 multiple-choice questions and 5 description questions which were used to measure students' understanding of the characteristics of various types of triangles, namely equilateral triangles, isosceles triangles, right triangles, and arbitrary triangles.

Table 2. Grid of Question Cycles I

Indicator	Question Form	Question No.
Identifying the characteristics of an equilateral triangle flat build	Multiple Choice	1 and 4
Identifying the characteristics of an isosceles triangle flat build	Multiple Choice	2
Identifying the features of a rectangular triangle flat build	Multiple Choice	3
Identifying the characteristics of any triangular flat building	Multiple Choice	5

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Mention the characteristics of an equilateral triangle flat build	Description	1
Mention the characteristics of an isosceles triangle flat build	Description	2
Mention the characteristics of a square triangle flat building with right angles	Description	3
Drawing any triangular flat build according to size	Description	4
Drawing types of triangular flat builds	Description	5

In Cycle II, the test instrument used was in the form of 5 multiple-choice questions, 5 matchmaking questions, and 5 description questions, this test was used to measure students' understanding in identifying and explaining the characteristics of rectangular flat buildings which include square flat buildings, rectangles, rhombos, and parallelograms.

Table 3. Grid of Question Cycle II

Indicator	**Question Form**	**Question No.**
Identifying the features of a rectangular flat building	Multiple Choice	1 and 4
Identifying the characteristics of a square flat building	Multiple Choice	2
Identify the characteristics of rectangular and rhombus flat buildings	Multiple Choice	3
Identifying the characteristics of parallelogram flat buildings	Multiple Choice	5
Matching the name of the flat build with the shape of the flat build in everyday life	Matchmaking	1-5

Mention the characteristics of a square flat build	Description	1
Mention the characteristics of rectangular flat builds	Description	2
Drawing a rhombus flat building	Description	3
Drawing and mentioning the characteristics of a parallelogram flat building	Description	4
Draw 4 types of square flat builds (Square, Rectangle, Rhombus, and Parallelogram)	Description	5

The indicators measured were the ability to identify the types of flat buildings, distinguish the characteristics between flat buildings, and solve simple problems related to the concept of flat buildings.

The test instrument before being used in the research is first validated through content validation using expert judgment by elementary education lecturers and fourth-grade teachers. Validation is carried out to assess the suitability between learning indicators, flat building materials, research objectives, and question points used. Based on the validation results, the test instrument used was declared feasible to be used with several editorial improvements to the question items.

Before carrying out the research, the researcher had obtained permission from the principal of SDN Socah 3 and the fourth grade teacher as parties involved in this research. All data obtained is only used for academic purposes and the identity of students is disguised to maintain the confidentiality of research data.

The data in this study consists of quantitative data and qualitative data. Quantitative data in the form of student learning test results were analyzed using quantitative descriptive analysis through the calculation of average scores and percentage of completeness of learning outcomes. This analysis is used to determine the improvement of student learning outcomes in each cycle.

The average value can be calculated using the formula:

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

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Description:

$\bar{x}$ = average value

$\sum X$= total student score

N= total number of students

Meanwhile, the percentage of completeness of learning outcomes can be calculated using the formula:

$$P = \frac{n}{N} \times 100\%$$

Description:

P = percentage of completeness of learning outcomes

n = number of students who achieve completeness of learning outcomes

N= total number of students

The results of this analysis will later be interpreted based on the KKTP that has been determined. According to the Learning Goal Achievement Criteria (KKTP), learning is considered effective if students achieve a minimum score of ≥ 70 and at least 85% of all students demonstrate classical mastery. Activity continues to the next cycle if these requirements are not met. (Safitri et al., 2025)

Meanwhile, qualitative data was obtained from the results of observation activities analyzed using an interactive analysis model proposed by Miles and Huberman, this analysis was used to describe student activities during the implementation of the TGT type cooperative learning model which includes aspects of participation, cooperation, and involvement in learning activities. The analysis of this interactive model consists of three steps, namely data reduction, data presentation, and conclusion drawn, which is the data analysis method used in this study (Sari et al., 2025). To find important learning challenges, data reduction involves selecting, concentrating, and simplifying data. To make it easier to understand the data, the data is presented using tables and diagrams. The findings of the data analysis were then used to compare the level of mastery of learning between cycles to develop conclusions. In addition, the average score and percentage of student learning mastery were calculated for quantitative analysis.

The study continues to the next cycle until the success marker is met if the percentage of mastery does not reach ≥ 85%.

3. Result and Discusion

Table 4. Pre-Test Scores (Initial Test) for Grade IV Students of SDN Socah

No	Name	L/P	KKTP	Value	Completeness
1.	S1	P	70	70	Tuntas
2.	S2	L	70	25	Incomplete
3.	S3	P	70	65	Incomplete
4.	S4	P	70	80	Tuntas
5.	S5	L	70	25	Incomplete
6.	S6	P	70	50	Incomplete
7.	S7	P	70	45	Incomplete
8.	S8	L	70	35	Incomplete
9.	S9	P	70	65	Incomplete
10.	S10	L	70	45	Incomplete
15.	S15	P	70	70	Tuntas
16.	S16	L	70	35	Incomplete
17.	S17	P	70	80	Tuntas
18.	S18	L	70	35	Incomplete
19.	S19	L	70	45	Incomplete
20.	S20	L	70	25	Incomplete
21.	S21	L	70	25	Incomplete
22.	S22	L	70	50	Incomplete
23.	S23	P	70	65	Incomplete
24.	S24	P	70	50	Incomplete
	Average			48,54	
	Completion Percentage				20,83%

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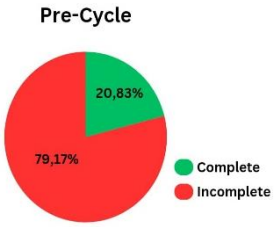
Table 5. Pre-Cycle Value Results

No	KKTP	Value Provisions	Number of Students	Percentage	Remarks
1.	70	≥ 70	5	20,83%	Tuntas
2.	70	< 70	19	79,17%	Incomplete
Quantity			24	100%	Low
Average		48,54			

Figure 1. Pre-Cycle Learning Completeness Diagrams



The findings of the study showed that the learning outcomes of grade IV students at SDN Socah 3 in the mathematics subject of flat building material increased significantly and steadily with the use of the Teams Games Tournament (TGT) cooperative learning model. Low student engagement occurs during the pre-cycle phase because teaching is still teacher-centred and uses lecture and question and answer techniques. As evidenced by the average score (KKTP) of 48.54 and the completion rate of only 20.83%, this leads to poor student learning outcomes. This shows that most students have not fully understood the concept of flat-plane geometry, which requires improvement efforts through the use of more creative and interactive learning approaches.

Table 6. Evaluation Score of Cycle I for Grade IV Students of SDN Socah 3

No	Name	L/P	KKTP	Value	Completeness
1.	S1	P	70	70	Tuntas
2.	S2	L	70	33	Incomplete
3.	S3	P	70	86	Tuntas
4.	S4	P	70	75	Tuntas
5.	S5	L	70	53	Incomplete
6.	S6	P	70	75	Tuntas
7.	S7	P	70	53	Incomplete
8.	S8	L	70	28	Incomplete
9.	S9	P	70	75	Tuntas
10.	S10	L	70	33	Incomplete
11.	S11	L	70	75	Tuntas
12.	S12	P	70	78	Tuntas
13.	S13	L	70	53	Incomplete
14.	S14	L	70	33	Incomplete
15.	S15	P	70	83	Tuntas
16.	S16	L	70	83	Tuntas
17.	S17	P	70	60	Incomplete
18.	S18	L	70	70	Tuntas
19.	S19	L	70	50	Incomplete
20.	S20	L	70	58	Incomplete
21.	S21	L	70	50	Incomplete
22.	S22	L	70	75	Tuntas
23.	S23	P	70	80	Tuntas
24.	S24	P	70	73	Tuntas
Average				62,58	
Completion Percentage					54,17%

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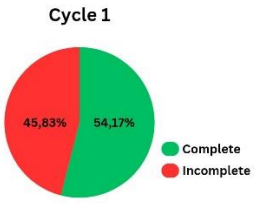
Table 7. Results of Cycle I Scores

No	KKTP	Value Provisions	Number of Students	Percentage	Remarks
1.	70	≥ 70	13	54,17%	Tuntas
2.	70	< 70	11	45,83%	Incomplete
Quantity			24	100%	Medium
Average		62,58			

Figure 2. Cycle I Learning Completeness Diagram

No	Name	L/P	KKTP	Value	Completeness
1.	S1	P	70	95	Tuntas
2.	S2	L	70	69	Incomplete
3.	S3	P	70	93	Tuntas
4.	S4	P	70	77	Tuntas
5.	S5	L	70	77	Tuntas
6.	S6	P	70	98	Tuntas
7.	S7	P	70	83	Tuntas
8.	S8	L	70	83	Tuntas
9.	S9	P	70	83	Tuntas
10.	S10	L	70	95	Tuntas
11.	S11	L	70	83	Tuntas
12.	S12	P	70	95	Tuntas
13.	S13	L	70	77	Tuntas
14.	S14	L	70	46	Incomplete
15.	S15	P	70	79	Tuntas
16.	S16	L	70	83	Tuntas
17.	S17	P	70	79	Tuntas
18.	S18	L	70	77	Tuntas
19.	S19	L	70	83	Tuntas

20.	S20	L	70	77	Tuntas
21.	S21	L	70	84	Tuntas
22.	S22	L	70	79	Tuntas
23.	S23	P	70	84	Tuntas
24.	S24	P	70	74	Tuntas
Average				81,38	
Completion Percentage					91,67%



Student learning outcomes increased after the introduction of the TGT cooperative learning model in the first cycle, as evidenced by the increase in the average score (KKTP) to 62.58 and the completion rate of 54.17%. These advances show that the use of games, group discussions, and competitions in the TGT model is starting to increase students' interest in learning. However, the results of Cycle I are still far from the success criteria that have been set, namely a classical completion rate of at least 85%. This shows that students are still adapting to new learning methodologies.

Table 8. Evaluation Score of Cycle II for Grade IV Students of SDN Socah 3

Table 9. Results of Cycle II

No	KKTP	Value Provisions	Number of Students	Percentage	Remarks
1.	70	≥ 70	22	91,67%	Tuntas
2.	70	< 70	2	8,33%	Incomplete
Quantity			24	100%	Height
Average		81,38			

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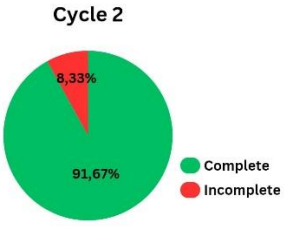
Figure 3. Cycle II Learning Completion Diagram



Improvements based on the findings of Cycle I reflection, such as better time management, repetition of game rules, and an expansion of the teacher's role in facilitating group discussions, resulted in a more significant improvementin Cycle II. At this point, the indicators of research success were achieved with a student average score (KKTP) of 81.38 and a completion percentage of 91.67%. This increase shows a larger spike in Cycle II which shows that the effectiveness of the TGT type cooperative learning model grows as students increase their understanding of learning mechanisms and optimize teachers' strategies.

Vygotsky's theory of social constructivism highlights the importance of social interaction in the learning process and can be used to explain the improvement in student learning outcomes when a TGT-type cooperative learning model is implemented (Rahmawati & Purwaningrum, 2022). This learning model states that students build knowledge through social interaction, communication, and teamwork. In TGT-type cooperative learning, students actively share ideas, discuss answers, and assist their peers in understanding the subject matter in addition to receiving knowledge from the teacher. Because learning takes place cooperatively and communicatively, this process of interaction helps students gain a deeper understanding of the topics in math lessons (Makgabo & Makgobatlou, 2024).

In addition, the findings of this study also support Piaget's theory of cognitive development, which states that because elementary school students are at a concrete operational stage, learning that combines real-world activities such as games and group interactions will be more successful in improving conceptual

understanding (Fauziah & Safari, 2025). Learning experiences that are in accordance with the developmental characteristics of elementary school students are provided through the use of a TGT-type cooperative learning model through academic games, group discussions, and the use of visual media of flat building materials. Instead of just remembering formulas in the abstract, this can help students understand math topics more concretely (Putri, 2025).

The results of this study corroborate previous research that showed that the TGT type cooperative learning paradigm can significantly improve student learning outcomes and involvement. Students' enthusiasm for learning increases when games and tests are used in the classroom which can increase their focus and engagement. Compared to traditional learning that is typically passive, competitive and collaborative learning activities result in a more enjoyable learning environment (Sufyan & Hartono, 2024).

The progressive improvement of learning outcomes in each cycle shows that the use of the TGT-type cooperative learning model consistently affects students' understanding. Some students still have difficulty working together and understanding the rules of the academic game at the beginning of class. However, student engagement and problem-solving skills increase as they become more accustomed to cooperative learning approaches. This shows that a TGT-type cooperative learning model can not only directly improve learning outcomes but also assist students in adjusting to active learning, which requires group involvement and accountability (Muliati et al., 2025).

The findings of the study also show that the combination of group projects and academic competitions in the TGT-type cooperative learning model can increase students' willingness to learn. To contribute as much as possible to their group, students are encouraged to study the material more actively through intergroup competitions. Group work also makes learning more inclusive and less dependent on teacher explanations by allowing students who are struggling to learn to gain support from their peers. Thus, increased motivation and student involvement in the learning process has an impact on better learning outcomes in addition to learning methodologies (Najikhah & Sutriani, 2025).

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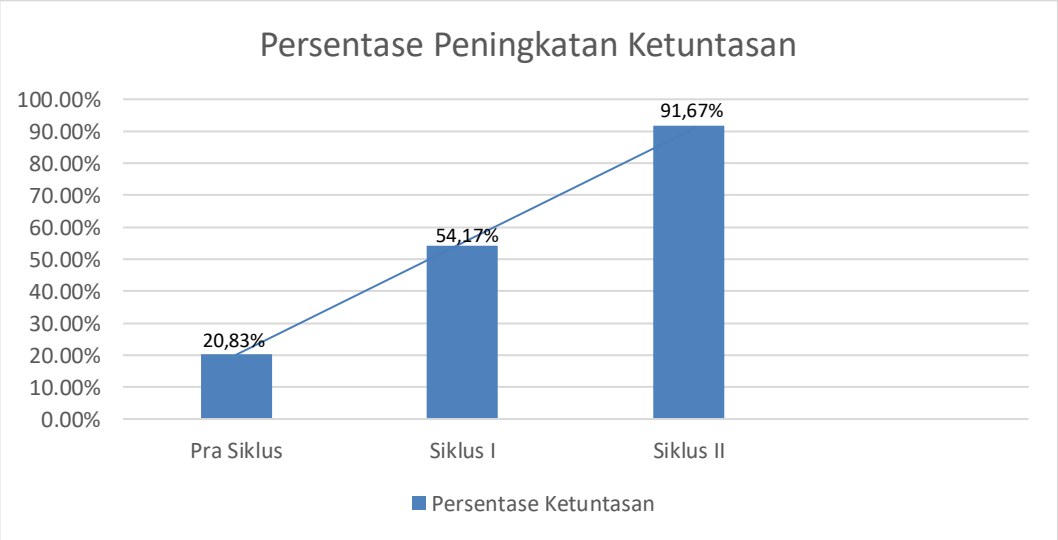
The application of the TGT type cooperative learning model can increase students' interest in learning mathematics in addition to improving learning outcomes. During learning activities, students become more involved in asking questions, discussing, and trying to solve problems. Because they actively participate in the process of learning and understanding math concepts through group interactions and academic games, students' curiosity plays an important role in increasing their cognitive engagement (Marlina & Safari, 2025).

Figure 4. Learning Outcome Improvement Graph



The increase in student participation during the learning process is another indication that the TGT type cooperative learning paradigm is successfully used in this study. Some students tend to be disinterested and passive during math classes at the beginning of learning. However, after the introduction of academic competitions and group-based learning, students began to participate more actively in group activities, discussions, and questions and answers. This shows that students can participate more actively in the learning process by using a TGT-type cooperative learning model to create a more dynamic learning environment (Laksari et al., 2025).

In addition, the use of concrete media in mathematics learning flat building materials also has an impact on learning effectiveness. Playing cards and visual aids make abstract ideas easier to understand and more real for students. When

information is provided through tangible objects or actions, elementary school students who are still in the concrete operational stage tend to understand it more easily. Thus, students have a more meaningful learning experience when the TGT model is combined with real media (Lisnasari et al., 2025).

On the other hand, it has been proven that the components of games and competitions in the TGT-type cooperative learning model can increase student motivation. Because learning activities are presented in an engaging and non-monotonous way, students become more eager to participate in their education. Students become more focused on the subject matter and motivated to excel in academic competitions as a result of this circumstance. Students who are more motivated to learn become more attentive and involved in the process, which improves their understanding of mathematical ideas (Muthmainnah & Wahyudi, 2025).

Students' social skills are also improved by using this TGT type cooperative learning paradigm. Students learn how to collaborate, respect each other's points of view, and communicate more effectively through the exchange of ideas that occur during group discussions. Students' communication and teamwork skills are implicitly trained through group activities that are repeated in each cycle. It illustrates how the TGT cooperative learning paradigm improves students' social skills throughout the learning process in addition to their cognitive abilities (Najihah & Mastoah, 2025).

As an objective reflection and practical guide for other educators who want to adopt this TGT-type cooperative model, the implementation of actions in grade IV of SDN Socah 3 recorded several real obstacles in the field that are important to anticipate. The first fundamental obstacle lies in the very strict allocation and management of learning time. A long series of TGT syntax, starting from class presentation, team formation, working on group worksheets, implementation *Games*, until the implementation of the tournament requires a long duration. In the implementation of Cycle I, researchers had time in the tournament phase due to the process of dividing groups that took too long, so the final evaluation was less than optimal. The second real obstacle is closely related to the level of conduciveness and

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noise in the classroom. The characteristics of fourth grade students of SDN Socah 3 who are physically very active and have high psychomotor energy trigger their own obstacles when the competition element is introduced. The atmosphere in the classroom often becomes too noisy and difficult to control due to the overflow of joyful emotions or tension of students when following the course of group tournaments. The third obstacle found in the field is the inequality of participation or academic dominance within the group. At the beginning of team formation, students with high academic ability tend to dominate the course of group discussions, while students with low ability or lack confidence choose to be passive and rely only on point contributions from their peers. These various field obstacles require teachers to design rigid time management, apply strict instructions during tournaments, and be more intensive in supervising the course of teamwork so that equal distribution of material understanding can be realized in each individual student.

Although this study produced good results, there are still a number of issues that need to be considered. First, the long-term effect of using the TGT type cooperative learning model on student learning outcomes cannot be fully known because this study is limited to two cycles. Second, the results cannot be broadly extrapolated to other school settings because the research subjects were limited to a single class with a relatively small number of students. Third, these results can also be influenced by external variables such as the learning environment, class setting, and student characteristics. Therefore, to fully investigate the effectiveness of the TGT cooperative learning paradigm, more research with a wider range of individuals and longer research times is needed.

4. Conclusion

Based on the results of the research, it can be concluded that the Teams Games Tournament (TGT) type cooperative learning model is an effective approach to improve the quality of mathematics learning in elementary schools. The research findings show that the success of TGT lies not only in improving student learning outcomes, but also in its ability to create a more active, collaborative, and student-centered learning environment. The integration of elements of group cooperation, academic games, and healthy competition provides

students with the opportunity to build an understanding of mathematical concepts through social interaction and meaningful learning experiences.

The findings indicate that TGT not only improves learning outcomes but also enhances students' engagement and participation during mathematics learning. This shows that the TGT model contributes not only to the cognitive aspect, but also to the development of social skills, communication, and student activeness in the learning process. Thus, this study strengthens the role of the cooperative learning model as a strategy that is able to answer the needs of mathematics learning that is more interactive and in accordance with the characteristics of elementary school students.

The contribution of this research lies in providing empirical evidence regarding the effectiveness of the TGT model in mathematics learning of flat building materials, especially in elementary school students who have active characteristics and need concrete learning experiences. These findings broaden the understanding that the success of TGT implementation is not only influenced by the use of games and competitions, but also by the quality of learning management that is able to direct student activities to be more structured and productive.

Practically, the results of this study can be a recommendation for elementary school teachers to apply the TGT model as an alternative to mathematics learning strategies that can improve learning outcomes as well as student involvement. In addition, future studies are recommended to involve larger samples and longer implementation periods to examine the long-term effectiveness of the TGT model. Further research can also examine the application of the TGT model to other mathematical materials and at different levels of education to gain a more comprehensive understanding of the effectiveness of the model.

References

Agustin, A., Rasmitadila, & Priyatno, A. (2025). Pengaruh Model Pembelajaran Kooperatif Tipe *Teams Games Tournament* (TGT) dan *Student Teams Achievement Division* (STAD) Terhadap Hasil Belajar Siswa Pada Mata Pelajaran Matematika di Kelas IV SD Negeri Pabuaran 03. *Karimah Tauhid*, *4*(2). https://doi.org/10.30997/karimahtauhid.v4i2.18090

Literacy of the Archipelago. vol.6 no.2, Maret – Juni2026
ISSN 2746-8208 (Online) and ISSN 2746-3575 (Print)

Apriliyah, A. M., Alfiansyah, I., & Subayani, N. W. (2025). Pengaruh Model Pembelajaran Kooperatif Tipe *Teams Games Tournament* (TGT) Terhadap Hasil Belajar Siswa Kelas V Sekolah Dasar. *Jurnal Nakula : Pusat Ilmu Pendidikan, Bahasa Dan Ilmu Sosial*, *3*(6). https://doi.org/10.61132/nakula.v3i6.2362

Artawiddi, U. N. D., Wicaksono, V. D., Supardal, Y., Apsari, D. R. Y., & Sarika, S. B. (2024). Optimalisasi Menulis Huruf Kapital melalui Teknik Pembelajaran TGT pada Siswa Sekolah Dasar Kelas III. *Jurnal Ilmu Pendidikan Sekolah Dasar*, *11*(2). https://doi.org/10.19184/jipsd.v11i2.48675

Asjudirja, D. H., & Ulia, N. (2025). Model *Teams Games Tournament* Berbantuan Aplikasi *Wordwall* Terhadap Hasil Belajar Matematika Materi Bilangan Desimal Siswa Kelas VI SD. *Jurnal Pendidikan Sultan Agung*, *5*(1). https://doi.org/10.30659/jp-sa.v5i1.42263

Barokah, A., Hayuningtyas, A. L., Fazriah, I. L., & Nazah, S. (2024). Menganalisis Proses Belajar dan Pembelajaran dalam Teori Kognitif pada Peserta Didik di Sekolah Dasar. *EDUKATIF : Jurnal Ilmu Pendidikan*, *6*(3). https://doi.org/10.31004/edukatif.v6i3.6793

Cholida, D., Partono, & Fauzi, A. (2025). Implementasi *Cooperative Learning* Tipe TGT untuk Meningkatkan Hasil Belajar Kompetensi Cvt Siswa Kelas XI TSM di SMK Nasional Malang. *Jurnal Pendidikan Vokasi Otomotif*, *7*(2). https://doi.org/10.21831/jpvo.v7i2.84823

Fauziah, R. R., & Safari, Y. (2025). Penerapan Belajar Matematika pada Siswa SD dengan Teori Perkembangan Jean Piaget. *Karimah Tauhid*, *4*(2). https://doi.org/10.30997/karimahtauhid.v4i2.16901

Handayani, A., Pawellangi, A. F., & Halim, St. N. H. (2025). Implementasi Model Kooperatif Tipe TGT Dalam Meningkatkan Hasil Belajar Matematika Peserta Didik Kelas 5 SD. *Jurnal Pendidikan Dasar Dan Keguruan*, *10*(1). https://doi.org/10.47435/jpdk.v10i1.3217

Kurniasari, N., Yarmi, G., & Kartono, K. (2023). Hubungan Kedisiplinan dan Motivasi Belajar dengan Hasil Belajar Matematika Siswa Kelas IV Sekolah Dasar. *Jurnal Educatio FKIP UNMA*, *9*(3). https://doi.org/10.31949/educatio.v9i3.5646

Lail, T. H., Afiani, K. D. A., & Wahyuni, H. I. (2025). Implementasi Model *Teams Games Tournament* (TGT) berbasis Media *Snake and Ladders Carpet* dalam Pembelajaran Matematika di Sekolah Dasar. *Jurnal Pendidikan Dan Pembelajaran Indonesia (JPPI)*, *5*(2). https://doi.org/10.53299/jppi.v5i2.1273

Laksari, D. Z. O., Amrullah, A., & Aiyubi, D. (2025). Penerapan Model Pembelajaran Kooperatif Tipe TGT untuk Meningkatkan Hasil Belajar Materi Program Linear. *Jurnal Pendidikan, Sains, Geologi, Dan Geofisika (GeoScienceEd Journal)*, *6*(3). https://doi.org/10.29303/goescienceed.v6i3.954

Lisnasari, S. F., Jainab, J., Datten, D., & Pelista, P. (2025). Dampak Penggunaan Media Konkret dalam Manajemen Pembelajaran Terhadap Kemampuan Numerasi Siswa Sekolah Dasar. *Jurnal JIPDAS (Jurnal Ilmiah Pendidikan Dasar)*, *4*(4). https://doi.org/10.37081/jipdas.v4i4.2889

Listiani, T., Yonanda, D. A., & Anshori, Y. Z. (2025). Pengaruh Model Pembelajaran Kooperatif Tipe *Teams Games Tournament* Terhadap Hasil Belajar IPA. *PUSAKA: Journal of Educational Review*, *2*(2). https://doi.org/10.56773/pjer.v2i2.70

Makgabo, C., & Makgobatlou, K. F. (2024). *The challenges that are faced by Grade 8 Sepedi learners in the Tshwane independent schools*. *Journal for Language Teaching*, *58*(1). https://doi.org/10.56285/jltvol58iss1a6589

Marlina, M., & Safari, Y. (2025). Kajian Literatur Sistematis: Model *Team Games Tournament* (TGT) dalam Pembelajaran Matematika di Sekolah Dasar. *Karimah Tauhid*, *4*(6). https://doi.org/10.30997/karimahtauhid.v4i6.18523

Muliati, I., Silvia, G., Wardihen, M. R., Zulfayeni, H., Ramadhani, N., & Assiya, R. (2025). Analisis Penerapan Model TGT Berbasis Permainan Ular Tangga untuk Meningkatkan Pemahaman Konsep Operasi Bilangan Cacah di SDN 012 Silungkang Duo. *Jurnal Pengabdian Masyarakat Dan Riset Pendidikan*, *4*(1). https://doi.org/10.31004/jerkin.v4i1.1243

Muthmainnah, G., & Wahyudi, A. B. E. (2025). Penerapan Model TGT Berbantuan Media Gambar untuk Meningkatkan Keterampilan Membaca Permulaan Peserta Didik. *Kalam Cendekia: Jurnal Ilmiah Kependidikan*, *13*(3). https://doi.org/10.20961/jkc.v13i3.101293

Najihah, I. F., & Mastoah, I. (2025). Pengembangan Model Pembelajaran Kooperatif Untuk Meningkatkan Keterampilan Sosial Siswa SD. *PESHUM : Jurnal Pendidikan, Sosial Dan Humaniora*, *4*(3). https://doi.org/10.56799/peshum.v4i3.8778

Najikhah, N., & Sutriyani, W. (2025). Efektivitas Penerapan Model TGT Berbantuan Media Spinner Numerasi terhadap Kemampuan Berhitung Siswa SD. *JagoMIPA: Jurnal Pendidikan Matematika Dan IPA*, *5*(3). https://doi.org/10.53299/jagomipa.v5i3.1876

Patmawati, P., Faisal, M., & Kartini, K. (2025). Penerapan Model Pembelajaran *Team Games Tournament* (TGT) Untuk Meningkatkan Hasil Belajar Siswa

Literacy of the Archipelago. vol.6 no.2, Maret – Juni2026
ISSN 2746-8208 (Online) and ISSN 2746-3575 (Print)

Kelas V SD. *Pinisi Journal Pendidikan Guru Sekolah Dasar*, *5*(1). https://doi.org/10.70713/pjp.v5i1.62091

Putri, F. (2025). Analisis Dampak *Brain Rot* terhadap Kemampuan Berpikir Kritis Anak berdasarkan Teori Perkembangan Kognitif Piaget. *Jurnal Pendidikan Guru Sekolah Dasar*, *2*(4). https://doi.org/10.47134/pgsd.v2i4.1845

Putri, L. S., & Jupriyanto. (2025). Efektivitas Model Pembelajaran Kooperatif Tipe *Team Games Tournament* Dalam Peningkatan Hasil Belajar Siswa Sekolah Dasar. *Jurnal IHSAN Jurnal Pendidikan Islam*, *3*(2). https://doi.org/10.61104/ihsan.v3i2.879

Rahmadiana, P. U., Permana, E. P., & Anam, M. (2025). Model TGT dan *Educaplay*: Solusi Peningkatan Hasil Belajar Bahasa Indonesia Kelas V. *Jurnal Pendidikan Guru Sekolah Dasar*, *2*(3). https://doi.org/10.47134/pgsd.v2i3.1556

Rahmawati, F. A., & Purwaningrum, J. P. (2022). Penerapan Teori Vygotsky dalam Pembelajaran Matematika. *Jurnal Riset Pembelajaran Matematika*, *4*(1). https://doi.org/10.55719/jrpm.v4i1.349

Safitri, H., Putra, R. E., & Agrita, T. W. (2025). Penerapan Model Pembelajaran *Team Game Tournament* untuk Meningkatkan Proses dan Hasil Belajar Matematika di Kelas V SDN 177/II Lintas Jaya. *Master of Pedagogy and Elementary School Learning*. https://doi.org/10.63461/mapels.v22.218

Sari, S. N., Handayani, A. D., & Mujiono, M. (2025). Implementasi Model Pembelajaran *Teams Games Tournaent* (TGT) Untuk Meningkatkan Hasil Belajar Matematika. *MANAJERIAL : Jurnal Inovasi Manajemen Dan Supervisi Pendidikan*, *5*(1). https://doi.org/10.51878/manajerial.v5i1.4898

Sembiring, H. M. S. B., Sari S, D. I., Sinaga, A. I., Sihotang, I. R., & Sihombing, A. L. (2025). Peningkatan Hasil Belajar Siswa Kelas V Melalui Model Pembelajaran Kooperatif Tipe *Teams Games Tournament* (TGT) di SD 067246 Medan Tuntungan. *DIKKESH : Jurnal Penelitian Pendidikan Dan Kesehatan*, *1*(2). https://doi.org/10.60126/dikkesh.v1i2.1098

Sufyan, Q. A., & Hartono, M. S. (2024). Implementasi Model Pembelajaran Kooperatif Tipe *Team Game Tournament* (TGT) dalam Melatih Berfikir Kritis Peserta Didik. *Indonesian Journal of Islamic Educational Review*, *1*(1). https://doi.org/10.58230/ijier.v1i1.58

Tawakal, L., & Purnomo, A. (2025). Analisis Tingkat Partisipasi Aktif Siswa Dalam Pembelajaran IPS Melalui Model Pembelajaran *Teams Games Tournament* (TGT) Berbantuan Media *Flash Card*. *SOCIAL: Jurnal Inovasi Pendidikan IPS*, *5*(3). https://doi.org/10.51878/social.v5i3.6732

Wahida, Nasruddin, & Musnidah. (2025). Implementasi Model *Teams Games Tournament* (TGT) dalam Pembelajaran Barisan dan Deret. *Journal of Mathematics Learning Innovation (JMLI)*, *4*(1). https://doi.org/10.35905/jmlipare.v4i1.11881

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