

Efforts to increase student activity by utilizing the TGT (Teams Games Tournament) type cooperative learning model in mathematics learning for grade II elementary school students.

Abrar Kurniawati¹, Anis Nur Afifah¹, Khusnul Khotimah², Wiwin Sri Wilujeng³

^{1,2}Departemen of Elementary and Pre-School Education, Malang State University, Malang, Indonesia

³Elementary School Sawojajar 1, Malang, Indonesia

*Corresponding author, email: abrarkurniawati.2201516@students.um.ac.id

Keywords

Team Games Tournament,
Learning Activity,
Mathematics.

Abstract

This research is a Classroom Action Research (CAR) that aims to improve student learning activity in mathematics learning through the application of the Teams Games Tournament (TGT) type cooperative learning model. The background of the research is based on the low activity of second-grade students of SDN Sawojajar 1 Malang City, which is indicated by the lack of active participation in learning activities such as asking, answering, and discussing. The research was conducted in two cycles, each consisting of two meetings, with data collection techniques in the form of observation, interviews, and documentation. The results of the study showed an increase in student learning activity in each cycle. Activity increased from 57% in the first meeting of cycle I to 63% in the second meeting. In cycle II, activity increased further to 71% and reached 83% in the second meeting. The average overall activity was 68%, which is classified as active. The contribution of this research is to provide an alternative cooperative-based learning strategy that is able to create a fun, competitive, and collaborative learning atmosphere, as well as encourage active student participation. Thus, the TGT model can be recommended as an effective approach in increasing students' active learning of mathematics in elementary schools.

1. Introduction

Mathematics is a fundamental subject that plays a crucial role in everyday life. It not only teaches students to count, but also serves as an essential tool for solving various everyday problems. Mathematics is not merely a collection of formulas and calculations; it also involves conceptual understanding, logical thinking, and problem-solving skills, all essential for students' intellectual development (Nazari & Suharyanto, 2024). By studying mathematics, students can develop problem-solving skills, critical thinking, and rational decision-making. Therefore, mastering mathematical concepts from an early age is crucial for long-term learning success. In second grade of elementary school, the mathematics taught includes number operations, measurement, and the introduction of simple geometric shapes, which serve as a foundation for more complex material at the next level. Elementary school students' mathematical abilities serve as an early indicator of the development of logical thinking skills at the next level.

The success of mathematics learning depends heavily on student engagement in the learning process. Students who actively ask questions tend to be more mentally and emotionally engaged in the learning material (Fathor Rozi et al., 2024). Therefore, active students more easily understand the material, dare to ask questions, answer teacher questions, and participate in discussions or group activities. However, in reality, student engagement in mathematics learning is often low, especially in second grade elementary school. Many students feel that mathematics is a difficult and confusing subject. In addition to the abstract nature of the material, the lack of variety in learning methods and the dominance of lectures can easily cause students to become bored and passive. The lack of an engaging approach and a classroom atmosphere that does not support active participation also contribute to students' reluctance to fully engage in learning. This is in line with research (Citra Anggraeni & Supriyono, 2024), which found that low student engagement in mathematics learning is not only caused by the abstract nature of the material, but also by monotonous and less varied learning models, and methods that tend to be lecture-dominated. Based on observations conducted

by (Citra Anggraeni & Supriyono, 2024), some students appeared passive and less actively engaged in learning. This was evident in the minimal amount of student attention paid to the teacher's explanations, the lack of student participation in answering and asking questions, and the dominance of students directly appointed by the teacher.

To determine the level of student learning activity, the following is a table of student learning activity categories according to Sugiyono, 2016, p. 139. As follows:

Table 1. Student Activity Category

No	Activity Category	Student Activity Percentage Range (%)
1	Very Active	$80 \leq x \leq 100$
2	Active	$60 \leq x \leq 80$
3	Moderately Active	$40 \leq x \leq 60$
4	Less Active	$20 \leq x \leq 40$
5	Very Less Active	$0 \leq x \leq 20$

Based on the results of initial observations conducted in class II of SDN Sawojajar 1 Malang City, it was found that the level of student activeness in mathematics learning is still relatively low. Of the total of 27 students, only about 45% appeared active in participating in the learning process. This activeness includes the courage to ask questions, answer questions, discuss, and work on problems independently or in groups. Meanwhile, most students appeared passive, only listening to the teacher without showing active involvement in learning activities. This condition indicates the need for innovative efforts to increase student engagement in the learning process, especially in mathematics subjects that are often considered difficult and boring by most students. This is in line with research conducted by (Lesmana & Afriansyah, 2024) which shows that student interest and activeness in mathematics learning are still relatively low. Students tend to be passive and lack enthusiasm in learning, which is caused by the use of inappropriate learning models and media. This finding aligns with research by Isfadilah et al. (2023), which showed that the learning process in fourth-grade students at Pulutan 02 Public Elementary School in Salatiga is still dominated by teachers using a teacher-centered learning approach. The learning pattern tends to be one-way, giving students less opportunity to express their opinions or explore their potential. Teachers spend most of their time delivering material at the front of the class, while students tend to be passive. This practice results in low student participation, suboptimal group collaboration, and a less effective teaching and learning process.

Therefore, innovation is needed in the application of more relevant and contextual learning models and media to improve the quality of the teaching and learning process. Several previous studies, such as those by Isfadilah et al. (2023) and Lesmana & Afriansyah (2024), have demonstrated the effectiveness of cooperative learning models and interactive media in increasing learning activity. However, most of these studies focused on upper grade levels or did not specifically integrate the TGT approach in the context of lower elementary school grades. Furthermore, student engagement in the learning process has not been comprehensively studied through detailed and structured indicators of learning activity. Based on this gap, this study aims to fill the gap by implementing the Teams Games Tournament (TGT) cooperative learning model in second-grade elementary school students and evaluating its comprehensive impact on four indicators of learning activity. The novelty of this study lies in the application of the TGT model adapted to the characteristics of lower grade students and the analysis of the gradual increase in student activity over two learning cycles.

To increase student engagement, learning strategies are needed that encourage students to be more actively involved in the learning process. One approach that can be used is to create a fun, challenging, and interactive learning environment. Teachers need to adopt learning models that not only emphasize cognitive achievement but also encourage student cooperation, participation, and emotional engagement. One method proven effective in activating students is through the implementation of cooperative learning models. Cooperative learning is a learning model based on group work carried out to achieve specific goals (Wanah et al., 2024). In the context of mathematics learning, cooperative models can be used to help students understand concepts through discussions,

collaborative problem-solving, and practice exercises that involve the active participation of all group members.

The cooperative learning model is an approach that places students in small, heterogeneous groups, where they work together to complete academic tasks and achieve specific learning objectives. In this model, the success of the group depends on the active contribution of each member. Gillies (2016) stated that cooperative learning not only improves academic achievement but also builds students' social skills, responsibility, and self-confidence. When students engage in structured group discussions, they learn to express ideas, respond to peers' views, and develop deeper conceptual understanding. These findings reinforce the importance of cooperative learning at the elementary school level, as it creates a participatory, collaborative, and enjoyable learning environment. The application of the cooperative model in mathematics learning is particularly appropriate for second-grade elementary school students because at that age, children tend to learn more easily through social interaction and play. This model helps students build conceptual understanding through discussion, mutual explanation, and feedback among peers. Furthermore, cooperative learning can also increase students' self-confidence, responsibility, and social skills. When implemented appropriately, the cooperative model not only improves learning outcomes but also student activeness and engagement in learning.

One interesting type of cooperative learning model to implement in mathematics learning is the Team Games Tournament (TGT). The TGT (Team Games Tournament) learning model is easy to implement and involves the activities of all students without distinction of status. It involves students acting as peer tutors, contains elements of play, allows students to learn in a relaxed manner while fostering responsibility, cooperation, healthy competition, and learning engagement (Erviani et al., 2022). In its implementation, students are divided into heterogeneous groups, study together, and then participate in a tournament in the form of a quiz or game based on questions they have learned. This activity stimulates students' enthusiasm for learning because they want to make the best contribution to their group. Furthermore, the game element in the TGT model makes learning more enjoyable and minimizes fear of mathematics. This model also encourages students to actively ask questions, answer questions, discuss, and strengthen understanding through enjoyable repetition. Thus, the TGT model has great potential for use in increasing student engagement in lower elementary school grades.

Based on the problems found in the field, researchers felt the need to conduct research focused on increasing student activity through the application of appropriate learning models. The TGT type of cooperative learning model was chosen because it is considered capable of creating a pleasant learning atmosphere while encouraging active student involvement. In addition, based on various factors that contribute to low learning activity, the main factors are teachers' inaccurate choice of learning models and teachers' lack of encouraging students to be active (Lubis & Nasutiion, 2023). By combining elements of competition and cooperation in learning, TGT is expected to change students' perceptions of mathematics from initially difficult and boring to more interesting and challenging. Therefore, this study is entitled "Efforts to increase student activity by utilizing the TGT (Teams Games Tournament) type of cooperative learning model in mathematics learning for second grade elementary school".

This study aims to determine the extent to which the Teams Games Tournament (TGT) type cooperative learning model can increase student activity in the mathematics learning process in grade II of Elementary School. Specifically, the objectives of this study are formulated as follows, namely, to determine the increase in student activity in mathematics learning after the implementation of the TGT type cooperative learning model in cycle I, to determine the increase in student activity in mathematics learning after corrective actions in cycle II, and to evaluate the effectiveness of the TGT type cooperative learning model in creating an active, fun, and participatory learning atmosphere for grade II elementary school students.

2. Method

This study used a Classroom Action Research (CAR) approach, implemented in two cycles. Each cycle consisted of four stages: planning, action implementation, observation, and reflection. This

study aimed to increase student engagement in mathematics learning through the implementation of the Teams Games Tournament (TGT) cooperative learning model.

The research location was SDN Sawojajar 1 Malang City, Kedungkandang District, in the 2024–2025 academic year. The population in this study included all second-grade students of SDN Sawojajar 1 Malang City, totaling 77 students from three parallel classes. The research sample was taken purposively, namely one class consisting of 27 children consisting of 15 male students and 11 female students who acted as the subjects of the action.

The data collection techniques used included observation, interviews, and documentation. Observations were conducted to assess student engagement during the learning process. Interviews were conducted with class teachers to obtain supporting information regarding student behavior during teaching and learning activities. Documentation was used to record learning outcomes and student activities during the intervention.

The instrument used in this study was a student learning activity observation sheet, which included indicators of student enthusiasm for learning, asking questions, answering questions, and discussing. Additionally, an interview guide and documentation format were used to strengthen the data obtained. The collected data were analyzed descriptively and qualitatively to determine the increase in student activity in each cycle.

3. Results and Discussion

The research results and analysis data regarding the application of the Teams Games Tournament (TGT) type cooperative learning model in an effort to increase the learning activity of class II students at SDN Sawojajar 1, Malang City are presented in the following table:

Table 2. Increase in Average Student Learning Activity

Cycle	Meeting	Total Score	Percentage	Category
Cycle I	1	246	57%	Quite Active
	2	271	63%	Active
Cycle II	1	306	71%	Active
	2	360	83%	Very Active
Maximum Score			432	

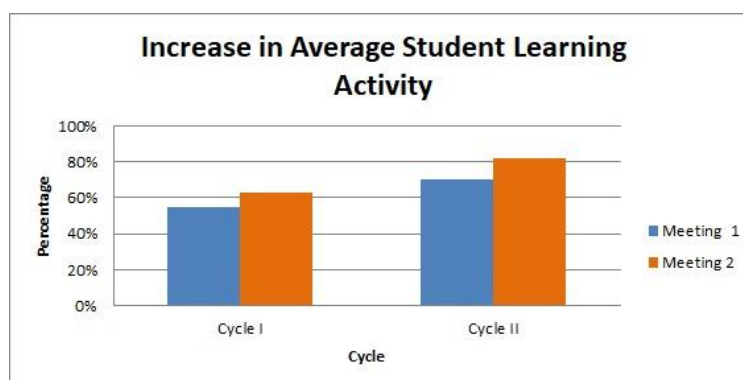


Figure 1. Peningkatan Increase in Average Student Learning Activity

Based on Table 2, it can be seen that the percentage of student activity increased in each cycle. In the first meeting of cycle I, the overall level of student activity reached 57% and was categorized as quite active. Then, in the second meeting of the same cycle, there was an increase of 6% to 63% and was categorized as active. Furthermore, in the first meeting of cycle II, there was another increase of 8% from the previous meeting, to 71% and remained in the active category. In the second meeting of cycle II, the percentage of activity increased by 12% to 81% and was categorized as very active. Overall, the average percentage of student activity in both cycles was 68% with the (active) category.

This research was conducted in two cycles, each consisting of two meetings. The learning model applied in this study was the TGT (Teams Games Tournament) cooperative learning model, which includes five stages: 1) Class presentation; 2) Group formation; 3) Games; 4) Tournament; and 5) Group awards. The research conducted using the TGT model in grade 2 of SDN Sawojajar 1, Malang City, aimed to observe the level of student learning activity based on four indicators of activity.

According to Slameto (in Ula, 2023), activities such as writing, reading, discussion, and listening can be observed in the following table.

Table 3. Student Activity Achievement Category

No	Activity Category	Student Frequency			
		Cycle I Meeting 1	Cycle I Meeting 2	Cycle II Meeting 1	Cycle II Meeting 2
1	Very Active	2	2	8	24
2	Active	14	16	17	3
3	Moderately Active	8	9	2	-
4	Less Active	3	-	-	-
5	Very Less Active	-	-	-	-

In cycle I meeting 1 held on April 28, 2025, researchers conducted learning activities starting from preparing the learning tools to be used, the subject taught was mathematics. Based on diagram 1 of cycle I meeting 1, the average result of student activity was 57%, included in the fairly active category. In table 3, the frequency of students was obtained as many as 2 students were classified as the (very active) category, 14 students were classified as the (active) category, 8 students were classified as the (quite active) category, and 3 students were classified as the (less active) category. Based on the results of observations, this condition occurred because some students were still less enthusiastic in learning, less confident in conveying and answering questions, and involvement in groups tended to be dominated by several students who had a higher level of knowledge.

In cycle I, the second meeting was held on May 7, 2025, the subject taught was mathematics. Following up from the first meeting, the researcher conducted reflection and improvements in the second meeting by providing motivation to students to be more active in learning and confident in conveying and answering questions. In addition, the researcher also reiterated the purpose of holding group discussions and monitored the discussion process carefully. Through table 2 in cycle I, meeting 2, the average results of student activity were 63% with the (active) category. In table 3, the frequency of students was obtained as many as 2 students were categorized as (very active), 16 students were categorized as (active), and as many as 9 students were categorized as (quite active). Based on the results of observations obtained, the percentage of student activity increased by 6%, however, in meeting 2, many students were enthusiastic about game and tournament activities, making the researcher overwhelmed in coordinating the class. So that many students were noisy and less conducive so that follow-up was needed in cycle II.

The first meeting of Cycle II was held on May 14, 2025. At this stage, the researcher conducted preparatory activities by preparing the learning materials to be used, conditioning the students, and implementing the learning process in the classroom. Based on the reflection results from Cycle I, improvements were made in classroom management and time management to ensure more effective learning. In implementing tournament syntax, time limits and team sizes were applied, with shorter durations. Correct answers were awarded additional points as a strategy to increase student motivation and enthusiasm for winning. Based on the average increase in student activity data, a percentage of 71% was included in the 'Active' category. Specifically, 8 students were classified as (Very Active), 17 students as (Active), and 2 students as (Fairly Active). Despite the increase in student activity at this meeting, there were still complaints from several students regarding the heterogeneous group division. Therefore, in the next meeting, the teacher needs to establish firm rules and explain them in detail to students.

Cycle II meeting 2 was held on May 16, 2025. The follow-up carried out by the teacher in this meeting was to convey the rules clearly before the group division process and the implementation of

the tournament. This was done because the group division had been designed randomly and heterogeneously, taking into account gender, academic ability, and other aspects. Thus, students can participate in activities according to the established rules, so that learning takes place comfortably and conductively. Based on the data in Diagram 1, the average student learning activity at this meeting reached 83%, which is included in the (Very Active) category. The distribution of activity shows that as many as 24 students are classified as (Very Active) and 3 students are classified as (Active).

Based on Diagram 1, there is a comparison of the average achievement of student activity between cycles I and II. In the first meeting of cycle I, student activity was recorded as 57%, which is included in the (Less Active) category. In the second meeting of cycle I, there was an increase of 6% to 63%, which is included in the (Active) category. Furthermore, in the first meeting of cycle II, student activity increased by 8% to 71%, still in the (Active) category. A more significant increase occurred in the second meeting of cycle II, namely by 12% to 83%, which is classified as (Very Active). Overall, the average increase in student activity in both cycles reached 68%, with the (Active) category. This finding indicates that the implementation of the Teams Games Tournament (TGT) type cooperative learning model is effective in increasing student learning activity. This is due to the suitability of the TGT model with the characteristics of elementary school students who tend to like games, challenges, and group work. Furthermore, this model also encourages students to actively engage in various activities, both physical activities such as observing, writing, and reading, as well as cognitive activities such as analyzing, solving problems, and making decisions. Thus, the implementation of the TGT model has been proven to increase the activeness and learning participation of second-grade students at Sawojajar 1 Elementary School, Malang City.

3.1 Conclusion

Based on the results of the research and analysis that have been conducted, it can be concluded that the implementation of the Teams Games Tournament (TGT) type of cooperative learning model can effectively increase the learning activity of second-grade students at SD Negeri Sawojajar 1, Malang City. The increase in student activity is seen gradually in each learning cycle. In the first meeting of cycle I, the average student activity was recorded at 57% (Quite Active category), increasing to 63% in the second meeting (Active category). Furthermore, in the first meeting of cycle II, student activity increased to 71% (Active category), and reached 83% in the second meeting (Very Active category).

The overall average student activity across both cycles was 68%, which falls into the Active category. In addition to quantitative improvements, qualitative changes in student behavior during learning were also evident, such as increased participation in group discussions, increased confidence in expressing opinions, and increased enthusiasm for participating in tournaments.

The effectiveness of the TGT model in this study is inseparable from its characteristics, which are appropriate for children's worlds: fun, competitive, and collaboration-based. This model not only enhances physical activities such as reading, writing, and discussion, but also cognitive activities such as analysis, problem-solving, and decision-making. Therefore, the TGT model is recommended as an alternative learning strategy to increase the learning engagement of elementary school students, especially in the lower grades.

Author Contributions

All authors have equal contributions to the paper. All the authors have read and approved the final manuscript.

Funding

No funding support was received.

Declaration of Conflicting Interests

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Acknowledgement (Optional)

We express our deepest gratitude to the State University of Malang, especially the 2025 Teaching Assistance program, which has provided us with the opportunity to continue developing our insights and skills through this program. With the guidance of a competent and patient lecturer, Ms. Khusnul Khotimah, S.Pd., M.Pd as our field supervisor, we were able to carry out this research to the stage of compiling a report that will later be published in the form of a journal article. We also express our appreciation to SDN Sawojajar 1 Malang City, the principal, and the teachers of SDN Sawojajar 1 Malang City for the opportunity and support provided during the research process. We also would like to thank our colleagues in the Teaching Assistance who contributed to the preparation of this research. All the support and cooperation provided have been a valuable experience in our academic journey.

References

- Citra Anggraeni, A., & Supriyono, S. (2024). Peningkatan Keaktifan Belajar Siswa Melalui Model Pembelajaran Teams Game Tournament (Tgt) Pada Siswa Kelas Iii Sekolah Dasar. *Consilium: Education and Counseling Journal*, 4(1), 247. <https://doi.org/10.36841/consilium.v4i1.4279>
- Erviani, I., Hambali, H., & Thahir, R. (2022). Pengaruh Model Pembelajaran Kooperatif Tipe Tgt (Team Games Tournament) Berbantuan Media Kokami Terhadap Keterampilan Kolaborasi Siswa. *Jurnal Riset Dan Inovasi Pembelajaran*, 2(3), 30-38. <https://doi.org/10.51574/jrip.v2i3.680>
- Fathor Rozi, K., Fajri, Z., & Putri Intan Nuraini, Y. (2024). Penggunaan Metode Question Student Have Dalam Meningkatkan. *Jurnal Pendidikan*, 10(1), 2548–4419.
- Gillies, R. M. (2016). Cooperative Learning: Review of Research and Practice. *Australian Journal of Teacher Education*, 41(3), 39–54. <https://doi.org/10.14221/ajte.2016v41n3.3>
- Isfadilah, I. S. M., Khamdun, & Diana Ermawati. (2023). Implementasi Model Pembelajaran Kooperatif Tipe Teams Games Tournament (Tgt) Untuk Meningkatkan Keaktifan Belajar Siswa Kelas Iv Sd Negeri Pulutan 02 Salatiga. *Didaktik : Jurnal Ilmiah PGSD STKIP Subang*, 9(04), 2637–2646.
- Lesmana, A., & Afriansyah, E. A. (2024). Analisis minat dan keaktifan belajar siswa dalam pembelajaran matematika melalui model pembelajaran discovery learning berbantuan kahoot. *Jurnal Inovasi Pembelajaran Matematika: PowerMathEdu*, 3(1), 37–52. <https://doi.org/10.31980/pme.v3i1.1775>
- Lubis, R., & Nasutiion, I. S. (2023). Pengaruh Model Team Games Tournament Terhadap Keaktifan Belajar Siswa dalam Pembelajaran Matematika Kelas IV SD. *Jurnal Ilmiah Pendidikan Dasar*, 1(2), 129–137.
- Nazari, A. K., & Suharyanto, S. (2024). Upaya Meningkatkan Keaktifan Belajar Matematika Dengan Model Pembelajaran Kooperatif Tipe TGT (Team Games Tournament) Pada Siswa Kelas 2 SD Negeri Ngadirejo 03. *Jurnal Jendela Pendidikan*, 4(02), 169–176. <https://doi.org/10.57008/jjp.v4i02.751>
- Slameto. 1995. *Belajar dan Faktor-Faktor yang Mempengaruhinya*. Jakarta: Rineka Cipta
- Sugiyono. (2016). *Metode Penelitian Pendidikan*. Bandung : Alfabeta
- Wanah, N., Pramita, A. A., & Prayogo, M. S. (2024). Penerapan Strategi Kooperatif Learning Mata Pelajaran IPA Materi Alat Panca Indera Manusia Kelas IV di SDN Jatisari 02. *INKURI : Jurnal Pendidikan IPA*, 13(1), 124–129. <https://doi.org/10.20961/inkuri.v13i1.74839>