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Efforts to Improve Students' Learning Engagement in Science Learning Using the Teams Games Tournament (TGT) Model in Grade VIII of SMPN 22 Padang

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A B S T R A C T

This study was conducted to address the low level of students' learning engagement in science learning at Grade VIII.G of SMP Negeri 22 Padang. The study aimed to improve students' learning engagement through the implementation of the Teams Games Tournament (TGT) cooperative learning model. This study employed Classroom Action Research (CAR) using the Kemmis and McTaggart model, which consisted of two cycles: planning, action, observation, and reflection, involving 32 students of Grade VIII.G. Data were collected using observation sheets and learning engagement questionnaires and analyzed descriptively using percentage analysis. The study was considered successful when students' learning engagement reached at least the Active category based on the predetermined success criteria. The findings showed that students' learning engagement improved throughout the research cycles. The average questionnaire score increased from 58.7% in the pre-cycle to 74.5% in Cycle I and 79.0% in Cycle II, while the average observation score increased from 53.5% to 69.9% and 78.1%, respectively. These findings suggest that the implementation of the Teams Games Tournament (TGT) cooperative learning model improved students' learning engagement in science learning among the participants involved in this study.

1. Introduction

Student engagement is one of the key indicators of successful learning because it reflects the extent to which students are physically, intellectually, and emotionally involved throughout the learning process. Student engagement can be identified through several indicators, including participation in completing assignments, involvement in problem-solving activities, asking questions, seeking information, participating in group discussions, conducting self-evaluation, practicing problem-solving, and applying acquired knowledge (Prasetyo & Abduh, 2021). These indicators demonstrate that active participation is essential for meaningful learning and contributes to students' academic development.

This perspective is supported by Minarti et al (2023) who stated that student engagement reflects students' direct participation in learning activities to achieve predetermined learning objectives. A high level of student engagement positively influences learning outcomes because actively engaged students tend to understand learning materials more effectively (Nugroho, 2016). Furthermore, Prijanto & Kock (2021) argued that active participation during classroom instruction enhances academic achievement while fostering critical thinking, communication, and collaborative skills. Therefore, promoting student engagement should become one of the primary objectives of classroom instruction.

Student engagement is influenced by various internal and external factors. Internal factors include students' physical and psychological conditions, such as health, attention, learning interest, and cognitive abilities. External factors involve the learning environment, teachers' instructional strategies, classroom atmosphere, and peer interactions, all of which influence students' willingness to participate in learning activities (Wibowo, 2016). Consequently, teachers are expected to implement appropriate instructional strategies that create an engaging, supportive, and student-centered learning environment.

Classroom environment and classroom management are important motivational factors that influence students' engagement in the learning process because effective classroom management promotes positive teacher–student interactions and supports the achievement of learning objectives (Akinyemi et al., 2024). Akinyemi et al. (2024) found that among various classroom environment factors, classroom organization showed the strongest relationship with students' academic performance (r = .925). These findings indicate that well-structured learning activities and classroom interactions play an important role in promoting students' engagement.

In science learning, student engagement plays a crucial role because science education requires students not only to acquire conceptual knowledge but also to actively participate in observing, questioning, experimenting, reasoning, and communicating scientific ideas. This view is consistent with the constructivist learning theory, which emphasizes that students construct knowledge through active participation and social interaction during the learning process (Suparlan, 2019). Conversely, passive learning environments tend to reduce students' motivation and limit conceptual understanding.

Janah & Hidayati (2025) emphasized that active participation represents an important indicator of instructional quality because it encourages deeper understanding and meaningful learning experiences. Therefore, science instruction should employ learning models that actively engage students throughout the learning process (Rianita, 2022).

Learning engagement is an essential aspect of the learning process because it reflects students' physical, psychological, intellectual, and emotional involvement during learning activities, which directly contributes to their academic achievement and conceptual understanding (Damayanti et al., 2025). However, low student engagement remains a common challenge in science learning and may contribute to students' weak thinking skills (Agustia et al., 2024). Novritasari et al. (2022) reported that teacher-centered instruction and one-way classroom interactions tend to make students passive during the learning process, while less engaging learning media encourage students to memorize concepts rather than develop critical and logical thinking skills. Therefore, teachers are expected to implement innovative, student-centered instructional strategies that actively engage students throughout the learning process.

One instructional model that has the potential to enhance student engagement is the Teams Games Tournament (TGT) cooperative learning model. This model integrates cooperative learning with educational games and academic tournaments to create an enjoyable learning atmosphere while encouraging active participation (Slavin, 2008). During implementation, students are organized into heterogeneous groups that promote cooperation and peer learning (Isjoni, 2010). The TGT model consists of five stages: class presentation, team study, games, tournaments, and team recognition (Huda, 2013). Through these stages, students are encouraged to discuss, ask questions, express opinions, and collaborate in solving problems while simultaneously developing academic competence and social skills (Isjoni, 2010). In addition, TGT increases students' learning motivation because learning activities become more interactive, enjoyable, and competitive while involving every group member (Shoimin, 2013). Nevertheless, successful implementation of the TGT model requires careful instructional planning and effective classroom management (Sani, 2022).

Previous studies have demonstrated the positive contribution of the Teams Games Tournament (TGT) model to classroom learning. Muthoharoh et al. (2024) reported that implementing the TGT model gradually improved students' learning engagement through collaborative discussions, educational games,

and academic tournaments. Likewise, Prasetyo and Abduh (2021) found that higher levels of student engagement contributed to improved learning outcomes because students participated more actively in constructing knowledge. These findings indicate that cooperative learning models can create interactive learning environments, strengthen collaboration among students, increase motivation, and encourage active participation during classroom instruction.

Despite these promising findings, previous studies have primarily focused on improving students' academic achievement, learning motivation, and higher-order thinking skills following the implementation of the TGT model. Studies investigating student engagement as the primary outcome in junior high school science classrooms using a Classroom Action Research (CAR) approach remain scarce. Furthermore, differences in students' characteristics, classroom contexts, and instructional practices may influence the effectiveness of the TGT model. Therefore, further investigation is needed to examine its effectiveness in enhancing student engagement in different educational settings.

The novelty of this study lies in examining student engagement as the primary outcome of implementing the Teams Games Tournament (TGT) cooperative learning model in Grade VIII science classes at SMP Negeri 22 Padang through Classroom Action Research. Unlike previous studies that mainly emphasized academic achievement or learning motivation, this study focuses on changes in students' engagement based on systematic classroom observations using predefined engagement indicators. The findings are expected to provide practical evidence for science teachers in implementing cooperative learning strategies to foster active classroom participation.

Based on interviews with the science teacher and classroom observations conducted during the Teaching Practicum Program (PLK) at SMP Negeri 22 Padang, student engagement during science lessons was found to be relatively low. Classroom instruction was predominantly teacher-centered, with lecture-based methods limiting students' opportunities to participate actively in learning activities. In addition, many students were reluctant to ask questions, express opinions, or participate in classroom discussions. These conditions indicate the need for an innovative and student-centered instructional model capable of increasing students' active participation throughout the learning process.

Therefore, this study aims to investigate the implementation of the Teams Games Tournament (TGT) cooperative learning model to improve student engagement in Grade VIII science classes at SMP Negeri 22 Padang during the 2025/2026 academic year.

2. Method

This study employed Classroom Action Research (CAR) to address problems identified during the teaching and learning process through reflective practice. The study aimed to improve classroom instruction by implementing systematically planned actions in an authentic classroom setting. Classroom Action Research (CAR) is a form of research conducted directly in the classroom to improve the quality of teaching and learning through continuous reflection and action (Arikunto, 2020).

Prior to data collection, the observation sheet and learning engagement questionnaire were validated through expert judgment by the research supervisor and the science teacher to ensure the content validity, clarity, and relevance of each indicator to the research objectives. Classroom observations were conducted by two observers, namely the researcher and the science teacher, using the same observation sheet and assessment criteria. Any differences in scoring were discussed after each learning session until agreement was reached to maintain consistency in the observation results before the data were analyzed. The validated instruments were then used throughout both research cycles.

The research procedure followed the basic principles of classroom action research, emphasizing both the process and the outcomes of implementing instructional strategies. This study adopted a cyclical model consisting of four stages: planning, action, observation, and reflection (Prayitno et al., 2024). During the planning stage, lesson plans and research instruments were prepared. In the action stage, the TGT cooperative learning model was implemented in science learning. During the observation stage, students' engagement throughout the learning process was systematically recorded using the observation sheet and questionnaire. Finally, the reflection stage was conducted to evaluate the implementation of each cycle and to determine improvements for the subsequent cycle.

This study was conducted at SMP Negeri 22 Padang. The participants were 32 students of Class VIII.G. The class was selected because preliminary observations conducted during the Teaching Practicum Program (PLK) indicated that students demonstrated low levels of engagement during science learning. The identified

problems mainly involved limited participation in classroom activities, including asking questions, expressing opinions, and actively engaging in the learning process. The research instruments consisted of an observation sheet and a questionnaire. Both instruments were used to observe and record students' engagement during science learning activities. The collected data were analyzed by measuring the achievement of student engagement indicators. The results were then converted into percentages using the following formula:

$$P = \frac{F}{N} X\ 100\%$$

Where:
P = Percentage
F = Frequency
N = Number of respondents

The percentage scores were subsequently classified into categories of student engagement based on the Guttman Scale adapted from Sugiyono (2016), as presented in Table 1.

Table 1. Categories of Student Engagement

Category	Percentage (%)
Very Active	$80 \leq x \leq 100$
Active	$60 \leq x < 80$
Moderately Active	$40 \leq x < 60$
Less Active	$20 \leq x < 40$
Very Low	$0 \leq x < 20$

(Sugiyono, 2016)

The criterion for research success was determined prior to the implementation of the study. The classroom action research was considered successful if the average level of students' learning engagement reached at least the Active category ($60 \leq x < 80$). Since this criterion was achieved in Cycle II, the research was concluded without proceeding to the next cycle.

3. Results and Discussion

The implementation of the Teams Games Tournament (TGT) cooperative learning model in this study was carried out through two classroom action research cycles, each consisting of the planning, action, observation, and reflection stages, involving 32 students of Grade VIII.G at SMP Negeri 22 Padang. In Cycle I, the TGT model was introduced through class presentations, team study sessions, academic games, and group tournaments, while students' engagement was recorded directly using the observation sheet and questionnaire. Based on the reflection conducted at the end of Cycle I, several improvements were made, including clearer instructions from the teacher, more structured time management during the games and tournament sessions, and closer guidance during group discussions. These refinements were then applied in Cycle II to further strengthen students' engagement in the learning process. The results obtained from the questionnaire and classroom observation across the pre-cycle, Cycle I, and Cycle II are presented in the following sections.

The implementation of the Team Games Tournament (TGT) model in the learning process is illustrated in Figure 1. The TGT model begins with the teacher presenting the learning objectives and introducing the subject matter, followed by the formation of heterogeneous student teams to encourage collaboration among leaners with different ability.

Figure 1. The TGT process in the class room

Table 2 show the results of the Student Learning Engagement Questionnaire in the Pre-Cycle, Cycle I, and Cycle II

Table 2. Results of the Student Learning Engagement Questionnaire in the Pre-Cycle, Cycle I, and Cycle II

No	Indicator	Pre-Cycle (%)		
		Pre-Cycle	Cycle I	Cycle II
1.	Participation in Completing Learning Tasks	63	83	88
2.	Participation in Problem-Solving Activities	50	76	81
3.	Ability to Ask Questions	64	75	78
4.	Effort to Seek Information	63	71	79
5.	Participation in Group Discussions	55	78	82
6.	Ability to Conduct Self-evaluation	64	62	69
7.	Practice in Solving Learning Tasks	58	63	66
8.	Utilization of Acquired Information	51	76	80

Based on Table 2, the questionnaire results demonstrate a gradual improvement in students' learning engagement from the pre-cycle to Cycle II across all engagement indicators. During the pre-cycle, students generally showed low levels of participation in science learning activities. They tended to be passive during classroom instruction, were reluctant to ask questions, and rarely participated actively in group discussions. These findings indicate that students' engagement had not yet reached the expected level before the implementation of the instructional intervention.

Following the implementation of the TGT cooperative learning model in Cycle I, improvements were observed in almost all engagement indicators. Students became more actively involved in completing group assignments, participating in classroom discussions, and expressing their opinions during learning activities. The integration of cooperative learning, educational games, and academic tournaments created a more interactive classroom atmosphere that encouraged students to participate more confidently in science learning. The average questionnaire score increased from 58.7% in the pre-cycle to 74.5% in Cycle I, indicating substantial progress in students' learning engagement.

Further improvements were observed during Cycle II. Students became increasingly familiar with the learning procedures and demonstrated greater confidence in participating throughout classroom activities. In addition, improvements implemented after the reflection stage of Cycle I, including clearer teacher instructions, better classroom management, and more structured learning activities, contributed to increased student participation. The average questionnaire score increased further to 79.0%, indicating that students' learning engagement continued to improve during the implementation of the TGT model. According to the engagement categories adopted in this study (Table 1), this percentage falls within the Active category ($60 \leq x < 80$), demonstrating that the predetermined success criterion of the study had been achieved.

A closer examination of each engagement indicator also revealed meaningful improvements. The largest increase was observed in participation in problem-solving activities, which improved from 50% in the pre-cycle to 81% in Cycle II. Similarly, participation in group discussions increased from 55% to 82%, while students' involvement in completing learning tasks improved from 63% to 88%. These findings suggest that the collaborative learning environment created through the TGT model encouraged students to become more actively involved in classroom learning activities. Although improvements in self evaluation and practice in solving problems were relatively smaller than those of other indicators, both indicators still demonstrated positive progress throughout the research cycles, indicating gradual development in students' independent learning behaviors.

Overall, the questionnaire findings suggest that implementing the TGT cooperative learning model contributed to improved student engagement in science learning. The combination of collaborative learning, educational games, and academic tournaments created a more engaging learning environment that encouraged students to participate actively throughout the instructional process. These findings are consistent with those reported by Novritasari et al. (2022), who found that the implementation of the Teams Games Tournament (TGT) model received a very positive response from junior high school students, with an average response score of 89.14% (very good category). The study also reported that the TGT model encouraged students to become more active, creative, and confident in expressing their ideas through enjoyable learning activities while fostering responsibility, cooperation, and healthy competition among group members. Therefore, the present findings provide further evidence that the TGT cooperative learning model can serve as an effective instructional strategy for fostering student engagement in junior high school science classrooms.

Table 3. Results of Classroom Observation on Student Learning Engagement in the Pre-Cycle, Cycle I, and Cycle II

No	Indicator	Pre-Cycle (%)		
		Pre-Cycle	Cycle I	Cycle II
1.	Participation in Completing Learning Tasks	91	91	94
2.	Participation in Problem-Solving Activities	16	41	59
3.	Ability to Ask Questions	84	97	97
4.	Effort to Seek Information	50	66	72
5.	Participation in Group Discussions	94	97	97
6.	Ability to Conduct Self-Evaluation	28	31	63
7.	Practice in Solving Learning Tasks	38	63	66
8.	Utilization of Acquired Information	28	75	78

Based on Table 3, the classroom observation results indicate a positive improvement in students' learning engagement across almost all observed indicators throughout the research cycles. Although the magnitude of improvement varied among indicators, the overall findings demonstrate that students became increasingly engaged in science learning following the implementation of the TGT cooperative learning model.

The most substantial improvements were observed in students' utilization of acquired information, self-evaluation, and participation in problem-solving activities. The score for utilizing acquired information increased from 28% in the pre-cycle to 78% in Cycle II, while self-evaluation improved from 28% to 63%. Likewise, participation in problem-solving activities increased considerably from 16% to 59%. These findings suggest that repeated exposure to collaborative learning activities, classroom discussions, and academic games encouraged students to participate more actively in higher-order learning processes rather than merely receiving information from the teacher.

Moderate improvements were also found in students' efforts to seek information and practice in solving learning tasks. Students gradually became more independent learners by searching for additional learning resources and preparing themselves before participating in classroom tournaments. The competitive yet collaborative nature of the TGT model motivated students to become more responsible for their own learning and encouraged greater participation during classroom activities.

Several indicators, including completing learning tasks, asking questions, and participating in group discussions, showed relatively smaller improvements because these indicators had already achieved comparatively high scores during the pre-cycle. Nevertheless, the observation results indicate that students became more confident, maintained more consistent participation, and demonstrated stronger collaboration throughout the learning process after the implementation of the TGT model.

Overall, the observation findings suggest that the implementation of the TGT cooperative learning model contributed to improved student engagement in science learning (Figure 2). The combination of teamwork, educational games, and academic tournaments created a more interactive classroom environment that encouraged students to participate actively in both individual and group learning activities. These findings are consistent with those reported by Astuti & Kristin (2017), Muthoharoh et al. (2024) and Prayitno et al. (2024), who concluded that the TGT model promotes students' active participation by increasing collaboration, classroom interaction, and learning motivation. The consistency between the present findings and previous studies strengthens the evidence that the TGT cooperative learning model can be effectively implemented to foster student engagement in junior high school science learning.

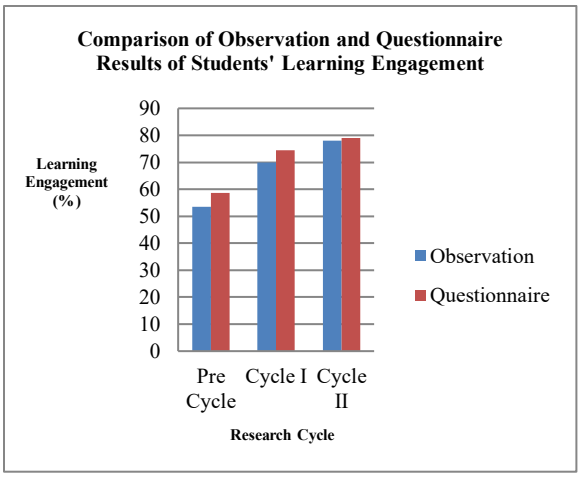

Figure 2. Comparison of Students' Learning Engagement Based on Observation and Questionnaire Results Across the Pre-Cycle, Cycle I, and Cycle II

Based on Figure 1, both the classroom observation and questionnaire results demonstrate a consistent upward trend in students' learning engagement throughout the implementation of the TGT cooperative learning model. The similarity between the two sets of data indicates that the observed classroom behaviors were consistent with students' perceptions of their own engagement during the learning process.

During the pre-cycle, the average learning engagement remained relatively low, with questionnaire and observation scores of 58.7% and 53.5%, respectively. Although students showed relatively high participation in completing assigned tasks and participating in group discussions, their engagement in higher-order learning activities, particularly problem-solving, self-evaluation, and utilizing acquired information, remained limited. These findings suggest that the teacher-centered instructional approach used before the intervention had not sufficiently encouraged students to actively construct knowledge or participate in reflective learning activities. Similar findings were reported by Putri et al (2024) who found that conventional teaching methods often result in low student participation and limited classroom engagement.

Following the implementation of the TGT cooperative learning model in Cycle I, students' learning engagement increased to 74.5% based on the questionnaire and 69.9% based on classroom observations. The classroom atmosphere became more interactive, and students showed greater confidence in asking questions, with participation reaching 96.8%**.** This finding is consistent with Astuti & Kristin, (2017) who reported that the TGT model encourages students to participate more actively in science learning through cooperative learning, educational games, and group interaction. Although improvement was observed in the utilization of acquired information (75%)**,** students' participation in problem-solving (40.6%) and self-evaluation (31.2%) remained relatively low. These findings indicate that students still required additional opportunities to develop independent thinking, problem-solving skills, and reflective learning.

In Cycle II, students' learning engagement continued to improve, reaching 79.0% based on the questionnaire and 78.1% based on classroom observations. According to the engagement categories adopted in this study (Table 1), these results fall within the Active category, indicating that the predetermined success criterion of the study had been achieved. The most notable improvements were observed in self-evaluation (62.5%) and problem-solving (59.3%)**,** suggesting that students became more confident, reflective, and actively involved in classroom learning activities. These findings are consistent with Husna et al (2025) who suggested that the integration of positive competition and educational games within the TGT model can enhance students' motivation, confidence, and classroom participation. Similarly, Nihriya et al (2024) reported that cooperative learning strategies create a more engaging learning environment that encourages students to participate actively and collaborate effectively during classroom activities. Furthermore, the smaller difference between the questionnaire and observation scores indicates greater consistency between students' perceived engagement and their actual classroom participation.

Overall, the comparison between the questionnaire and classroom observation results suggests that the implementation of the TGT cooperative learning model contributed to improving students' learning engagement throughout the classroom action research cycles. The integration of cooperative learning, educational games, and academic tournaments created a more interactive learning environment that encouraged students to participate actively in discussions, complete learning tasks responsibly, and collaborate effectively with their peers. These findings are consistent with previous studies by Astuti & Kristin (2017), Husna et al. (2025), and Nihriya et al. (2024), which reported that the TGT model promotes active participation, collaboration, and meaningful learning experiences. Therefore, the findings of this study suggest that the Teams Games Tournament (TGT) cooperative learning model can be used as an alternative instructional strategy to foster student engagement in junior high school science learning.

4. Conclusion

This classroom action research aimed to improve students' learning engagement in science learning through the implementation of the Teams Games Tournament (TGT) cooperative learning model among Grade VIII students at SMP Negeri 22 Padang. The findings indicated that the implementation of the TGT cooperative learning model successfully improved students' learning engagement throughout the research process. Students became more actively involved in classroom discussions, collaborative learning activities, educational games, and problem-solving tasks. These findings suggest that the TGT model can serve as an alternative instructional strategy for promoting active participation in junior high school science learning.

The improvement in students' learning engagement was supported by the key characteristics of the TGT model, which encouraged students to work collaboratively, participate in educational games and academic tournaments, share responsibilities within their groups, and communicate their ideas more confidently. These learning experiences created a more interactive and student-centered classroom environment, enabling students to become more engaged throughout the science learning process.

This study was limited to one class consisting of 32 Grade VIII students at SMP Negeri 22 Padang and was conducted over two classroom action research cycles. Therefore, the findings should be interpreted within the context of this study and cannot be generalized to other educational settings without further investigation. In addition, students' awareness of being observed during the classroom activities may have influenced their participation, which should be considered when interpreting the findings.

Future studies are recommended to implement the Teams Games Tournament (TGT) cooperative learning model in different subjects, grade levels, and schools with larger samples and longer implementation periods. Further research may also investigate the integration of digital learning media

with the TGT model to enhance students' learning engagement and learning outcomes.

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