



Implementation of the Teams Games Tournament (TGT) Cooperative Learning Model Using Modified Invasion Games to Enhance the Active Participation of Grade V-A Students at SD Negeri Betet 3

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Abstract: This study aims to enhance students' active participation by implementing the Teams Games Tournament (TGT) cooperative learning model through modified invasion games within Physical Education, Sports, and Health (PJOK) lessons. The study employed a Classroom Action Research (CAR) design conducted over two cycles, with each cycle comprising two sessions. The subjects were 28 students from class V-A at SD Negeri Betet 3. Data were collected using an active participation observation sheet consisting of 10 items across five indicators: engagement in activities, physical movement, execution of tasks and roles, initiative and responsiveness, and group interaction. The instrument was validated by two experts, achieving an average Aiken's V score of 0.92. The instructional intervention combined elements of basketball and handball – modified to increase opportunities for students to move, perform roles, respond to game situations, communicate, and collaborate. The results indicate that the percentage of active participation rose from 58.75% in the pre-cycle stage to 60.27% in Cycle I and 66.07% in Cycle II. An overall increase of 7.32 percentage points demonstrates that the minimum success threshold of 61% was achieved by Cycle II. Thus, implementing the TGT model through modified invasion games serves as a viable alternative for enhancing student active participation in elementary school PJOK lessons.

Keywords: Teams-Games-Tournament, Invasion Games, Active Participation, Physical Education, Elementary School.

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Introduction

Physical Education, Sports, and Health (PJOK) provides students with learning experiences through movement activities, games, social interaction, and attitude development. These characteristics distinguish PJOK from instruction focused solely on knowledge acquisition, as students gain learning experiences through direct engagement in physical activities. Consequently, student engagement during the learning process is a crucial aspect that warrants attention. Neira-Navarrete et al. (2024) demonstrate that modified

invasion games can be utilized in primary school PJOK lessons, offering activity experiences that align with the characteristics of the students. Participation in game-based activities also affords students the opportunity to learn through the movement situations and interactions that occur during the lesson.

Active participation in Physical Education (PJOK) lessons goes beyond a student's willingness to take part; it encompasses their engagement in various activities throughout the learning process. In this study,

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active participation is understood through five aspects: engagement in activities, physical movement, the execution of tasks and roles, initiative and responsiveness, and group interaction. These five aspects provide a comprehensive picture of student involvement, ranging from the willingness to participate in activities to the ability to assume roles and interact with peers. Consequently, Physical Education instruction must provide ample opportunities for all students not merely to be present and follow instructions, but to be genuinely engaged in the learning activities.

Student engagement in Physical Education (PE) can also be influenced by the learning environment and the social relationships formed during activities. In a scoping review regarding PE engagement among students aged 6–16, Cimenti et al. (2025) identified various factors that can either hinder or facilitate student engagement in PE lessons. A key context for such engagement is the social environment and learning conditions that provide students with opportunities to participate. This indicates that teachers need not only to determine the instructional content but also to design activities and learning environments that foster more equitable student engagement.

One activity that can be used to create such conditions is the invasion game. Invasion games are characterized by activities that require students to move, find open space, pass and receive the ball, attack, defend, respond to the movements of teammates and opponents, and make decisions during play. These characteristics offer students opportunities to engage in various forms of physical activity and interaction. However, games implemented directly with complex rules and structures do not necessarily provide equal opportunities for all students. Students with superior playing abilities may dominate ball possession or assume dominant roles more frequently, whereas other students tend to become followers or wait for instructions. Therefore, game modifications are necessary to align the activity with students' characteristics and learning objectives. Modifications can be made to the playing area, rules, number of players, grouping, or the nature of the tasks within the game. Neira-Navarrete et al. (2024) utilized modified invasion games in primary school physical education by adjusting the playing space, rules, and game resources. Meanwhile, Estriga et al. (2024) demonstrated that altering game configurations can provide students with different opportunities to perform actions such as passing, catching, shooting, and finding open space. These findings indicate that game structure can influence students' opportunities to act and engage in learning activities.

Beyond the nature of the activities themselves, the instructional models employed by teachers also play a role in shaping patterns of student engagement. Instructional approaches that provide opportunities for students to collaborate, share responsibilities, assume roles, and interact can foster more active engagement. In the context of physical education, cooperative learning is a particularly relevant approach, as learning activities can unfold through a combination of group work and physical activity. A meta-analysis by Boke et al. (2025) on cooperative learning in physical education demonstrates that this approach has been implemented across various educational levels and is linked to diverse learning outcomes. Consequently, cooperative learning serves as a suitable framework for developing physical education activities that promote student cooperation and participation.

One cooperative learning model characterized by game-based activities is Teams Games Tournament (TGT). TGT integrates teamwork, games, structured competition, and group rewards. This structure affords students the opportunity to work in groups both prior to and during the game or tournament activities. In Physical Education (PJOK) instruction, this structure can be combined with game activities, allowing students not only to engage in physical activity but also to fulfill responsibilities within their groups. Research by Anjarwati and Dewi (2025) demonstrates increased student engagement through the implementation of TGT, while Aras and Khairunnisa (2024) report improved learning participation following the adoption of the TGT cooperative learning model. Within the context of Physical Education, Sa'adah and Inayati (2025) also show that implementing TGT fosters student cooperation and active involvement.

The use of TGT in Physical Education (PJOK) instruction is also relevant to large-ball game activities. Hidayat et al. (2026) investigated the implementation of TGT in large-ball game instruction, focusing on student activity, and demonstrated an increase in student engagement following the model's application. These findings support the use of TGT in instructional contexts involving game-based activities. However, this study goes beyond merely using TGT as an instructional model; it integrates the model with modified invasion games, thereby aligning the model's structure and the game format to collectively enhance active student participation.

Issues regarding active participation were identified during Physical Education (PJOK) lessons for the Grade V-A class at SD Negeri Betet 3, Kediri City. Initial observations of the 28 students revealed that while some participated actively, engagement was uneven across the class. A number of students remained passive—showing limited movement,

waiting for instructions from the teacher or peers, and underperforming in their assigned tasks and roles—while also demonstrating little initiative, communication, or cooperation during games. Pre-cycle observation results showed a total score of 658 out of a maximum of 1,120, resulting in a class-wide active participation rate of 58.75%. This figure fell short of the study's established success criteria, which required a minimum of 61% and a "high" category rating. This situation indicates that the challenges in learning are not solely related to students' ability to engage in game activities but also to the equitable distribution of opportunities for participation. Students need opportunities to move, assume roles, respond, make decisions, communicate, and collaborate during the game. Therefore, the corrective measures in this study focus not only on implementing the TGT model but also on modifying the game format to better align the activities with the observed indicators of active participation.

Addressing these issues, this study implements the TGT (Teams-Games-Tournament) cooperative learning model using a modified invasion game that combines elements of basketball and handball. The game is designed with adjustments to rules, group organization, and activities to ensure more equitable opportunities for student engagement. The intervention aims to provide students with the scope to engage in physical movement, perform tasks and roles, respond to game situations, take initiative, and communicate and collaborate with group members. Consequently, the success of the learning process is measured not merely by the game's final outcome, but by the extent of student engagement throughout the activity.

This study is positioned at the intersection of integrating TGT with modified invasion games, specifically designed based on indicators of active student participation. Previous studies have demonstrated the use of TGT to enhance student engagement, participation, teamwork, and collaboration (Anjarwati & Dewi, 2025; Aras & Khairunnisa, 2024; Sa'adah & Inayati, 2025; Hidayat et al., 2026). Research on modified invasion games also indicates that altering game structures can provide distinct opportunities for student involvement (Neira-Navarrete et al., 2024; Estriga et al., 2024). This study integrates these two approaches, focusing specifically on increasing active student participation in primary school Physical Education (PJOK) lessons.

Based on the foregoing, this study aims to enhance the active participation of Grade V-A students at SD Negeri Betet 3 by implementing the Teams Games Tournament (TGT) cooperative learning model using modified invasion games. Active participation in this study is measured through five indicators:

engagement in activities, physical movement, execution of tasks and roles, initiative and responsiveness, and group interaction.

Method

This study employs Classroom Action Research (CAR) aimed at enhancing students' active participation in Physical Education, Sports, and Health (PJOK) lessons through the implementation of the Teams Games Tournament (TGT) cooperative learning model, utilizing modified invasion games. The TGT model was selected because it provides a learning structure—incorporating group work, games, and competition—that offers students opportunities to engage in learning activities. Previous research within the scope of CAR indicates that the implementation of TGT is associated with increased student engagement and participation in learning (Anjarwati & Dewi, 2025; Aras & Khairunnisa, 2024). In the context of PJOK, TGT is also utilized to foster cooperation and active student involvement (Sa'adah & Inayati, 2025).

The study was conducted with 28 students from class V-A at SD Negeri Betet 3, Kediri City. Prior to the intervention, a pre-cycle phase was carried out to assess the students' initial level of active participation during Physical Education (PJOK) lessons. The findings from this initial observation served as the basis for determining the instructional improvements to be implemented in the subsequent cycle. The initial assessment revealed that a number of students tended to be passive and physically inactive, often waiting for instructions from the teacher or peers; furthermore, their performance was suboptimal regarding task execution, role fulfillment, taking initiative, communication, and cooperation during games.

The research was conducted over two cycles, with each cycle comprising two sessions. Each session lasted 70 minutes and followed the stages of planning, action implementation, observation, and reflection. During the planning stage, instructional activities were designed to address the issues regarding active participation identified in the pre-cycle phase. In the implementation stage, the TGT model was applied using modified invasion games, while observations were conducted to gather data on changes in student participation. The observation results subsequently served as the basis for reflection to determine necessary improvements for the actions in the following cycle.

The instructional approach employed a modified invasion game that combined elements of basketball and handball. The use of invasion games in this study was based on activity characteristics that allow students to engage in various forms of movement and interaction during play. Research by Neira-Navarrete et al. (2024) demonstrated that modified

invasion games can be utilized in primary school physical education. Estriga et al. (2024) also demonstrate that game modifications provide students with opportunities to engage in a variety of game actions and interactions. Therefore, the game in this study was modified to align with the objective of increasing active student participation.

In practice, the 28 students were divided into four groups of seven. The game was modified by adjusting activities and rules to ensure students had more equitable opportunities to move, perform tasks and roles, respond, take initiative, communicate, and collaborate. Group arrangements and matches were rotated to prevent student engagement from being concentrated on only a few individuals. This design aligns with the characteristics of cooperative learning, which emphasizes group work and student-to-student interaction. A meta-analysis cited in the Classroom Action Research (CAR) by Boke et al. (2025) demonstrates the relevance of cooperative learning in physical education instruction.

Research data were collected using a student active participation observation sheet comprising 10 observation items (B1–B10) with a 1–4 rating scale. The instrument measured five indicators: engagement in activities, physical movement, execution of tasks and roles, initiative and responsiveness, and group interaction. The use of these indicators was aligned with the research focus, which defined active participation as student engagement during the learning process rather than basing it solely on the game's final outcome.

Prior to use, the instrument was validated by two validators. Content validity was analyzed using Aiken's V, yielding a mean value of 0.92. This value served as the basis for determining that the instrument possessed adequate content validity for use in research data collection. During the intervention, an observation sheet was used to record students' active participation across the pre-cycle, Cycle I, and Cycle II stages. The observational data were analyzed using a descriptive quantitative approach by calculating the percentage of students' active participation at each stage of the research. These percentages were then compared across the pre-cycle, Cycle I, and Cycle II stages to identify changes following the implementation of the intervention. The analysis was conducted based on five established indicators of active participation. The results from each cycle subsequently served as a basis for reflection to determine the continuation and refinement of the intervention.

The research success criterion was established as an active participation rate of at least 61%, falling within the "high" category. If this criterion was not met, the intervention continued with improvements

implemented in the subsequent cycle. The research concluded once the success indicators were achieved in Cycle II. The intervention design integrated TGT and modified invasion games into a unified instructional approach aimed at increasing opportunities for students to move, assume roles, respond to game situations, and engage in interaction and collaboration.

Result and Discussion

The research results indicate an increase in students' active participation following the implementation of the Teams Games Tournament (TGT) cooperative learning model using modified invasion games. Measurements were conducted during the pre-cycle, Cycle I, and Cycle II stages using an observation sheet comprising 10 items across five indicators of active participation. The observations revealed that the percentage of active participation was 58.75% during the pre-cycle stage, rising to 60.27% in Cycle I, and further increasing to 66.07% in Cycle II. Consequently, there was an increase of 1.52 percentage points from the pre-cycle to Cycle I and 5.80 percentage points from Cycle I to Cycle II, resulting in a total increase of 7.32 percentage points from the pre-cycle to Cycle II.

Table 1. Development of Students' Active Participation

Research Phase	Active Participation Percentage
Pre-Cycle	58.75%
Cycle 1	60.27%
Cycle 2	66.07%
Overall improvement	7,32 poin persentase

At the pre-cycle stage, the 58.75% participation rate indicated that active student participation had not yet met the research success criteria. Observations revealed that some students tended to remain passive during learning activities—waiting for instructions from the teacher or peers, showing limited engagement in movement activities, and underperforming in the execution of their tasks and roles. These issues were also evident in aspects such as initiative, responsiveness, communication, and cooperation during the games. These findings served as the basis for implementing an intervention using the TGT (Teams-Games-Tournament) method combined with modified invasion games.

In Cycle I, active participation increased to 60.27%. This rise indicates that the implemented measures began to bring about changes in student engagement, although the improvement remained relatively limited and had not yet met the minimum success criterion of 61%. At this stage, students began to gain learning experiences through group work and

games, which provided opportunities to assume roles and interact with fellow group members. The TGT structure facilitated learning activities through group work and games, thereby fostering a sense of responsibility among students to engage in the activities.

The results from Cycle I also served as a basis for reflection to implement improvements in Cycle II. In classroom action research, observational data from each cycle are used to identify changes that have occurred and to determine the necessary improvements for subsequent actions. These improvements aim to ensure more equitable opportunities for students to engage in game activities—particularly regarding physical movement, the execution of tasks and roles, responsiveness, and group interaction.

Following the implementation of corrective measures, the rate of active participation in Cycle II rose to 66.07%. This increase of 5.80 percentage points compared to Cycle I represents a more significant improvement than that observed in the previous cycle. The figure also surpassed the study's success criterion of 61%, reaching the "high" category. With this criterion met, the intervention was concluded at the end of Cycle II.

This improvement can be understood through the characteristics of the intervention, which combined the TGT cooperative learning structure with modified invasion games. TGT provided students with opportunities to work in groups, assume responsibilities, participate in games, and interact with group members. Boke et al. (2025) demonstrated that cooperative learning is a relevant approach in physical education and can support various learning outcomes. These findings support the use of cooperative learning as the instructional framework for this study.

These research findings align with existing Classroom Action Research (CAR) studies regarding the use of TGT. Anjarwati and Dewi (2025) reported increased student engagement through the implementation of TGT, while Aras and Khairunnisa (2024) demonstrated improved learning participation following the application of the TGT cooperative learning model. In the context of Physical Education (PJOK), Sa'adah and Inayati (2025) also showed that TGT can foster student collaboration during physical education lessons. These similarities indicate that the TGT learning structure creates opportunities for students to be more active in the learning process.

In addition to the instructional model, increased participation is also linked to the use of modified invasion games. The games in this study combined elements of basketball and handball, with adjustments made to the activities and rules. These modifications were designed to ensure students had

more equitable opportunities to move, perform tasks and roles, respond to game situations, and interact with group members. Neira-Navarrete et al. (2024) demonstrated that modified invasion games can be utilized in primary school physical education. Meanwhile, Estriga et al. (2024) showed that game modifications can create opportunities for students to engage in various game actions and interactions.

Thus, the increase from 58.75% to 66.07% not only reflects a change in the percentage of active participation but also demonstrates that the instructional interventions successfully improved the learning conditions observed during the pre-cycle phase. Integrating TGT with modified invasion games created an activity context that enabled students to engage more intensively in movement, tasks and roles, responses, and group interactions. This aligns with the research focus, which defines active participation as student involvement throughout the entire learning process, rather than merely the achievement of final game outcomes.

Overall, the research results indicate that implementing the Teams Games Tournament (TGT) method using modified invasion games can enhance the active participation of Grade V-A students at SD Negeri Betet 3. This improvement was observed progressively from the pre-cycle stage through Cycle II, with success criteria being met by the end of Cycle II. These findings reinforce previous Classroom Action Research (CAR) studies demonstrating the potential of TGT to boost student engagement, participation, and collaboration, while also illustrating its application in a specific context: increasing active participation through modified invasion games in elementary school Physical Education (PJOK) lessons.

Conclusion

The implementation of the Teams Games Tournament (TGT) cooperative learning model using modified invasion games successfully increased the active participation of Grade V-A students at SD Negeri Betet 3 in Physical Education (PJOK) lessons. A gradual increase was observed: from 58.75% in the pre-cycle stage to 60.27% in Cycle I, rising further to 66.07% in Cycle II. Consequently, there was an overall increase of 7.32 percentage points from the initial state to the conclusion of the intervention. These results demonstrate that the intervention effectively improved student engagement in the learning process and met the established success criterion—a minimum of 61%—placing the participation level in the "high" category.

Integrating TGT with an invasion game that combines elements of basketball and handball provides students with opportunities to be physically active, fulfill specific roles and tasks, respond to game

situations, and interact and collaborate with group members. These findings align with research on TGT demonstrating its contribution to student engagement and active participation in learning (Anjarwati & Dewi, 2025; Aras & Khairunnisa, 2024). In the context of physical education (PJOK), the implementation of TGT is also linked to enhanced student cooperation; furthermore, research on the development of collaborative attitudes indicates that TGT activities create opportunities for students to interact and work together within groups (Sa'adah & Inayati, 2025; Nabila et al., 2026).

The use of modified games is a crucial component of the intervention, as it allows game activities, rules, and structures to be tailored to students' needs. This provides students with greater opportunities to engage in movement activities and social interaction during the lesson. These findings align with research on modified invasion games and modified handball, which indicates that modifying game structures enables students to perform a variety of actions and actively participate in gameplay (Neira-Navarrete et al., 2024; Estriga et al., 2024). Furthermore, cooperative learning provides a foundation for creating learning activities that foster group work and student interaction (Boke et al., 2025).

Overall, the research results indicate that combining the TGT model with modified invasion games serves as a viable alternative for enhancing student active participation in elementary school physical education (PJOK). These findings reinforce existing research highlighting the relevance of TGT in boosting student engagement and active involvement (Hidayat et al., 2026; Anggraeni et al., 2025). With a participation rate of 66.07% achieved in Cycle II, the study's success criteria were met, and the intervention was concluded at that stage. Future implementations of this approach can be adapted to student characteristics, available facilities and infrastructure, and learning objectives to ensure equitable participation opportunities for all students.

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