



Implementation of *Team Games Tournament* (TGT) Based on Moving Color Zone Game in Physical Education Learning for Physical Fitness of Grade VIII Junior High School Students

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Abstract. The subject of Physical Education, Sports, and Health (PJOK) has a significant contribution in building the physical fitness condition of students, considering that physical fitness is the basic foundation that supports their growth and development and daily activities. However, in practice, physical fitness learning in schools still faces a number of obstacles that need to be considered, such as low student involvement and the lack of variety of learning models that are able to provide comprehensive involvement in a comfortable and enjoyable learning atmosphere. The purpose of this study was to examine the effectiveness of the implementation of *the Teams Games Tournament* (TGT) model based on the moving color zone game in PJOK learning on the physical fitness of class VIII B students of SMP Negeri 13 Malang. The method used was Classroom Action Research (CAR) with two cycles, where each cycle included the planning, implementation, observation, and reflection stages. The research subjects were 32 students. Measurements used the Indonesian Physical Fitness Test (TKJI) instrument which was analyzed through quantitative and qualitative techniques. The results showed the development of students' physical fitness from the pre-cycle of 53.88%, to 64.63% in cycle I, and reaching 79.75% in cycle II. These findings confirm that the implementation of the Moving Color Zone game-based TGT model successfully fosters active, competitive, and enjoyable learning, positively impacting students' physical fitness achievements. Therefore, this model is worthy of consideration as an innovative alternative for physical fitness instruction in schools.

Keywords: Physical Fitness, TGT, Moving Color Zone Game

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Introduction

Physical education is an education that does not only focus on mastering basic movements in sports, but also plays a role in developing students' physical and mental abilities so that they can implement an active and healthy life (Wijaya et al., 2026). According to (Rumawatine, 2024), it is revealed that physical education is an integral part of the national education system that is oriented towards developing physical fitness, emotional balance, social skills, thinking power, and the formation of moral behavior through various physical activities. Students who are actively involved in physical activities tend to be better prepared to face academic demands.

In addition to providing direct impacts, physical education also instills active lifestyle habits, such as walking or running regularly (Hasbullah, 2026).

Physical education has several main objectives, one of which is to develop students' overall physical fitness, which includes components of endurance, strength, flexibility, and motor coordination. (Bastanta & Parningotan, 2026)emphasizes that physical education and sports play an important role in shaping healthy and productive individuals, so that optimal implementation in the education system is needed to improve the overall quality of life of students. (Setia & Muhtar, 2021)states that physical fitness is a vital aspect in the process of normal child growth and development. This fitness condition is a basic need for the younger generation, as well as playing an important role in helping individuals adapt optimally to their environment because of the achievement of a harmonious balance between physical and mental conditions.

Based on the research (Ihsan, 2026), the results obtained indicate that the level of physical fitness of students is still classified as low. Percentage-based descriptive analysis shows that the majority of students are in the less category, namely 61.3%. This condition indicates that students' physical abilities in various dimensions of physical fitness including speed, strength, muscle endurance, explosive power, and cardiorespiratory capacity have not developed optimally. (Mahendra et al., 2026)also found that the average physical fitness of students at SMP Negeri 1 Kamang Magek is in the "less" category with an average value of 13.14, so a planned and systematic training program is needed.

Similar issues were discovered during a teaching assistantship with class VIII B at SMPN 13 Malang. Students who tire easily during physical activity, even when given light-intensity exercises, indicated low physical fitness. Some students also appeared to quickly run out of energy, frequently complained of fatigue, and exhibited a feeling of weakness during the activity. Several overweight students also had difficulty moving actively, making it difficult for them to participate optimally in learning activities.

The Teams Games Tournament (TGT) model is a group-based learning approach that is relatively easy to implement, able to involve all students equally without differentiating abilities or backgrounds, encouraging interaction between students through the role of peer tutors, and combining interesting game elements with a reward system to strengthen learning motivation (Kurniawan et al., 2024). (Zulhimi & Luthfi, 2020)explained that after using the TGT cooperative model, it was proven to encourage an increase in students' physical fitness, students were encouraged to try optimally to achieve victory in group games, so they were more active than individual activities. (Gunawan et al., 2024)The results of the study showed that the use of the TGT model made a significant positive contribution to improving learning outcomes as well as students' physical fitness.

According to the implementation of (Aditya, 2022)*the Teams Games Tournament (TGT)* model, it is based on five core elements: (1) Presentation of Material: the teacher delivers learning content to all students as an introduction before group activities and games are carried out; (2) Team Formation: students are grouped into small, heterogeneous teams; (3) *Games*: Students participate in academic games in the form of questions or quizzes related to the lesson material; (4) Tournaments: Student representatives from each group compete with other equal team members to obtain scores for their group; (5) Group Awards: Groups receive awards or appreciation based on the total scores collected from the results of games and tournaments as a form of learning motivation.

The implementation of the TGT model combined with the TGT *fitness* game can strengthen relationships between students while creating a more inclusive and collaborative learning ecosystem (Wibowo, 20233). The TGT *Fitness Game* begins with an explanation of

the learning objectives, game rules, the function of the color zones, and demonstrations of movements and questions by the teacher. Students are then divided into six groups, each with five members. The game takes place using a relay system, where each team sends representatives in turns to complete tasks in the color zones determined by the teacher: red (fast movement), blue (answer questions), yellow (fitness), and white (challenge). Each round is carried out simultaneously between teams to create a competitive atmosphere through speed, accuracy, and the ability to complete tasks. Assessment uses a scoring system: 10 points for fast and correct, 5 points for fast but not accurate, 3 points for slow, and 0 points for not doing it. The team with the highest score wins. At the end of the activity, the teacher provides feedback and reflections regarding physical fitness, teamwork, focus, and the benefits of physical activity for students.

This is in line with the statement (Muwakidah, 2022) that says that in the TGT cooperative model, students are grouped into learning teams of 5-6 people with a diverse composition in terms of academic ability, gender, and background. The teacher then explains that the activities carried out are competitive so that each student is expected to be able to play sportsmanship and work well together. The game is implemented by students looking for blocks that have various colors and shapes according to the teacher's instructions in the sandbox that has been provided. The main similarity of the games is that they both use physical activity, group work, teacher instructions, and inter-team competition as the core of the game implementation in TGT learning. (Sepriadi, 2021) stated that simple games are proven to be effective in restoring energy and increasing student focus, while also inspiring teachers to create more interactive learning. Based on the overall description above, the researcher is interested in studying more deeply about "The Implementation of *Teams Games Tournament* (TGT) Based on the Moving Color Zone Game in Physical Education Learning for Physical Fitness of Grade VIII Junior High School Students"

Method

This study applies a quantitative design combined with a qualitative descriptive approach. The design used is Classroom Action Research (CAR). According to (Rizal & Mudrikah, 2022), defines CAR as a form of research conducted reflectively by educators through a series of planned action cycles to improve, enhance, and develop the quality of the learning process in the classroom. The study was conducted at SMPN 13 Malang, Jl. Sunan Ampel II, Dinoyo, Lowokwaru District, Malang City, East Java, in the odd semester of the 2026/2027 academic year. The research subjects were 32 class VIII B students of SMPN 13 Malang consisting of 20 male students and 12 female students. The selection of this class was based on the results of initial observations that showed an urgent need for the implementation of a more active, creative, and enjoyable learning model in the context of physical fitness.

According to (Nur et al., 2025) this research, it was carried out in two cycles with two meetings in each cycle. Cycle I, meetings 1 and 2, focused on the introduction and exploration of the Dynamic Color Zone game. Cycle II, meeting 3, was directed at development and deepening, while meeting 4 was intended as a tournament and final evaluation. The research procedure refers to the Kemmis & McTaggart spiral model which includes four stages: planning, action, observation, and reflection (Umam et al., 2024).



Figure 1: Spiral Design

The measurement instrument used was the Indonesian Physical Fitness Test (TKJI) for the 13–15 year old age group, which included: (1) 50 meter run, (2) 60 second elbow bend hang, (3) 60 second sitting position, (4) vertical jump, and (5) 800/1000 meter run. Measurements were conducted three times, namely in the pre-cycle phase, the end of Cycle I, and the end of Cycle II. In addition to the TKJI, the research instrument also included observation sheets and field notes (Saldi et al., 2025).

Data analysis was conducted using quantitative and qualitative descriptive approaches. Fitness data from the TKJI were processed quantitatively through the calculation of average scores, achievement percentages, and classical completion percentages. Observation data and field notes were analyzed qualitatively through data reduction, data presentation, and conclusion drawing (Bakri, 2024). The benchmark for research success was determined if at least 75% of students achieved the Good or Very Good category based on TKJI norms (Firmansyah et al., 2024).

The observation sheet used to measure the level of active student involvement in this study first went through an instrument feasibility assessment process. The assessment was carried out by two experts who have competence in the field of Physical Education, namely a Physical Education lecturer and a PJOK teacher (supervisor teacher) at SMPN 13 Malang. Both validators were asked to review each indicator contained in the observation sheet to ensure its suitability with the objectives of physical fitness learning and its ability to describe active student involvement during the learning process. The results of the expert assessment were then analyzed using the Aiken's V index. According to (Nurjanah et al., n.d.) this method, it is widely used to assess the level of expert agreement on the relevance of each instrument item. The closer the value is to 1.00, the higher the level of content validity of the instrument. Based on this calculation, an average value of 0.83 was obtained. This value is above the minimum limit set, which is 0.80, so it can be concluded that the observation instrument has good content validity and is suitable for use as a data collection tool in research.

To maintain the consistency of the observation results, the instrument's reliability was tested using *inter-observer reliability techniques*. At the first meeting of Cycle I, the researcher

and another observer (a physical education teacher) simultaneously observed and filled out the same observation sheet for the same student, without prior discussion. The results from both observers were then compared and the level of agreement was calculated using the percentage of agreement formula, which is the number of items assessed the same by both observers divided by the total number of items, multiplied by 100%. The calculation results showed a level of agreement of 88%, so this observation sheet was considered consistent and reliable enough to be used by only one observer in subsequent meetings.

The observation sheet used in this study was designed to measure the extent to which students were actively engaged in the Moving Color Zone game. Observations focused on four aspects considered representative of overall student engagement during the learning process. The first aspect, movement participation, assesses students' involvement in physical activity during their turn in each play zone. Observers note whether students are actively engaged in the task or tend to be passive, for example just standing around, avoiding tasks, or not taking the game seriously. The second aspect, speed and accuracy of task completion, evaluates students' responses to instructions in terms of the speed and accuracy of movements or responses. This assessment aims to assess students' commitment to and understanding of the activity. The third aspect is teamwork. Observations focused on interactions between group members, including supporting each other, helping teammates in difficulty, managing turns, and contributing to the group's success during the game. The fourth aspect, endurance following a series of activities, relates to students' ability to maintain engagement until all stages of the game are completed. Observers note whether students remain engaged until the end or show signs of giving up, such as frequently complaining of fatigue or stopping the activity.

Each aspect is rated on a scale of 1–4: a score of 1 indicates no visible behavior, 2 indicates less visible, 3 indicates visible, and 4 indicates very visible. Students are categorized as actively engaged if they achieve an average of at least 3 across the four observed aspects. The percentage of active class engagement is calculated by dividing the number of students meeting the criteria by the total number of students, then multiplying by 100%. This percentage reflects the level of engagement in each research cycle, for example, 78% in Cycle I increased to 90.63% at the end of Cycle II.

This study identified two distinct but complementary indicators of success. First, the process indicator of success, namely active student engagement during the Moving Color Zone game, was determined by a minimum of 80% of students categorized as actively involved based on observation results. Second, the outcome indicator of success, namely physical fitness achievement based on the TKJI, was determined by a minimum of 75% of students being categorized as Good or Very Good.

The 75% figure in the outcome indicator is not determined arbitrarily, but refers to the classical Minimum Completion Criteria (KKM) guidelines commonly used in classroom action research in the field of physical education, as referred to by Firmansyah et al. (2024), namely that a learning is considered classically successful if at least 75% of the number of students reaches the specified completion category. This figure is also in line with the classical completion threshold of 75% commonly used in classroom action research in Indonesia in general, so the researcher uses it as a benchmark so that the results of this study can be compared fairly with similar studies. In other words, this 75% limit is not purely the researcher's personal assumption, but is adopted from existing conventions in classroom action research, then adjusted to the context of the TKJI category norms used in this study.

Results

The research was conducted in three measurement stages: pre-cycle, end of Cycle I, and end of Cycle II. The following presents a summary of the TKJI test results for each stage.

Table 1. Recapitulation of Pre-Cycle TKJI Results

No	Category	Score Range	Number of Students	Percentage
1	Very well	22–25	1	3.13%
2	Good	18–21	2	6.25%
3	Currently	14–17	12	37.50%
4	Not enough	10–13	11	34.38%
5	Less than once	5–9	6	18.75%
	Amount		32	100%

The data in Table 1 shows that in the pre-cycle phase, only three students (9.38%) successfully entered the Good and Very Good categories, while the other 29 students (90.63%) were still below the Good category threshold. The total accumulated score of all students was 431 out of a maximum score of 800, resulting in a classical completion percentage of 53.88%. This condition reflects the reality of physical fitness in class VIIIB before the TGT model intervention based on the dynamic color zone game was implemented.

Table 2. Recapitulation of TKJI Cycle I Results

No	Category	Score Range	Number of Students	Percentage
1	Very well	22–25	1	3.13%
2	Good	18–21	12	37.50%
3	Currently	14–17	13	40.63%
4	Not enough	10–13	6	18.75%
5	Less than once	5–9	0	0%
	Amount		32	100%

After implementing the Moving Color Zone game-based TGT in Cycle I, there was significant progress in student achievement. Table 2 shows that there were no longer any students in the Very Poor category. The number of students achieving the Good and Very Good

categories increased to 13 (40.63%). The total score for all students increased to 517, bringing the percentage of classical completion in Cycle I to 64.63%. This 10.75% increase from the pre-cycle demonstrates the effectiveness of the TGT model in stimulating student physical activity.

Table 3. Recapitulation of TKJI Cycle II Results

No	Category	Score Range	Number of Students	Percentage
1	Very well	22–25	14	43.75%
2	Good	18–21	12	37.50%
3	Currently	14–17	4	12.50%
4	Not enough	10–13	2	6.25%
5	Less than once	5–9	0	0%
	Amount		32	100%

In Cycle II, improvements in students' physical fitness became more evident, as presented in Table 3. Twenty-six students (81.25%) achieved the Good and Very Good categories. The total score for all students reached 638 out of a maximum of 800, resulting in a classical completion rate of 79.75% in Cycle II. This achievement indicates that learning outcomes exceeded the predetermined success indicator of 75%.

Table 4. Summary of Results per Cycle

Stage	Total Value	Minimum Competency (KKM)	Percentage of Completion
Pre Cycle	431	75%	53.88%
Cycle I	517	75%	64.63%
Cycle II	638	75%	79.75%

Based on Table 4, there was a gradual increase in the percentage of classical completion from pre-cycle (53.88%) to Cycle I (64.63%), and from Cycle I to Cycle II (79.75%). The total increase of 25.87% in results from pre-cycle to Cycle II indicates that the implementation of the Moving Color Zone game-based TGT model contributed to better student physical fitness achievement. This finding is in line with research (Zulhimi & Luthfi, 2020) that states an increase in physical fitness after the implementation of the TGT model because students are more active and motivated to participate optimally during learning.

The Moving Color Zone game in this study was divided into four activity zones: the red zone (fast movement), the blue zone (answering questions), the yellow zone (fitness), and the

white zone (challenge). Each zone was specifically designed to stimulate a different dimension of fitness, including speed, muscle strength, endurance, and agility. Observational data showed that in Cycle II, 90.63% of students were actively involved in all activities, a significant increase from the pre-cycle condition of only around 55–60%. This is in line with the findings (Arifin, 2026) stating that TGT increases students' physical activity due to the motivation to achieve victory in group tournaments.

The fitness components that showed the most significant increases were the 60-second sit-up and the 50-meter run. For example, students with the ARAP code improved from a score of 17 (Moderate) in the pre-cycle to 23 (Very Good) in Cycle II. Students with the ARK code, who were previously in the Moderate category, improved to Very Good with a total score of 22. Even students with the FZ code, who were previously in the Poor category (a score of 12), managed to jump to Very Good (a score of 22) in Cycle II, which is one of the most significant individual improvements.

Prior to implementing these measures, initial observations identified that the Physical Education (PJOK) learning process in class VIIIB tended to be monotonous. Teachers relied more on direct instruction without providing adequate variety in movement activities. Field notes revealed that most students appeared less enthusiastic from the start of the activity. Male students were generally more active than female students, but overall movement intensity was still far from optimal.

Further observations identified several recurring patterns: (1) many students sat or stood passively when it was their friends' turn to move, (2) there were several overweight students who consistently avoided running and jumping activities on the pretext of fatigue, (3) physical complaints such as dizziness and shortness of breath appeared even during light intensity warm-ups. This confirmed the low physical fitness condition before the intervention was carried out, and became the basis for the researcher's considerations in designing Cycle I actions with a more fun and collaborative approach.

In the first meeting of Cycle I, the classroom atmosphere underwent a significant change after the teacher introduced the concept of the Moving Color Zone game. Dividing students into six heterogeneous groups (each consisting of five students) created a new social dynamic. Field notes recorded that some students who had previously tended to be passive began to show more active participation, especially after the point system was introduced. However, in the first meeting, there was still apparent confusion in understanding the flow of the game, especially the mechanism for changing between zones, so that transitions between activities took longer than planned.

The physical intensity of the first meeting was still moderate. Some students, particularly those in the Very Low category in the pre-cycle, still showed signs of early fatigue. However, a positive note was that no students completely refused to participate, unlike the pre-cycle situation. The team system gave students a sense of responsibility for their group.

Discussion

By the second meeting of Cycle I, students had begun to become accustomed to the game mechanics. Field notes showed a marked improvement in the speed of transitions between zones and a decrease in the frequency of physical complaints. Previously passive students began competing to represent their teams in various zones. Observations in the red zone (fast movement) and yellow zone (fitness) showed that students were willing to perform movements such as short sprints, jumps, and push-ups without undue pressure because they were packaged

in a fun, competitive atmosphere. Overall student engagement in Cycle I reached approximately 78%, nearly reaching the minimum indicator of 80%.

Post-Cycle I reflections identified several aspects that needed improvement for Cycle II: (1) the duration in each zone needed to be increased so that the movement load was more optimal, (2) students with lower physical abilities needed to be given modified tasks so that they remained actively involved without feeling inferior, and (3) the variety of questions in the blue zone needed to be linked more directly to physical movement so that it did not become a 'rest' zone for certain students.

Cycle II was implemented by considering all the reflection findings of Cycle I. In the third meeting, the teacher implemented game modifications in the form of increasing the duration of activities in each zone and adjusting movement tasks for students with more limited physical conditions. Field notes noted significant behavioral changes: students who previously often chose positions on the edge of the play area now began to actively move into zones that required greater physical expansion. The learning atmosphere was much more lively compared to Cycle I, marked by shouts of encouragement, applause between teams, and enthusiastic facial expressions.

In the yellow zone (fitness), students were able to perform a series of movements such as sit-ups, vertical jumps, and back-and-forth runs for longer durations than in Cycle I without exhibiting extreme fatigue. This indicated a significant increase in muscular endurance and cardiorespiratory capacity. Field notes also recorded the emergence of encouraging behavior among team members, which had been previously almost unseen. Several female students who had previously been very reluctant to run were now actively competing in the red zone, indicating a positive shift in intrinsic motivation.

The fourth meeting focused on the final tournament and the Cycle II TKJI test. The tournament atmosphere created a healthy competitive atmosphere: all students were actively involved, and no one appeared to shy away from physical activity. Observations during the tournament recorded 90.63% active student engagement (29 out of 32 students), exceeding the process success indicator of 80%. The three students who still showed limited engagement were those with special physical conditions, but they still participated to the best of their abilities.

Overall, observations and field notes indicate three major changes that occurred throughout the study. First, there was a progressive increase in student motivation and active engagement from pre-cycle to Cycle II. Second, a positive teamwork dynamic was formed through the TGT group system, which encouraged students to be more active in moving for the benefit of the team. Third, there was a decrease in physical complaints and resistance to high-intensity movement activities, reflecting physiological adaptations due to exposure to structured and repetitive physical activity. (Narlan & Tri, 2020) This condition is in line with the statement (Sepriadi, 2020) that games that prioritize team collaboration can create a more inclusive learning climate, providing equal opportunities for each student to participate actively, while reducing pressure that can hinder engagement.

Changes in student behavior are reflected not only in their TKJI test scores but also in their attitudes and engagement patterns during learning. Field notes consistently record a shift from passive engagement to active participation driven by intrinsic motivation, namely the desire to contribute to the team. This aligns with findings (Darumoyo et al., 2025) that simple group-based games have been shown to effectively restore energy, increase focus, and encourage collaboration without creating undue pressure on students.

Although the Moving Color Zone game-based TGT model has met the success indicators, there were still two students (codes NAP and WAM) who were in the less than satisfactory category at the end of Cycle II. Based on field notes, these two students showed suboptimal

participation in several game and tournament sessions. This condition is thought to be influenced by external learning factors, such as diet, quality of rest, and daily physical activity habits. Therefore, in the next TGT implementation, PJOK teachers can provide more intensive guidance and assign simple physical activity assignments outside of class hours to maximize student involvement in each stage.

Conclusion

Based on the results of the research that has been carried out, it can be concluded that the implementation of *the Teams Games Tournament* (TGT) model combined with the Moving Color Zone game in PJOK learning has a significant positive impact on the physical fitness of class VIII B students of SMP Negeri 13 Malang. This is evidenced by the increasing trend in the percentage of classical completion from 53.88% in the pre-cycle, to 64.63% in Cycle I, and reaching 79.75% in Cycle II, exceeding the success indicator threshold set at 75%. At the end of Cycle II, as many as 26 out of 32 students (81.25%) succeeded in being in the Good and Very Good categories based on the results of the Indonesian Physical Fitness Test (TKJI).

The implementation of the TGT model combined with the Moving Color Zone game has been proven to create a more dynamic and enjoyable learning environment, encouraging all students to participate optimally in various movement activities. Through a series of structured games and tournaments, students have wider opportunities to engage in physical activity, thus directly supporting the improvement of physical fitness quality. This model is worthy of recommendation as an innovative and effective learning strategy to improve the quality of physical fitness learning in secondary schools.

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