



Increasing the Activity of Grade VII Students Through the Cooperative Learning Model of Invasion Game Materials at SMPN 8 Banjarbaru

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Abstract

This research is motivated by the low activity of students in learning Physical Education, Sports, and Health (PJOK) in grade VII students of SMPN 8 Banjarbaru which can be seen from the lack of participation, cooperation, courage, and enthusiasm of students during the learning process. Although cooperative learning and play-based approaches have been widely used in physical education, limited classroom action research is still examining how modified invasion play can support increased student activity, cooperation, courage, and enthusiasm in grade VII PJOK learning. This study aims to describe the increase in student activities through the application of the invasion game-based cooperative learning model. The type of research used is Classroom Action Research (PTK) with 32 research subjects of grade VII SMPN 8 Banjarbaru. The sampling technique uses total sampling. The research instrument is in the form of student activity observation sheets which are compiled based on indicators of student participation, cooperation, courage, and enthusiasm. Data collection techniques are carried out through observation and documentation, while data analysis uses quantitative and qualitative descriptive analysis. The results of the study showed a gradual increase in student activity, namely by 57% in the pre-test stage with the sufficient category, increased to 72% in the first cycle with the good category, and reached 85% in the second cycle with the very good category. The findings of the study show that the application of cooperative learning through invasion games supports the improvement of student activities in the observed classroom context. Thus, this learning model can be used as an alternative learning strategy to support the quality of the PJOK learning process.

Keywords: Student Activism; Cooperative; Invasion Games; PJOK; Classroom Action Research.

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INTRODUCTION

Education is a process that is systematically designed to develop all students' potential, both in cognitive, affective, and psychomotor aspects. In practice at the Junior High School (SMP) level, the learning process is not only oriented towards achieving learning outcomes in the form of knowledge, but also on the active involvement of students in every learning activity. Increasing student activities that are included in the affective realm is an important step in realizing quality, effective, and efficient learning (Hakim et al., 2018). Student activities are one of the important indicators in assessing the quality of the learning process because through active involvement students can build understanding, skills, and attitudes more optimally and meaningfully. Student activities are an important part of the learning process because without student involvement, educational goals cannot be achieved optimally (Basir et al., 2021).

One of the subjects that is very demanding of student activities is Physical Education, Sports, and Health (PJOK). PJOK has different characteristics compared to other subjects because it emphasizes movement activities, motor skills, and social interaction between students (Nafisa et al., 2024). In PJOK learning, students are not only required to understand concepts, but also be able to practice various movement skills, work together in a team, and show sportsmanship and discipline (Akbar & Hartati, 2019). Therefore, the active involvement of students is an important factor in the success of PJOK learning. The lack of student activity

in PJOK learning can have an impact on the low achievement of learning goals, both in terms of skills and social attitudes of students (Jasmani, 2025).

Several previous studies have shown that cooperative learning models can increase student activities in PJOK learning because it provides opportunities for students to work together, discuss, and be directly involved in learning activities. In addition, the invasion game approach is also considered to be able to create a more interesting and challenging learning atmosphere so that students are more motivated to actively participate. Research on invasion games in PJOK shows that game activities can help improve cooperation, communication, and student engagement during the learning process. However, most previous studies have focused on improving students' learning outcomes or movement skills, while studies that specifically examine the increase in student activity through modified invasion games in cooperative learning are still limited, particularly in grade VII junior high school students.

In addition, in some previous studies, learning activities still tended to be dominated by students who had better abilities, while students who were less confident tended to be passive and less involved in games. This condition shows that a learning strategy is needed that not only emphasizes group cooperation, but is also able to provide equal participation opportunities to all students. Therefore, this research is important to answer the problem of low student activity in PJOK learning grade VII and to create a more active and inclusive learning atmosphere.

Based on the results of observations in the field, it is still found that less than 75% of students are active in PJOK learning in grade VII students of SMPN 8 Banjarbaru. Some students seem to be less involved in learning activities, tend to be passive, and only become spectators during the activity. In addition, there are also students who dominate the game so that other students' opportunities to get involved are limited. This condition shows that the learning process is not fully able to involve all students equally.

Low student activity can be caused by several factors, including less varied learning methods, lack of game modifications, and lack of optimal classroom management by teachers. Monotonous and overly teacher-centered learning causes students to be less motivated to actively participate (Luthfi et al., 2025). Therefore, a learning model is needed that is able to create an interesting, challenging, and actively engaging learning environment for all students (Mughni & Wisnu, 2025).

The novelty of this research lies in the use of modified invasion games in cooperative learning structures, where game rules, group composition, and participation opportunities are adjusted to ensure that all students can be actively engaged, not just students who are dominant in the game. The modification is carried out by providing equal opportunities for each student to participate, forming a balanced group, and implementing game rules that support the involvement of all group members. This approach is expected not only to increase student activities, but also to help develop cooperation, sportsmanship, courage, and communication between students.

Through the application of the modified invasion game learning model according to the characteristics of the students, it is hoped that all students can be actively involved in learning. Modifying the rules of the game, balanced group divisions, and giving equal opportunities to each student to participate can be strategies to increase student activity. In addition, this model can also help students in developing social skills, such as cooperation, sportsmanship, and communication. The game-based PJOK learning model is seen as relevant because it is able to integrate cognitive, affective, and psychomotor aspects in a more natural, fun, and meaningful learning atmosphere (Djaelani et al., 2025).

This study aims to increase the activities of grade VII students in PJOK learning through the application of a cooperative learning model using modified invasion game activities. Student activities were reviewed through four indicators, namely student participation, cooperation, courage, and enthusiasm during the learning process.

METHOD

This research aims to increase student activities in Physical Education, Sports, and Health (PJOK) learning through the application of a cooperative learning model using invasion game activities in grade VII students of SMPN 8 Banjarbaru. The approach used in this study is Classroom Action Research (PTK). The research was carried out in two cycles,

where each cycle consisted of the stages of planning, implementation of actions, observation, and reflection (Sri Astutik et al., 2021).

The research participants were 32 grade VII students of SMPN 8 Banjarbaru consisting of 17 male students and 15 female students with diverse learning abilities. The object of this research is the activities of students in participating in PJOK learning through the application of the cooperative learning model based on invasion games.

The cooperative learning model used in this study is small group cooperative learning. Students are divided into eight groups consisting of four students with heterogeneous abilities each. Each group member is given a different role, such as group leader, game strategist, scorer, and motivational to group members. Student cooperation is built through group assignments and team games that require all members to be actively involved in the game. Individual accountability is done by providing an assessment of activities to each student based on their engagement during learning, while group success is evaluated through teamwork, member participation, and completion of game tasks.

The invasion game activities applied in this study are games modified from simple soccer and handball games. The game is carried out with the aim of attacking the opponent's area and defending their own area through teamwork. Some of the rules of the game were modified to suit the characteristics of grade VII students, such as reducing the size of the field, limiting possession time, limiting the number of touches by one player, and requiring all members of the group to touch the ball before scoring points. The modification was made to reduce the dominance of certain students and provide an equal opportunity for all students to actively participate in the game. In addition, teachers also provide special motivation and direction to students who tend to be passive to be more courageous in engaging in game activities.

In cycle I, the planning stage was carried out by compiling a teaching module that integrated a cooperative learning model based on invasion games, preparing learning tools and media, and compiling research instruments in the form of student activity observation sheets. At the stage of implementing actions, teachers carry out learning in accordance with the teaching modules that have been prepared through modified invasion game activities. During the learning process, observations are made to observe student activities using observation sheets that have been prepared. The results of the observation are then analyzed at the reflection stage to identify the advantages and disadvantages of learning which are then used as the basis for improvement in the next cycle.

In cycle II, the planning stage is carried out by improving the learning process based on the results of reflection in cycle I, especially in setting game strategies, group divisions, class management, and providing more equal participation opportunities to all students. The implementation stage of the action is carried out by applying the results of the improvement so that student activities can increase more optimally. Observation was again carried out to obtain data on student activities which were then analyzed and reflected to find out the success rate of the actions that had been taken.

The data collection technique in this study was carried out through observation and documentation. Observation is used to observe student activities during the learning process using observation sheets that have been compiled based on student activity indicators. Documentation is used to complement research data in the form of learning activity records, student attendance lists, and photo documentation during the activity.

The research instruments used included observation sheets of student activities, field notes, and documentation. The student activity observation sheet was validated by two PJOK expert lecturers and one junior high school PJOK teacher to assess the suitability of the indicators, the clarity of the assessment aspect, and the relevance of the instrument to the research objectives. Based on the results of the validation, several revisions were made to the redaction of the indicators and instructions for filling out the observation sheet to make it easier for observers to use. To maintain the reliability of the data, the research involved two observers who made observations simultaneously during the learning process. The results of the observations of the two observers were then compared to maintain the consistency of the assessment of student activities.

Student activities in this study were assessed through four indicators, namely participation, cooperation, courage, and enthusiasm. Participation is defined as the active involvement of students in participating in the game and completing the assigned tasks.

Cooperation is defined as the ability of students to pass the ball, support teammates, and communicate during the game. Courage is defined as the willingness of students to try moves, make decisions, and be directly involved in the game. Enthusiasm is defined as the attention, enthusiasm, effort, and positive response of students during the learning process.

The data obtained was analyzed using quantitative and qualitative descriptive analysis techniques. Quantitative analysis was carried out by calculating the average student activity score and the percentage of students who reached the active category. Qualitative analysis is carried out by describing the results of observation and reflection during the learning process. According to (Nasir, 2021), the research is said to be successful if at least 80% of students reach the active or very active category and there is an increase in student activity from cycle I to cycle II.

RESULTS AND DISCUSSION

In the results of this study, several results of data analysis were presented starting from the initial observation stage (pre-test) to the implementation of actions in cycle I and cycle II. The research was carried out on grade VII students of SMPN 8 Banjarbaru, totaling 32 students in Physical Education, Sports, and Health (PJOK) learning with the aim of increasing student activities through the application of a modified invasion game-based cooperative learning model. The implementation of the action was carried out in accordance with the school learning schedule and guided by the PJOK subject teacher. Learning activities are designed through game activities and group work that involve active participation, cooperation, courage, and enthusiasm of students during the learning process.

The assessment of student activities was carried out using observation sheets based on four indicators, namely participation, cooperation, courage, and enthusiasm. Each indicator was assessed using a scale of 1–4 with categories: 1 = less active, 2 = moderately active, 3 = active, and 4 = very active. The percentage of student activity is obtained from the number of students who reach the active and very active category compared to the number of all students, then multiplied by 100%. The criteria for the percentage of student activity category were determined as follows: 0–59% of the category is adequate, 60–79% is in the good category, and 80–100% is in the very good category.

Tabel 1. Student Activity Results.

Stages	Number of Students	Active Students	Percentage	Category
Pre-Test	32	18	57%	Enough
Siklus I	32	23	72%	Good
Siklus II	32	27	85%	Excellent

Based on Table 1, student activities have increased in each learning cycle. In the pre-test stage, there were 18 active students out of 32 students with a percentage of 57% who were in the sufficient category. This condition shows that some students are still passive in participating in learning, lack confidence in playing, and have not been able to work together optimally in groups.

In cycle I, the number of active students increased to 23 students with a percentage of 72% which was included in the good category. The increase occurred after the implementation of the cooperative learning model through modified invasion games. Students begin to show better involvement in the game, communicate more actively with group members, and begin to dare to take part in offensive and defensive activities.

Furthermore, in cycle II, the number of active students increased again to 27 students with a percentage of 85% which is included in the very good category. These results show that the target of research success, which is at least 80% of students reach the active category, has been achieved. At this stage, most students seem more enthusiastic about participating in learning, able to work together with group members, and more confident in doing game activities. To get a more detailed picture, the increase in student activity was also analyzed based on four activity indicators, namely participation, cooperation, courage, and enthusiasm.

Table 2. Results of Student Activities Based on Indicators

Indicator	Pre-Test	Cycle I	Cycle II
Participation	56%	71%	86%

Indicator	Pre-Test	Cycle I	Cycle II
Cooperation	58%	73%	87%
Courage	55%	70%	84%
Enthusiasm	59%	74%	85%

Based on Table 2, all indicators of student activity have increased in each cycle. The participation indicator increased from 56% in the pre-test stage to 86% in cycle II. This can be seen from the increasing number of students who are directly involved in the game and actively complete group assignments given by the teacher.

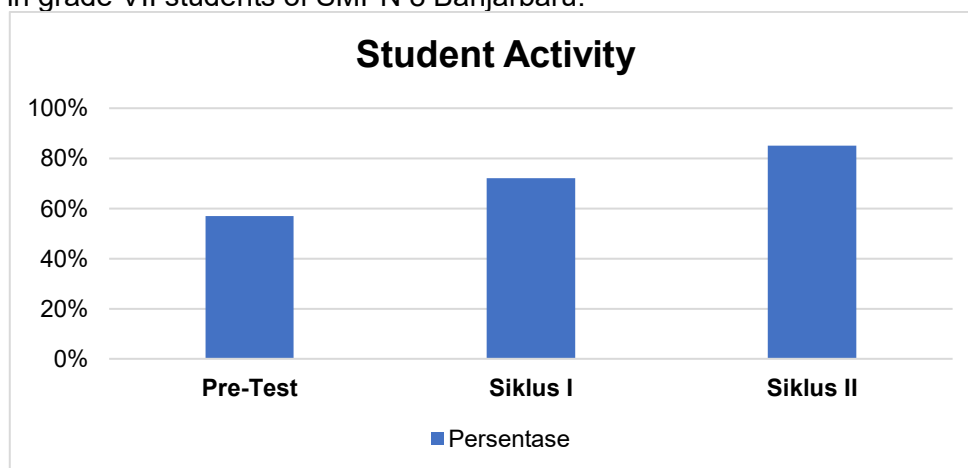
The cooperation indicator increased from 58% to 87%. This improvement can be seen from the students' ability to pass the ball, provide support to teammates, and communicate during the game. In cycle II, students are seen to be more able to work together in developing game strategies than in the early stages of learning.

The courage indicator increased from 55% to 84%. In the early stages, some students look hesitant and afraid to do game activities. However, after modifying the rules of the game and providing motivation by the teacher, students began to dare to make decisions, try movements, and engage in attacking and defensive games.

The enthusiasm indicator increased from 59% to 85%. Students seem more enthusiastic about participating in learning, paying attention to the teacher's directions, and showing positive responses during the activity. The learning atmosphere becomes more active and fun than before the action was taken.

The results of field observations also showed changes in student behavior during the learning process. In the early stages, some students tend to be passive and only watch other friends play. After actions were taken in cycle I and cycle II, students who were previously passive began to actively join group activities and were more courageous to participate in games. In addition, communication between students also improves during the game, especially when developing offensive and defensive strategies. Modifying the rules of the game that requires all members of the group to touch the ball before scoring points also helps reduce the dominance of certain students and provides more equal participation opportunities for all students.

Thus, the results of the study show that the application of the cooperative learning model through modified invasion games can support the increase of student activities in PJOK learning in grade VII students of SMPN 8 Banjarbaru.



Gambar 1. Graph of Student Activity in Grade VII

Improvement in Student Activity Across the Action Cycles

The findings demonstrate a progressive increase in student activity following the implementation of cooperative learning through modified invasion games. The percentage of students classified as active increased from 57% during the pre-action stage to 72% in Cycle I and 85% in Cycle II. This represents gains of 15 percentage points in the first cycle and a further 13 percentage points in the second cycle. Overall, student activity increased by 28 percentage points, while the number of active students rose from 18 to 27. These results indicate that the instructional changes implemented across the two cycles were accompanied by improvements in participation, cooperation, courage, and enthusiasm. Nevertheless,

because this classroom action research did not include a control group, the increase should be interpreted as improvement within the observed classroom context rather than definitive evidence of a causal effect.

Contribution of Cooperative Learning to Student Participation

The increase observed after Cycle I can be interpreted in relation to the cooperative structure used during learning. Casey and Goodyear (2015) explained that cooperative learning in physical education can support physical, cognitive, social, and affective learning when students work toward shared goals and remain individually accountable. In the present study, students were organised into heterogeneous small groups and assigned specific roles. This structure expanded opportunities for students with different ability levels to participate rather than allowing activities to be dominated by students with stronger motor skills.

Bores-García et al. (2021) found that cooperative-learning research in physical education has frequently reported benefits related to motivation, social learning, group climate, and teacher–student interaction. Similarly, Zach et al. (2023) concluded that cooperative-learning strategies can support outcomes across the social, affective, cognitive, and physical domains, although their effectiveness depends on instructional design. The improvement from 57% to 72% in Cycle I therefore appears consistent with the use of shared tasks, group responsibility, and structured interaction. A recent meta-analysis also found that cooperative learning had positive effects across multiple physical education outcomes, with the strongest effect occurring in the social domain (Boke et al., 2025).

The findings also suggest that merely placing students in groups would not have been sufficient. The learning design required students to cooperate, communicate, and contribute to the completion of game tasks. Bjørke and Moen (2020) showed that students' cooperative-learning experiences develop gradually and require sustained implementation, clear learning objectives, and opportunities for social-emotional learning. Yang et al. (2021) likewise found that cooperative grouping could improve physical education learning motivation and skill acquisition, although teachers still needed to select grouping arrangements according to students' characteristics and learning goals. Thus, the improvement in this study was likely related not only to group formation but also to the roles, shared responsibilities, and individual activity assessments applied within each group.

Equitable Participation and Teacher Support

The heterogeneous composition of the groups and the modification of game rules appear to have reduced the dominance of more skilled students. Rules requiring all group members to touch the ball before scoring encouraged wider participation and made team success dependent on the involvement of every member. This principle corresponds with cooperative learning because positive interdependence is created when students cannot complete a task successfully without contributions from their peers.

The teacher's guidance also remained important, particularly for students who were hesitant or less confident. Bertills et al. (2019) found that student engagement in physical education was associated with lesson structure, teacher communication, instructional proximity, and the organisation of group activities. In this study, the teacher provided additional motivation and direction to students who tended to remain passive. Consequently, the improvement should not be attributed solely to the learning model; it also reflected active teacher intervention, classroom management, and the provision of more equitable participation opportunities. This interpretation is important because cooperative learning requires instructional support rather than the complete withdrawal of teacher guidance.

Contribution of Modified Invasion Games

The use of modified invasion games provided an authentic and dynamic learning context in which students needed to attack, defend, communicate, move into space, and make rapid decisions. Barba-Martín et al. (2020) reported that game-centred approaches in physical education can support tactical understanding, decision-making, technical execution, and physical activity when they are implemented systematically. Hortigüela Alcalá and Hernando Garijo (2017) also found that Teaching Games for Understanding produced more favourable motivational and achievement perceptions than a traditional technical approach. These

findings help explain why students in the present study became increasingly willing to participate in the game rather than remaining passive observers.

The improvement in enthusiasm is also consistent with research on game-based physical education. Mo et al. (2024) found through a systematic review and meta-analysis that game-based physical education interventions had a positive effect on enjoyment among children and adolescents. Gil-Arias et al. (2017) similarly showed that a hybrid game-centred instructional unit could support autonomous motivation, enjoyment, and students' intention to remain physically active. Therefore, the increase in enthusiasm from 59% during the pre-action stage to 85% in Cycle II may have been supported by the more enjoyable, meaningful, and interactive nature of the modified games.

Effects of Game and Task Modifications

The modifications introduced in this study included reducing the playing area, limiting possession time and individual touches, balancing group composition, and requiring every student to participate before a team could score. These modifications reduced task complexity while increasing students' opportunities to interact with the ball and their teammates. Fernández-Espínola et al. (2020) explained that small-sided games can integrate physical, technical, and tactical learning within situations resembling actual gameplay. Li et al. (2024) similarly argued that small-sided games provide repeated opportunities for movement, decision-making, and skill execution in physical education.

From a nonlinear-pedagogy perspective, changing the playing area, number of touches, group size, and scoring conditions represents the manipulation of task constraints. Chow et al. (2023) showed that appropriately designed constraints can encourage exploratory learning, functional movement solutions, and game-skill acquisition. More specifically, Neira-Navarrete et al. (2024) found that modified invasion games could improve students' actual and perceived motor competence. These studies support the interpretation that the improvements in participation and courage were associated with the creation of manageable game situations in which students had more opportunities to act, decide, and experience successful involvement.

Development of Participation, Cooperation, Courage, and Enthusiasm

All four indicators increased across the action cycles. Participation increased from 56% to 86%, indicating that more students became directly involved in gameplay and group tasks. Cooperation increased from 58% to 87%, representing the highest final percentage among the indicators. This finding is consistent with the central features of cooperative learning because the modified rules required students to pass, communicate, support teammates, and coordinate offensive and defensive actions. Zhou et al. (2023) identified motivation, group climate, interpersonal relationships, and pedagogical models as major themes in contemporary cooperative-learning research in physical education.

Courage increased from 55% to 84%. Students who were initially hesitant became more willing to receive the ball, attempt movements, make decisions, and participate in attacking and defending. This change may have occurred because the modified games provided repeated, lower-risk opportunities for involvement. Success was defined through group participation rather than individual technical superiority. Meanwhile, enthusiasm increased from 59% to 85%, suggesting that students responded positively to the combination of gameplay, peer interaction, and progressively refined tasks. These outcomes are consistent with evidence that cooperative and game-centred approaches can strengthen motivation and perceived competence when students experience autonomy, peer support, and meaningful participation (Gil-Arias et al., 2017; Hortigüela Alcalá & Hernando Garijo, 2017; Yang et al., 2021).

Limitations and Implications

The findings must be interpreted within several limitations. First, the study was conducted in only one class involving 32 students, which limits its transferability to other schools and student populations. Second, the absence of a control or comparison group means that the improvement cannot be attributed exclusively to cooperative learning. The observed changes may also have been influenced by game modification, teacher

encouragement, repeated exposure to the activity, growing familiarity among group members, or students' awareness that they were being observed.

Third, the intervention lasted only two cycles, preventing conclusions about the sustainability of the behavioural changes. Reviews of cooperative and game-centred physical education have warned that many interventions are short and provide limited evidence regarding long-term learning (Bores-García et al., 2021; Barba-Martín et al., 2020). Fourth, activity was assessed through observation, creating a possibility of observer judgement despite the involvement of two observers. The manuscript should therefore report an inter-observer agreement coefficient, when available, to demonstrate the consistency of the assessments.

Overall, the findings indicate that cooperative learning implemented through modified invasion games supported increased student activity in the observed Grade VII physical education class. Its contribution was evident in the progressive development of participation, cooperation, courage, and enthusiasm. The improvement appears to have resulted from the interaction of cooperative group structures, equitable participation rules, task modification, repeated involvement, and teacher support. Consequently, the approach should be understood as a coordinated instructional strategy rather than as a single game activity.

CONCLUSION

Based on the results of research that has been carried out at SMPN 8 Banjarbaru on grade VII students, it can be concluded that the application of learning through game activities and group work has proven to be effective in increasing student activity in physical education learning. The results of the study showed that at the pre-test stage, student activity reached 57% or 18 active students out of 32 students with sufficient categories. In the first cycle, the percentage of activity increased by 20% to 72% or 23 active students with good categories. Furthermore, in the second cycle, it increased again by 13% to reach 85% or 27 active students with the very good category. These findings show that learning strategies that emphasize students' active involvement are able to increase student participation, cooperation, courage, and enthusiasm gradually and significantly.

RECOMMENDATIONS

Based on the findings of the research, it is suggested that PJOK teachers can implement a learning model that is oriented to student activities, such as the use of games and group work, to increase student activity in the learning process. Students are expected to be able to increase active participation, courage in trying, and the ability to work together with fellow students. The school is also expected to provide support through the provision of adequate facilities and infrastructure to support the implementation of innovative and interactive learning. In addition, for future researchers, it is recommended to develop this research by applying a variety of different learning models as well as to other materials or levels of education to obtain more comprehensive results.

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