



Improving Students' Active Participation and Volleyball Learning Outcomes through Problem-Based Learning among MTs Darut Thayyibin NW Batujai Students

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Abstract

Objectives: This study aimed to improve students' active participation and volleyball learning outcomes through the implementation of the Problem-Based Learning model among students at MTs Darut Thayyibin NW Batujai.

Materials and Methods: This study used classroom action research. The participants were 32 seventh-grade students at MTs Darut Thayyibin NW Batujai, consisting of 18 boys and 14 girls. The research was conducted through a pre-cycle stage and one action cycle. The learning action applied the Problem-Based Learning model in volleyball learning. Data were collected using written tests to measure learning outcomes and questionnaires to measure students' active participation. The data were analyzed descriptively using percentages and mean scores.

Results: The results showed an improvement in students' active participation and volleyball learning outcomes after the implementation of Problem-Based Learning. In the pre-cycle stage, the highest category of students' active participation was 31.25%, while in Cycle I it increased to 46.87%. Students' learning mastery also increased from 10 students, or 31.25%, in the pre-cycle to 32 students, or 100%, in Cycle I. The class mean score improved from 55.31 in the pre-cycle to 81.87 in Cycle I. The minimum score also increased from 20 to 75, while the maximum score increased from 80 to 95.

Conclusions: The implementation of Problem-Based Learning improved students' active participation and volleyball learning outcomes at MTs Darut Thayyibin NW Batujai. The model encouraged students to become more involved in the learning process through discussion, problem solving, group work, and active participation. Therefore, Problem-Based Learning can be used as an effective instructional strategy in volleyball learning within physical education.

Keywords: active participation; learning outcomes; volleyball; Problem-Based Learning; physical education

Introduction

Teachers play an important role in organizing the learning process so that all learning components can interact effectively (Wahlstrom & Louis, 2008). In education, various efforts have been made to improve learning quality, including curriculum development, instructional innovation, and the provision of educational facilities. To improve students' learning achievement, teachers are required to design innovative learning activities that encourage students to learn optimally, both independently and in the classroom (Susiani et al., 2022).

In Physical Education, Sports, and Health, teachers need to plan learning activities that are attractive, meaningful, and able to encourage student participation (Beni et al., 2021). Physical education



should not only focus on physical movement, but also develop students' cognitive understanding, affective attitudes, cooperation, confidence, and responsibility. Therefore, appropriate learning models are needed to create an effective and engaging learning environment (Dudley et al., 2022).

Volleyball is one of the sport materials taught in physical education. It requires students to understand game rules, master basic techniques, cooperate with teammates, and solve movement-related problems during play. However, volleyball learning is often less effective when students only receive teacher-centered instruction. A command-style teaching approach may limit student interaction, reduce learning motivation, and make students passive during the learning process (Arifin et al., 2021).

Based on the preliminary observation at MTs Darut Thayyibin NW Batujai, students' volleyball learning outcomes were still low. Only 10 of 32 students, or 31.25%, achieved the minimum mastery criterion. The class mean score was 55.31, which was below the expected standard. During the learning process, many students were passive, rarely interacted with their peers, and showed limited responses to the teacher's explanation. The learning process was still dominated by the teacher, and students were not given enough opportunities to solve learning problems collaboratively.

Several learning problems were identified. First, students had low mastery of volleyball learning materials. Second, not all students were able to solve problems related to volleyball learning activities. Third, students showed low motivation in completing tasks given by the teacher. Fourth, the learning model used was still too teacher-centered. Fifth, students' participation and learning outcomes were uneven. Sixth, students did not cooperate optimally with their classmates during learning activities.

One learning model that can be used to overcome these problems is Problem-Based Learning. Problem-Based Learning is a student-centered learning model that involves students in solving real or contextual problems through scientific and collaborative activities. Through this model, students are encouraged to identify problems, discuss possible solutions, work in groups, present ideas, and reflect on their learning process.

In volleyball learning, Problem-Based Learning gives students opportunities to solve movement-related and game-related problems. Students can discuss how to perform basic techniques, how to cooperate during play, and how to improve performance through group activities. Previous studies have shown that Problem-Based Learning can increase student participation, critical thinking, and learning outcomes. (Dobber et al., 2017) stated that Problem-Based Learning can improve students' learning outcomes because students are actively involved in the learning process. (Yew & Goh, 2016) also found that the application of Problem-Based Learning could improve students' learning achievement.

Based on this background, this study aimed to improve students' active participation and volleyball learning outcomes through the implementation of the Problem-Based Learning model among



students at MTs Darut Thayyibin NW Batujai.

Materials and Methods

Study Design

This study used classroom action research. Classroom action research is a reflective research approach conducted to improve learning practices in the classroom. The study was carried out through a pre-cycle stage and one action cycle. The action cycle followed the classroom action research procedure consisting of planning, action, observation, and reflection. The classroom action research design was selected because the study aimed to improve students' active participation and volleyball learning outcomes through direct improvement of the learning process.

Study Participants

The participants were 32 seventh-grade students at MTs Darut Thayyibin NW Batujai. The class consisted of 18 boys and 14 girls. The participants were selected because they experienced low active participation and low learning outcomes in volleyball learning during the pre-cycle stage.

Study Organization

The learning action implemented in this study was the Problem-Based Learning model. The model was applied in volleyball learning by presenting students with learning problems related to volleyball material. Students were encouraged to discuss the problems, work in groups, exchange ideas, find solutions, and present their work. The teacher acted as a facilitator who guided students during the learning process. Students were given opportunities to participate actively, ask questions, respond to their peers, solve problems collaboratively, and conclude the learning material at the end of the lesson. Data were collected using written tests and questionnaires. The written test was used to measure students' volleyball learning outcomes. The questionnaire was used to measure students' active participation during the learning process.

Statistical Analysis

The data were analyzed descriptively. Students' learning outcomes were analyzed by calculating the mean score and the percentage of students who achieved the minimum mastery criterion. Students' active participation was analyzed using percentage calculations based on the questionnaire results. The percentage formula used in this study was:

$$P = F / N \times 100\%$$

where P is the percentage, F is the frequency, and N is the total number of students.

Results

Pre-Cycle

The pre-cycle results showed that students' active participation and volleyball learning outcomes were still low. Only 10 of 32 students achieved the minimum mastery criterion. The class mean score was 55.31. The lowest score was 20, while the highest score was 80. In terms of active participation, only 10 students, or 31.25%, were in the high category. Meanwhile, 7 students, or 21.87%, were in the moderate category, and 15 students, or 46.87%, were in the low category. These results indicate that most students were not yet actively involved in volleyball learning and had not achieved the expected learning outcomes.

Table 1. Students' Active Participation and Learning Outcomes in the Pre-Cycle

Aspect	Category/Description	Frequency/Score	Percentage
Active participation	High	10	31.25%
Active participation	Moderate	7	21.87%
Active participation	Low	15	46.87%
Learning mastery	Mastery	10	31.25%
Learning mastery	Non-mastery	22	68.75%
Learning outcomes	Mean score	55.31	-
Learning outcomes	Minimum score	20	-
Learning outcomes	Maximum score	80	-

Cycle I

After the implementation of the Problem-Based Learning model in Cycle I, students' active participation and learning outcomes improved. The number of students in the high active participation category increased to 15 students, or 46.87%. Students in the moderate category increased to 10 students, or 31.25%, while students in the low category decreased to 7 students, or 21.87%. Students' learning mastery also increased significantly. All 32 students, or 100%, achieved the minimum mastery criterion. The class mean score increased from 55.31 to 81.87. The minimum score increased from 20 to 75, and the maximum score increased from 80 to 95. The results show that the Problem-Based Learning model improved students' active participation and volleyball learning outcomes in Cycle I.

Table 2. Students' Active Participation and Learning Outcomes in Cycle I

Aspect	Category/Description	Frequency/Score	Percentage
Active participation	High	15	46.87%

Active participation	Moderate	10	31.25%
Active participation	Low	7	21.87%
Learning mastery	Mastery	32	100%
Learning mastery	Non-mastery	0	0%
Learning outcomes	Mean score	81.87	-
Learning outcomes	Minimum score	75	-
Learning outcomes	Maximum score	95	-

Comparison between Pre-Cycle and Cycle I

Table 3. Comparison of Students' Active Participation and Learning Outcomes

Aspect	Pre-Cycle	Cycle I	Improvement
High active participation	31.25%	46.87%	+15.62%
Moderate active participation	21.87%	31.25%	+9.38%
Low active participation	46.87%	21.87%	-25.00%
Learning mastery	31.25%	100%	+68.75%
Mean score	55.31	81.87	+26.56
Minimum score	20	75	+55
Maximum score	80	95	+15

The comparison shows that students' active participation improved after the implementation of Problem-Based Learning. The percentage of students in the high participation category increased from 31.25% to 46.87%, while the percentage of students in the low participation category decreased from 46.87% to 21.87%. Learning mastery also increased from 31.25% to 100%, indicating that all students achieved the minimum mastery criterion in Cycle I.

Discussion

The findings of this study show that the implementation of Problem-Based Learning improved students' active participation and volleyball learning outcomes at MTs Darut Thayyibin NW Batujai. Before the action was implemented, students' active participation was still low. Many students were not ready to receive the lesson, did not pay attention to the teacher's explanation, rarely asked questions, and tended to be passive during learning activities. These conditions contributed to low learning outcomes, as shown by the pre-cycle mastery percentage of only 31.25%.

After the implementation of Problem-Based Learning, students became more involved in the learning process. They participated in group discussions, exchanged ideas, solved problems, answered



questions, and presented the results of their work. This shows that Problem-Based Learning can create a more active and student-centered learning environment. The increase in high active participation from 31.25% to 46.87% indicates that students were more willing to engage in the learning process.

The improvement in active participation also influenced students' learning outcomes. In the pre-cycle stage, only 10 students achieved mastery, while in Cycle I, all 32 students achieved mastery. The class mean score also increased from 55.31 to 81.87. These findings indicate that when students are actively involved in learning, they are more likely to understand the material and achieve better learning outcomes.

These results are consistent with (Mestre, 2012), who found that Problem-Based Learning can improve students' learning outcomes because it encourages students to participate actively in problem-solving activities. Problem-Based Learning helps students build knowledge through investigation, discussion, and collaboration rather than merely receiving information from the teacher.

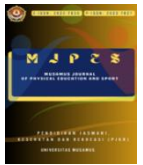
The findings also support (Yew & Goh, 2016), who reported that the application of Problem-Based Learning could improve student achievement. In this study, students were encouraged to solve volleyball-related learning problems through group activities. This process allowed them to develop understanding, cooperation, confidence, and responsibility.

Furthermore, (Sakir & Kim, 2020) found that Problem-Based Learning could increase students' activeness and learning outcomes. This is in line with the present study, where students became more active after being given opportunities to ask questions, express opinions, work in groups, and present their ideas. The learning process became more interactive because students were not only listeners but also active participants.

In volleyball learning, Problem-Based Learning is relevant because volleyball requires cooperation, communication, and problem-solving during play. Students need to understand not only technical skills but also how to make decisions, cooperate with teammates, and respond to game situations. Through Problem-Based Learning, students can learn volleyball in a more meaningful way because they are directly involved in solving learning problems (Nasrulloh, 2022).

The improvement in learning outcomes can also be explained by the shift from teacher-centered learning to student-centered learning. In the pre-cycle stage, learning was still dominated by the teacher, making students passive. In Cycle I, students were given more opportunities to participate, discuss, and solve problems. This change helped students become more motivated and responsible for their own learning.

Although the results showed significant improvement, some students still needed support in active participation. In Cycle I, 7 students, or 21.87%, were still in the low active participation category.



This indicates that teachers need to continue providing guidance, motivation, and opportunities for all students to participate equally. Future learning activities should provide more balanced group roles so that every student has responsibility during discussion and practice.

Overall, the findings suggest that Problem-Based Learning is an effective model for improving active participation and volleyball learning outcomes. The model encourages students to think, discuss, cooperate, solve problems, and present ideas. Therefore, Problem-Based Learning can be recommended as an instructional strategy in physical education, especially for volleyball learning.

Conclusions

Based on the results of the study, it can be concluded that the implementation of Problem-Based Learning improved students' active participation and volleyball learning outcomes at MTs Darut Thayyibin NW Batujai. Students' active participation improved from the pre-cycle to Cycle I. The percentage of students in the high active participation category increased from 31.25% to 46.87%, while the percentage of students in the low active participation category decreased from 46.87% to 21.87%.

Students' learning outcomes also improved significantly. The percentage of students who achieved mastery increased from 31.25% in the pre-cycle to 100% in Cycle I. The class mean score increased from 55.31 to 81.87. Therefore, the classroom action research was considered successful. Problem-Based Learning can be used as an effective learning model in volleyball learning because it encourages students to become more active, cooperative, confident, and responsible in solving learning problems.

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