



Deep Learning Implementation to Enhance Student Participation in Grade VIII Volleyball Learning

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Keywords

Deep learning; student participation; volleyball; physical education; meaningful learning.

Abstract

This study was motivated by the low level of student participation in volleyball learning, which was partly related to conventional teaching methods that did not sufficiently encourage active student engagement. Therefore, instructional innovation is needed through a deep learning approach. In this study, deep learning refers to a pedagogical approach that promotes mindful, meaningful, and joyful learning, not deep learning as an artificial intelligence technique in computer science. This study aimed to describe the implementation of deep learning and students' participation in Grade VIII volleyball learning. A quantitative descriptive survey method was used. The sample consisted of 64 Grade VIII students selected through purposive sampling. Data were collected through observation, questionnaires, and documentation. The questionnaire consisted of 20 items developed from indicators of student participation and the principles of deep learning, namely mindful learning, meaningful learning, and joyful learning. The data were analyzed using descriptive statistics, including scores, means, standard deviations, frequencies, and percentages. The results showed that 52% of students were in the high category, 6% in the very high category, and 42% in the moderate category, with no students in the low category. Student participation was observed most clearly during basic volleyball activities such as passing, serving, group discussion, and modified game practice. These findings indicate that pedagogical deep learning can help create an active, meaningful, and enjoyable learning environment and can be used as a relevant strategy to strengthen student participation in volleyball learning.

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INTRODUCTION

Physical Education, Sport, and Health (PESH) plays a strategic role in developing students' physical, cognitive, social, emotional, and character-related abilities. Through PESH learning, students are not only directed to improve physical fitness but are also trained to develop motor skills, sportsmanship, cooperation, responsibility, discipline, and critical thinking skills in authentic learning situations. Physical education is an effective means of developing students holistically, including their physical, emotional, social, and intellectual aspects (iswanto & widayati, 2021). In line with the demands of 21st-century education, the learning process is no longer oriented merely toward memorization but emphasizes meaningful mastery of competencies. Students are expected to think critically, collaborate, solve problems, and apply knowledge in real-life contexts. This is consistent with the implementation of the Merdeka Curriculum, which emphasizes meaningful learning and the strengthening of students' character. In the context of PESH learning in junior high schools, students' active physical, cognitive, and social engagement is essential for an optimal learning process.

One learning approach that is relevant to these needs is pedagogical deep learning. In this article, deep learning is understood as an educational approach that encourages students to build deeper understanding through awareness, meaningful connections, and enjoyable engagement, not as an artificial intelligence method. This approach emphasizes conceptual understanding, connections between learning materials and real-life experiences, reflection, and students' active involvement in the learning process. Deep learning not only encourages students to know a topic but also to understand, explore, and apply it in real situations (adnyana, 2024). This approach is based on three main principles: mindful learning, meaningful learning, and joyful learning. Mindful learning emphasizes students' awareness and focus during learning; meaningful learning emphasizes the connection between learning materials and students' real experiences; and joyful learning emphasizes the creation of an enjoyable learning atmosphere that can increase students' motivation and participation.

In PESH learning, particularly in volleyball, student participation is one of the key indicators of a successful learning process. Volleyball requires students to move actively, cooperate, communicate, and be willing to try basic techniques in the game. Through these activities, students are expected to be physically and mentally involved in mastering basic volleyball techniques (baidawi, 2019). For example, in mindful learning, students are invited to observe a movement demonstration, focus on hand position during forearm passing, and reflect on why body posture and arm angle influence ball direction, rather than merely copying the teacher's instructions. In meaningful learning, students connect passing, serving, and hitting skills with real game situations, team strategy, task distribution, and decision-making. Thus, effective volleyball learning needs to integrate technical, cognitive, and socio-interactive aspects (yudiana, 2015).

However, problems related to low student participation are still found in the implementation of learning. This low participation is often caused by learning approaches that are less varied, monotonous, and overly focused on repeated technical drills. Learning that centers only on technical drills without involving students in thinking, communication, and decision-making processes can lead to boredom. This condition makes students less motivated to participate actively, especially students with low movement ability or low self-confidence. As a result, only some students are active, while others tend to be passive or merely follow instructions without gaining a deep understanding (putri et al., 2025). Low active engagement can reduce learning effectiveness, prevent the goals of physical education from being achieved optimally, and make the learning experience less meaningful (fadillah & novita, 2025).

Based on the preliminary observation results, the level of student participation in volleyball learning was still relatively low. Observation as a data collection technique was conducted through direct observation of the research object, accompanied by systematic recording of the observed conditions or behaviors (hasibuan et al., 2023). The observation results showed that only a small number of students were consistently active during the learning process. Several students were still reluctant to ask questions, hesitant to try basic

volleyball techniques, and less involved in group activities. This condition indicates that learning had not fully provided meaningful learning experiences for all students.

Therefore, a learning approach that can comprehensively increase student engagement is needed. Pedagogical deep learning is one alternative that can be applied in PESH learning, particularly in volleyball. Through the implementation of this approach, students are expected to become more active, motivated, willing to try, able to cooperate, and optimally involved in learning activities. Accordingly, this study aims to describe the implementation of deep learning and students' participation in Grade VIII volleyball learning.

METHODS

This study used a quantitative descriptive approach with a survey method to describe students' participation in volleyball learning after the implementation of pedagogical deep learning. Quantitative research uses numerical data as the basis for analysis and for drawing conclusions about the problems being studied (Djollong, 2014). This study was not designed as a formal experiment with a comparison group or a pretest-posttest statistical test. Instead, it focused on describing the implementation process and students' participation levels after the learning approach was applied. The population of this study was all Grade VIII students at SMP Negeri 1 Lumbar, and the sample consisted of 64 students selected using purposive sampling. The sampling criteria were students who were registered in Grade VIII, participated in volleyball learning during the study, were present during observation, and completed the questionnaire. A sample is a part of the population selected as the object of observation or research (Ali Budiman, 2021).

The variable examined was student participation in volleyball learning. Data collection techniques included observation, questionnaires, and documentation. Observation is a systematic process of observing human activities and physical conditions in the natural environment where activities take place, conducted continuously to obtain factual data (Pratiwi et al., 2024). A questionnaire is a data collection instrument consisting of a set of questions arranged in a form and given to individuals or groups to obtain specific information or assessments (Iqbal & Salsabila, 2023). Documentation is the process of collecting and classifying information recorded in various forms, such as written documents, photos/images, and videos (Hasan, 2022). The questionnaire consisted of 20 items using a four-point Likert scale, with indicators developed from student participation and the principles of deep learning, namely mindful learning, meaningful learning, and joyful learning. The data were analyzed using descriptive statistics in the form of scores, mean scores, standard deviations, frequencies, and percentages. Validity testing was conducted to ensure that each statement item accurately measured the variable under study, while reliability testing was used to determine the consistency of the instrument so that it was appropriate for use in the study.

RESULTS AND DISCUSSION

The implementation of pedagogical deep learning in PESH learning on volleyball material was carried out through planning, implementation, and reflection activities. This approach was designed to increase students' active participation through the principles of mindful learning, meaningful learning, and joyful learning. The initial learning condition showed that some students tended to be passive, lacked confidence, were not active in asking questions, and were not fully involved in volleyball learning activities.

At the planning stage, the teacher designed learning activities oriented toward student activeness. The strategies used included problem-based learning, group work, direct practice, discussion, triggering questions, and reflection activities. Through these strategies, students were given opportunities to explore knowledge, understand basic volleyball techniques, cooperate with peers, and express their opinions during the learning process.

At the implementation stage, students were involved in various learning activities, such as observing movement demonstrations, practicing basic volleyball techniques, discussing in groups, solving simple game-related problems, and reflecting on their learning experiences. These activities created a more dynamic, interactive, and enjoyable learning

atmosphere. In addition, reflection activities provided space for students to express the difficulties, experiences, and understanding they gained during learning.

Mindful learning appeared when students were guided to focus on the quality of movement, such as hand position, body balance, and timing when performing passing or serving. Meaningful learning appeared when students connected the techniques being learned with actual game situations, such as how a controlled pass helps teammates build an attack. Joyful learning was reflected in the use of modified games and group activities that encouraged students to practice without excessive pressure.

The observation results showed that most students were able to follow the learning process well. Students appeared more active in practice, were more willing to communicate with peers, and showed enthusiasm during the activities. Student participation was especially visible during passing practice, serving practice, group discussion, and modified volleyball games. Nevertheless, some students still experienced difficulties in participating in learning, whether due to physical condition, lack of self-confidence, or other factors affecting their engagement.

The questionnaire results also showed that student participation was influenced by internal factors and learning-environment factors. Internal factors included motivation, interest, self-confidence, and students' physical condition. Meanwhile, environmental factors included peer support, the teacher's role, the learning atmosphere, and the learning methods used. Overall, the implementation of pedagogical deep learning had a positive contribution to student participation in volleyball learning.

The descriptive data of student participation based on the deep learning indicators are presented in **Table 1**. The indicators include self-awareness, knowledge integration, emotional engagement and motivation, teacher facilitation, character development and independent learning, as well as collaboration, creativity, and problem solving.

Table 1. Descriptive Data on the Implementation of Deep Learning in Grade VIII Students' Participation in Volleyball Learning

Indicator	Total	Mean	Max (1-4)	Min (1-4)	Standard Deviation	Variance
Self-Awareness (Mindful)	837	13,07813	4	1	5,3895033	29,0467461
Connectivity and Knowledge Integration (Meaningful)	857	13,39063	4	1	5,7104277	32,6089844
Emotional Engagement and Motivation	1172	18,3125	4	1	5,9833282	35,8002167
Teacher Role as Facilitator	153	2,390625	4	1	2,0378898	4,15299479
Character Development and Independent Learning	467	7,296875	4	1	0,828125	0,68579102
Collaboration, Creativity, and Problem Solving (Joyful)	361	5,640625	4	1	0	0

Based on **Table 1**, the implementation of deep learning showed fairly good results across several indicators of student participation in volleyball learning. The self-awareness indicator obtained a mean score of 13.08. This result indicates that students began to show awareness in following the lesson with greater focus, understanding the learning objectives, and recognizing the importance of active involvement in PESH activities.

The connectivity and knowledge integration indicator obtained a mean score of 13.39. This indicates that students were reasonably able to connect volleyball learning materials with previous learning experiences and real-life experiences. Thus, learning became more meaningful because students did not merely perform movements mechanically, but also understood the benefits and context of the skills being learned.

The emotional engagement and motivation indicator obtained the highest mean score, at 18.31. This finding shows that students had good enthusiasm, interest, and motivation in participating in learning. High emotional engagement also indicates that an enjoyable learning atmosphere can increase students' motivation to participate actively in both individual and

group activities. Meanwhile, the teacher's role as facilitator indicator obtained a mean score of 2.39. This value indicates that the teacher's role as a facilitator still needs to be improved. Teachers need to be more optimal in giving directions, guiding groups, providing feedback, and creating a learning atmosphere that supports the participation of all students. In deep learning, teachers do not only act as transmitters of material but also as companions, motivators, and facilitators of the learning process.

For the character ability and independent learning indicator, the mean score was 7.30. This result indicates that students began to demonstrate responsibility, discipline, and independence in participating in learning. The relatively low variation in the data indicates that students' level of independence was fairly stable.

The collaboration, creativity, and problem-solving indicator obtained a mean score of 5.64. The relatively homogeneous data indicate that students' participation in cooperation, creativity, and problem-solving was fairly evenly distributed. However, this aspect still needs to be further developed through group activities, modified games, and assignments that require students to think critically and cooperate in solving learning challenges.

In general, the results in **Table 1** show that the implementation of deep learning increased student participation, especially in the aspects of motivation and emotional engagement. However, several indicators, such as the teacher's role as facilitator as well as students' collaboration and creativity, still need improvement so that the learning process can run more optimally.

Table 2. Implementation of Deep Learning in Grade VIII Volleyball Learning

Range	Category	Frequency	Percentage (%)
66-80	Very high	4	6%
51-65	High	33	52%
36-50	Moderate	27	42%
20-35	Low	0	0%
Total		64	100%

Based on **Table 2**, the implementation of deep learning among Grade VIII students at SMP Negeri 1 Lumir in volleyball learning was generally in a fairly good category. A total of 4 students, or 6%, were in the very high category; 33 students, or 52%, were in the high category; and 27 students, or 42%, were in the moderate category. No students were in the low category. This distribution shows that the majority of students were in the high category. This indicates that the implementation of deep learning had been carried out well and was able to encourage student participation in volleyball learning. The absence of students in the low category also shows that, in general, students were able to follow the learning process reasonably well.

Percentage of Deep Learning Implementation
in Grade VIII Volleyball Learning

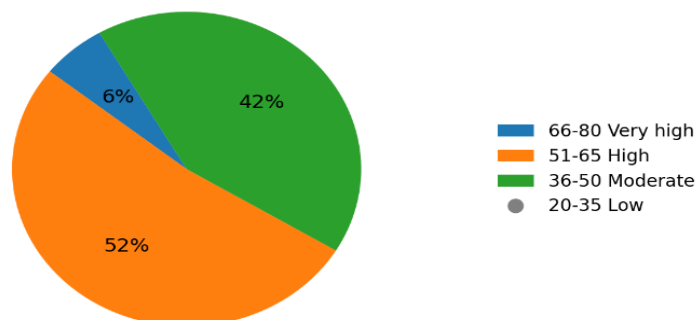


Figure 2. Percentage of Deep Learning Implementation

Nevertheless, the number of students in the very high category remained relatively small. Therefore, further efforts are needed so that more students can achieve a more optimal level of participation. These efforts can be carried out through variations in learning methods, motivation building, differentiated learning, strengthening group cooperation, and improving the teacher's role in guiding and facilitating learning activities. Thus, the analysis shows that pedagogical deep learning has a positive contribution to student participation. This approach can create more active, meaningful, and enjoyable learning, although improvements are still needed in several aspects to achieve more optimal learning outcomes.

The results of this study indicate that the implementation of the deep learning approach in PESH learning on volleyball material contributed positively to student participation. This improvement was not only evident in students' physical activeness but also included their cognitive, social, and emotional involvement during the learning process. This shows that the deep learning approach can provide a more comprehensive learning experience than conventional learning that focuses mainly on repetitive technical drills.

This success was influenced by the application of mindful, meaningful, and joyful learning principles. Mindful learning helped students focus more and become more aware of the learning process they were experiencing. Meaningful learning enabled students to connect volleyball techniques with real game situations, making the learning more relevant and easier to understand. Joyful learning created an enjoyable learning atmosphere, encouraging students to participate actively without pressure. In addition, learning strategies such as problem-based learning, group discussion, direct practice, modified games, and reflection activities proved useful in increasing interactions both among students and between students and the teacher.

However, the findings also showed that student participation was not yet evenly distributed. Some students still showed lower levels of engagement than others. This condition was influenced by various factors, both internal factors such as motivation, physical condition, and self-confidence, and external factors such as the learning environment and peer support. Therefore, differentiated learning strategies are needed so that the needs and characteristics of each student can be addressed. This finding is in line with constructivist theory, which emphasizes the importance of students' active involvement in constructing knowledge through direct experience. In addition, the findings support previous studies stating that student-centered learning approaches can increase participation and learning outcomes.

Overall, this study confirms that the deep learning approach is a relevant alternative for improving the quality of PESH learning, particularly in strengthening student participation. However, because this study used a descriptive survey design without a comparison group, the findings should be interpreted as evidence of positive implementation rather than as a causal experimental effect. The success of this approach requires careful planning, teacher readiness, continuous feedback, and adjustment to students' conditions and characteristics so that the results obtained can be more optimal and evenly distributed.

CONCLUSION

Based on the research findings, it can be concluded that the implementation of pedagogical deep learning in volleyball learning was carried out well and was able to create an active, meaningful, and enjoyable learning atmosphere through the application of mindful, meaningful, and joyful learning principles. This approach supported student participation, with most students falling into the high category, and it encouraged students' physical, cognitive, social, and emotional involvement during the learning process.

In line with these findings, teachers are advised to implement the deep learning approach continuously and to develop learning activities that are more varied, interactive, and engaging. More specifically, teachers can integrate reflective journals, peer-coaching sessions, modified volleyball games, group problem-solving tasks, and short reflection discussions to maintain the mindful, meaningful, and joyful aspects of learning. Students are expected to become more active, increase their motivation and self-confidence, and use their learning experiences to develop volleyball skills and cooperation. Schools are also expected to support learning innovations, particularly in PESH subjects. In addition, this study can serve as a

reference for future researchers to conduct broader studies with more complex designs, such as experimental or mixed-method designs, and with the inclusion of relevant additional variables.

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