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Transformation of PJOK Teachers' Strategies in Realizing Deep Learning for Students at SMA Negeri 2 Kikim Selatan

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Abstrak

Penelitian ini bertujuan untuk menganalisis dan mendeskripsikan transformasi strategi guru Pendidikan Jasmani, Olahraga, dan Kesehatan (PJOK) dalam mewujudkan pembelajaran mendalam di SMA Negeri 2 Kikim Selatan. Pembelajaran mendalam merupakan pendekatan yang bermartabat yang menekankan penciptaan suasana dan proses pembelajaran yang sadar, bermakna, dan menyenangkan melalui keterlibatan intelektual, emosional, spiritual, dan fisik yang holistik dan terintegrasi. Transformasi strategi pembelajaran ini penting sejalan dengan tuntutan Kurikulum Merdeka, yang menekankan pengembangan kompetensi dan karakter siswa melalui pengalaman belajar yang bermakna. Metode penelitian yang digunakan adalah Penelitian Tindakan Kelas (PTK) dengan dua siklus, melibatkan guru PJOK sebagai peneliti dan siswa kelas X SMA Negeri 2 Kikim Selatan sebagai subjek penelitian. Data dikumpulkan melalui observasi, wawancara, dokumentasi, dan penilaian hasil belajar siswa. Hasil menunjukkan peningkatan signifikan dalam keterlibatan aktif siswa, kemampuan refleksi diri, serta hasil belajar kognitif, afektif, dan psikomotorik setelah penerapan strategi pembelajaran reflektif dan kolaboratif. Transformasi yang dilakukan meliputi penggunaan model pembelajaran berbasis proyek, refleksi gerakan, dan pendekatan diferensiasi yang disesuaikan dengan karakteristik individu siswa. Keunikan penelitian ini terletak pada integrasi prinsip pembelajaran mendalam dalam konteks pembelajaran PJOK, yang hingga kini lebih menekankan aspek keterampilan fisik. Implikasi praktis penelitian ini adalah pentingnya guru PJOK berperan sebagai fasilitator yang membantu siswa mencapai pemahaman konseptual, kesadaran reflektif, dan kemandirian belajar. Penelitian ini berkontribusi dalam memperkuat paradigma pembelajaran abad ke-21 dalam pendidikan jasmani melalui pendekatan holistik dan berpusat pada siswa.

Kata kunci: *Pembelajaran PJOK, Transformasi Strategi Pengajaran, Pembelajaran Mendalam, Kurikulum Merdeka*

Abstract

This study aims to analyze and describe the transformation of Physical Education, Sports, andHealth (PJOK) teachers' strategies in realizing deep learning at SMA Negeri 2 Kikim Selatan. Deep learning is a dignified approach that emphasizes creating a conscious, meaningful, andjoyful learning atmosphere and process through holistic and integrated intellectual, emotional, spiritual, and physical engagement. The transformation of learning strategies is important in line with the demands of the Merdeka Curriculum, which emphasizes the development ofstudent competencies and character through meaningful learning experiences. The researchmethod used was Classroom Action Research (CAR) with two cycles, involving PJOK teachersas researchers and class X students of SMA Negeri 2 Kikim Selatan as research subjects. Data were collected through observation, interviews, documentation, and assessment of studentlearning outcomes. The results showed a significant increase in active student engagement,self-reflection ability, and cognitive, affective, and psychomotor learning outcomes after theimplementation of reflective and collaborative-based learning strategies. The transformationscarried out included the use of project-based learning models, movement reflection, anddifferentiation approaches tailored to individual student characteristics. The novelty of thisresearch lies in the integration of deep learning principles in the context of PJOK learning, which has so far emphasized physical skills aspects. The practical implication of this researchis the importance of PJOK teachers acting as facilitators who help students achieve conceptualunderstanding, reflective awareness, and learning independence. This research contributes tostrengthening the 21st-century learning paradigm in physical education through a holistic andstudent-centered approach.

Keywords: PJOK Learning, Teacher Strategy Transformation, Deep Learning, MerdekaCurriculum

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1. INTRODUCTION

Physical Education, Sports, and Health (PJOK) is an important subject in the education system because it contributes to the development of students who are physically, mentally, and socially healthy (Haryati, 2023). In the context of the Merdeka Curriculum, PJOK is no longer viewed merely as a form of physical activity, but as a comprehensive learning process that integrates cognitive, affective, and psychomotor domains in a balanced manner (Daarus Tsaqofah, 2025; López & Torres, 2023). Therefore, PJOK teachers are required to undergo a transformation in their roles, not only acting as instructors who teach sports techniques but also as facilitators of learning who guide students to develop deeper understanding, self-awareness, reflective thinking, and critical thinking skills through physical activity (Ariani & Suryadi, 2021; Afrizal, 2025).

In the modern educational era, learning paradigms have shifted significantly due to rapid technological development, social transformation, and the increasing demand for 21st-century competencies. Education is now expected to be more contextual, adaptive, and meaningful so that students are able to connect knowledge with real-life situations (Mardhiyah et al., 2021; Zhou & Brown, 2024). In this regard, the concept of deep learning becomes highly relevant. Deep learning emphasizes conceptual understanding, the ability to connect knowledge across contexts, and reflective thinking on learning experiences (Sindoro Cendikia, 2026; Yasnitsky, 2024). Within PJOK learning, this approach encourages students not only to master physical skills but also to understand the principles of movement, develop sportsmanship, build cooperation, and recognize the importance of maintaining a healthy lifestyle (Hasyim, 2025; Tan et al., 2024).

However, the reality in many schools indicates that PJOK learning is still often carried out in a routine and outcome-oriented manner, focusing primarily on the final results of physical activities rather than the learning process itself (Porkes, 2026). In many cases, students participate in physical exercises without engaging in reflection or understanding the meaning behind the activities they perform. As a result, learning tends to occur at a surface level, where students complete tasks without achieving deeper conceptual understanding (Rahmawati, 2023; Serwe-Pandrick, 2023). This condition contradicts the goals of the Merdeka Curriculum, which emphasizes meaningful and student-centered learning. Consequently, PJOK teachers are challenged to transform their teaching strategies by adopting approaches that are more adaptive, creative, and oriented toward active student engagement (Sulaiman, 2021; Fullan, 2021).

Several previous studies have shown that the implementation of active, reflective, and collaborative learning approaches can improve the quality of PJOK learning. Rahayu (2024) and Aulia et al. (2026) reported that active learning strategies significantly enhance student participation and learning outcomes. Similarly, Nugraha (2022) found that the use of project-based learning in PJOK increased student engagement and improved cognitive learning outcomes. In addition, Rahmawati (2023) demonstrated that incorporating reflective practices in movement learning strengthens students' self-awareness of the learning process. Despite these findings, studies specifically examining the transformation of PJOK teachers' strategies in implementing deep learning, particularly at the senior high school level in rural or resource-limited areas, remain limited. This gap is evident in areas such as Kikim Selatan, where educational resources and infrastructure may not fully support innovative teaching approaches (Masrun, 2019; Mustikaningrat & Sulastri, 2025).

The situation at SMA Negeri 2 Kikim Selatan illustrates these challenges. PJOK teachers often face limitations related to sports facilities, learning resources, and varying levels of student motivation (Siregar et al., 2022). These conditions require teachers to develop innovative strategies that not only modify teaching methods but also transform their pedagogical perspectives (Indo-MathEdu, 2025). In this transformation process, teachers are expected to act as facilitators who guide students to explore the meaning behind physical activities, engage in reflective thinking, and connect learning experiences with real-life health and social contexts (Wahyudi & Nuraini, 2021). This transformation can be implemented through several strategies, including shifting the teacher's role from instructor to facilitator, implementing active learning models such as project-based learning, problem-based learning, and inquiry-based learning, integrating reflective and collaborative activities, utilizing simple educational technologies such as instructional videos and digital reflections, and applying authentic assessment that evaluates both the learning process and outcomes comprehensively (Ariani & Suryadi, 2021; Putra & Nurhayati, 2022; Siedentop et al., 2021; Afrizal, 2025; Martin Rodriguez & Madrigal Cerezo, 2025; Wang & Wang, 2024; Aulia et al., 2026).

The transformation of PJOK learning strategies is also grounded in constructivist learning theory, which emphasizes that students actively construct knowledge through meaningful experiences (Yasnitsky, 2024). In the context of PJOK, constructivist principles can be implemented through reflective activities, collaborative discussions, and project-based tasks that connect movement concepts with health awareness and social values (Tan et al., 2024; López & Torres, 2023). By applying these approaches, learning becomes more meaningful and encourages students to develop both physical competencies and critical understanding of health-related behaviors.

The state of the art of this study lies in the implementation of deep learning principles within PJOK learning through classroom action research (Kemmis et al., 2021). While traditional PJOK learning often emphasizes measurable physical outcomes such as speed and strength, this research integrates reflective thinking, conceptual understanding, and collaborative learning processes (Afrizal, 2025). The novelty of this study is the combination of reflective and collaborative learning strategies that support the transformation of teachers into facilitators of deep learning (Porkes, 2026; Fullan, 2021). Practically, the results of this study are expected to provide a model that can be replicated by other PJOK teachers in implementing the Merdeka Curriculum effectively (Daarus Tsaqofah, 2025; Aulia et al., 2026).

Based on this background, the study aims to explore how PJOK teachers transform their teaching strategies to implement deep learning at SMA Negeri 2 Kikim Selatan and to what extent this transformation can improve students' cognitive, affective, and psychomotor learning outcomes. Through this research, it is expected that meaningful PJOK learning can be developed to support holistic student development and contribute both theoretically and practically to the advancement of physical education practices (Haryati, 2023).

2. METHOD

This study employed Classroom Action Research (CAR) focusing on the teacher's efforts to improve instructional practices (Masrun, 2019). The research followed the model proposed by Kemmis and McTaggart (1988), which consists of four stages: planning, acting, observing, and reflecting (Kemmis et al., 2021). The purpose of this study was to examine the transformation of PJOK (Physical Education, Sports, and Health) teachers' strategies in

implementing deep learning to improve students' learning outcomes at SMA Negeri 2 Kikim Selatan.

The research was conducted at SMA Negeri 2 Kikim Selatan involving 32 students as the research subjects. The PJOK teacher acted as the main researcher and was assisted by a collaborator during the research process (Sulaiman, 2021). The study was carried out in two cycles. Cycle I focused on the implementation of reflective-based learning, while Cycle II further developed the learning process through collaborative-project strategies to enhance student engagement and learning outcomes (Putra & Nurhayati, 2022; Nugraha, 2022). Each cycle consisted of the stages of planning, acting, observing, and reflecting. During the planning stage, lesson plans were designed by integrating deep learning principles to support meaningful and active learning (Daarus Tsaqofah, 2025).

The study collected both quantitative and qualitative data (Arikunto, 2019; Sugiyono, 2021). Quantitative data were obtained from student tests to measure learning outcomes, while qualitative data were gathered through observation sheets, rubrics, reflection journals, and interviews with students and teachers. The indicators used in this study followed the dimensions of deep learning, including conceptual understanding, collaboration, reflection, and real-life application (Sindoro Cendikia, 2026).

Data were collected using several techniques, including observation, testing, interviews, reflection, and documentation (Masrun, 2019). Observations were conducted to examine students' participation and engagement in learning activities, while interviews and reflection journals were used to explore students' understanding and reflective thinking regarding the learning process. Data analysis combined quantitative and qualitative approaches to evaluate improvements in learning outcomes and student participation. Quantitative data were analyzed to determine improvements in students' achievement, while qualitative data were used to assess the depth of collaboration, reflection, and engagement in the learning process (Hattie & Clarke, 2019).

To ensure the validity of the data, this study applied triangulation of sources and methods (Sugiyono, 2021). Ethical considerations were also addressed by obtaining participant consent and coordinating with the school to ensure that the research was conducted responsibly and ethically (Haryati, 2023).

With this design and methodology, the research is expected to produce valid findings regarding the transformation of PJOK teachers' strategies in implementing deep learning, which contributes to improving students' learning outcomes at SMA Negeri 2 Kikim Selatan.

3. RESULT AND DISCUSSION

Result

3.1 Overview of Initial PJOK Learning Conditions

Before the action was taken, PJOK learning at SMA Negeri 2 Kikim Selatan was still orientedtowards routine physical activity with little reflection and concept cultivation. Teachersgenerally used a traditional approach centered on direct instruction (teacher-centered), wherestudents only imitated movements and followed directions without understanding the meaningof the activities. PJOK learning was traditional, routine, and teacher-centered*(Hasyim, 2025).* Student engagement was low (55%) with an average score

of 66.8. This aligns with findings that many PJOK classes remain performance-based rather than reflective*(Rahayu, 2024; Porkes, 2026)*.

Furthermore, interviews with students showed that most of them considered PJOK only as a subject for exercise, not as a means to understand the values of health, cooperation, and self-control. Given these conditions, teachers needed to transform learning strategies so that thelearning process became more meaningful and impacted students' cognitive, affective, andpsychomotor aspects.

3.2 Action Implementation in Cycle I

In Cycle I, I applied reflective learning connected to daily activities*(Ariani & Suryadi, 2021)*. Students began to reflect after physical practice. Improvement was noted, though results had not reached the set target*(Hattie & Clarke, 2019)*. Teacher reflection indicated the need for collaboration and more structured projects*(Putra & Nurhayati, 2022)*. After students performed physical activities, the teacher invited them to do *a simple reflection* through guided questions, such as:

• "What did you feel when performing this movement?"

• "Why is coordination important in sports?"

• "How can this movement help daily activities?"

Reflection was done in small groups, where each student wrote their answers in a reflectionjournal. This strategy aimed to develop students' awareness of the learning process, not just thefinal outcome.

During the implementation of Cycle I, the researcher and collaborator noted several positivechanges. Students began to be more active in discussions and showed enthusiasm in activities. However, there were still obstacles, namely, some students were not accustomed to writtenreflection and tended to answer briefly. In terms of learning outcomes, the average scoreincreased to 74.6 with a learning completion rate of 71.8%. Although there was an improvement, these results had not yet reached the target success indicators.

Cycle I Reflection: From the teacher's reflection, several important points were obtained:

1. Students needed more intensive guidance in writing their reflections.

2. Learning needed to be more collaborative so that students could learn from their peers'experiences.

3. The teacher needed to add simple project elements to foster a sense of responsibilityand collaboration.

Based on this reflection, the teacher formulated improvements for Cycle II by adding elements of collaborative project-based learning.

3.3 Action Implementation in Cycle II

In Cycle II, collaborative projects around traditional games were introduced *(Siedentop et al., 2021; Haryati, 2023)*. Outcomes showed strong engagement improvements: 91% participation, 84% cooperation, and an average cognitive score of 82.9*(Nugraha, 2022)*. Students were divided into five groups, each asked to design and practice onetraditional game

containing elements of combination movements (e.g., throwing, kicking, andjumping). Students reported increased understanding of sportsmanship and cooperation*(Afrizal, 2025)*. The implementation stages consisted of:

1. Group planning: students discussed determining the type of game, tools to be used, and values to be developed.

2. Project implementation: students practiced the game while observing theeffectiveness of movements and team cooperation.

3. Collaborative reflection: each group compiled a reflection report containing thelessons learned, difficulties faced, and values felt during the activity.

4. Project result presentation: groups presented their findings in front of the class.

At this stage, the teacher acted as a facilitator who directed the process, provided feedback, andassessed students' reflective abilities. The teacher also utilized simple media such as video recordings to review student movements and provide visual feedback.

Observation results showed a significant increase in student engagement: • 91% of students actively participated in group activities,

• 87% showed self-reflection ability in their journals,

• and 84% showed effective cooperation skills.

The average cognitive learning outcome increased to 82.9, while the psychomotor aspectincreased to 85.6. The learning completion rate reached 90.6%, meaning the research successindicators had been achieved. Besides academic improvement, students also showed positiveattitude changes towards PJOK learning. They began to understand that physical activity is notjust about sports, but also a means to learn life values, such as discipline, sportsmanship, andresponsibility.

Discussion

The research findings indicate that the PJOK teacher successfully transformed their role from a traditional instructor into a facilitator of deep learning. In this approach, the teacher is no longer positioned as the sole source of information but rather as a guide who assists students in constructing meaning from their learning experiences. This shift aligns with the perspective that teachers should move from instructing to facilitating learning processes (Fullan, 2021; Indo-MathEdu, 2025), which is consistent with holistic and humanistic learning theories. Through this transformation, students were encouraged to actively construct understanding through practice and experience rather than merely receiving information passively (Tan et al., 2024). The teacher integrated physical activities with critical thinking and reflection, enabling students not only to perform movements but also to analyze their purpose, evaluate how to improve them, and understand the values embedded in these activities. As a result, PJOK learning became more meaningful and contributed to the development of students' character.

The learning process also reflected three essential elements of deep learning: mindful, meaningful, and joyful learning (Sindoro Cendikia, 2026; López & Torres, 2023). *Mindful learning* was evident as students became active learners capable of regulating their own

learning processes. They understood the learning objectives, developed intrinsic motivation, and applied strategies to achieve those goals. *Meaningful learning* occurred when students were able to connect knowledge and skills gained in class with real-life situations, demonstrating that learning was not limited to memorization but extended to practical application in everyday contexts. Meanwhile, *joyful learning* created a positive and motivating classroom atmosphere in which students felt emotionally connected to the learning process. This enjoyment helped them better understand, remember, and apply knowledge. These findings support the argument of Hattie and Donoghue (2016) that deep learning occurs when students are cognitively and emotionally engaged, and in the context of PJOK, physical experiences can serve as an effective entry point for meaningful learning.

Furthermore, the implementation of a collaborative-project learning strategy significantly improved student learning outcomes across the cognitive, affective, and psychomotor domains. The increase of 8.3 points in cognitive scores from Cycle I to Cycle II indicates that project-based activities helped students develop a deeper understanding of concepts because they were directly involved in planning and practicing the learning activities. Improvements in the affective domain were reflected in stronger attitudes of responsibility, cooperation, and sportsmanship during project implementation. These results support previous studies showing that collaborative and project-based approaches can enhance multiple learning domains simultaneously (Putra & Nurhayati, 2022; Rahayu, 2024). Similar improvements have also been reported in other studies integrating innovative learning media and strategies in physical education (Mustikaningrat & Sulastri, 2025; Martin Rodriguez & Madrigal Cerezo, 2025).

Student reflections further demonstrated a significant shift in their perceptions of PJOK learning. Before the intervention, 72% of students viewed PJOK merely as sports activities, whereas after the implementation of reflective and collaborative strategies, 89% of students recognized that PJOK also teaches life values and healthy thinking. Students reported that they gained a deeper understanding of cooperation, coordination, and the importance of preparation in physical activities. For example, one student stated that cooperation and coordination learned in sports were also important in daily life, while another student realized the importance of warming up to ensure safety and physical readiness. These reflections indicate that the learning process successfully changed students' perspectives from viewing PJOK as purely physical activity to understanding it as a meaningful learning experience that promotes critical thinking and personal development (Ariani & Suryadi, 2021; Rahmawati, 2023).

The findings of this study are also highly relevant to the Merdeka Curriculum, which emphasizes competency-based and student-centered learning. The transformation of PJOK teaching strategies in this research aligns with the principles of the Merdeka Curriculum by providing opportunities for students to explore, reflect, and develop their abilities independently. In this context, teachers function as facilitators who guide students in achieving the competencies described in the Profil Pelajar Pancasila, including being faithful, independent, cooperative, critical thinkers, and creative individuals (Haryati, 2023; Siregar et al., 2022). By encouraging collaboration, independence, and critical thinking, the implementation of deep learning in PJOK supports the development of these competencies (Fullan, 2021; Daarus Tsaqofah, 2025). Therefore, the results of this study provide empirical evidence that deep learning approaches in PJOK can strengthen the implementation of the Merdeka Curriculum at the secondary school level.

The novelty of this research lies in the integration of reflective and collaborative strategies within classroom action-based PJOK learning. Previous studies in physical education often

focused primarily on improving physical skills, whereas this research emphasizes the importance of integrating reflective and cognitive dimensions into physical learning experiences. By combining reflective and collaborative learning models (Afrizal, 2025; Porkes, 2026), the study contributes to enriching constructivist learning practices, particularly in educational contexts with limited resources (Yasnitsky, 2024). In addition, the study highlights the potential for integrating technology and innovative approaches, including AI-supported tools and immersive learning environments, as future directions for PJOK development (Hu et al., 2024; Wang & Wang, 2024; Li et al., 2025). Practically, this research offers a two-cycle learning model that can serve as a practical guide for PJOK teachers in implementing meaningful and reflective learning even in resource-limited settings. Moreover, the findings reinforce the constructivist learning theories of Piaget and Vygotsky, which emphasize that knowledge is actively constructed through student participation, social interaction, and reflection on experience.

4. CONCLUSION

This classroom action research demonstrates that the transformation of PJOK teachers' strategies at SMA Negeri 2 Kikim Selatan through the implementation of reflective and collaborative project-based learning successfully realized deep learning and significantly improved student learning outcomes. The transformation not only enhanced students' academic achievement but also changed the teacher's role and mindset from a traditional instructor to a facilitator who guides students in constructing meaningful learning experiences. As a result, students became more actively involved in the learning process, engaging cognitively, socially, and physically during the activities.

The research findings show a significant improvement in learning outcomes, with the average cognitive score increasing from 66.8 to 82.9 and the level of learning mastery reaching 90.6%. In addition, students demonstrated better attitudes of cooperation, responsibility, and participation during the collaborative learning process. These results indicate that integrating reflection, collaboration, and project-based activities in PJOK learning can create a more meaningful and engaging learning environment that supports the development of knowledge, skills, and character.

Theoretically, this research contributes to the development of a deep learning-based PJOK learning model by integrating reflective practices, collaborative learning, and contextual project activities within physical education. Practically, the findings can serve as a reference for PJOK teachers in implementing innovative and student-centered learning strategies that support the goals of the Merdeka Curriculum, particularly in schools with limited facilities and resources.

Based on the results of this study, several recommendations can be proposed. First, PJOK teachers should continuously develop reflective and evaluative practices in their teaching so that students are able to understand the meaning and benefits of physical activities beyond movement practice. Second, schools should provide support through professional development programs and collaborative opportunities among teachers to strengthen the implementation of deep learning in the classroom. Third, future research is encouraged to explore the integration of digital technology and innovative learning media in reflective PJOK learning to broaden learning opportunities and enhance the sustainability of deep learning practices.

Overall, the transformation of PJOK teachers' strategies toward deep learning represents an important step in developing meaningful education that emphasizes character development, active participation, and relevance to the demands of 21st-century learning.

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