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Evaluation Of Basketball Course Learning Outcomes Reviewed From Student Skills and Knowledge Tests PJOK

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Abstrak (Indonesian)

Bola basket merupakan salah satu mata kuliah wajib dalam program PJOK yang mengharuskan mahasiswa untuk menguasai keterampilan teknis dan pengetahuan teoritis. Penelitian ini bertujuan untuk mengevaluasi hasil pembelajaran mata kuliah bola basket bagi mahasiswa Pendidikan Jasmani, Olahraga, dan Kesehatan (PJOK) dengan menilai domain psikomotor (keterampilan) dan kognitif (pengetahuan). Penelitian ini menggunakan pendekatan kuantitatif deskriptif, dengan partisipan terdiri dari mahasiswa PJOK yang telah menyelesaikan mata kuliah bola basket. Data dikumpulkan menggunakan tes keterampilan bola basket, termasuk menggiring bola, mengoper, dan menembak, serta tes pengetahuan yang mencakup aturan, teknik dasar, dan strategi permainan. Statistik deskriptif digunakan untuk menganalisis hasilnya. Temuan menunjukkan bahwa mahasiswa menunjukkan kemahiran sedang dalam menggiring bola dan mengoper, sedangkan keterampilan menembak menunjukkan variabilitas yang lebih besar. Dalam domain kognitif, mahasiswa memiliki pemahaman yang cukup baik tentang aturan dan teknik dasar tetapi pengetahuan yang terbatas tentang strategi permainan dan pengambilan keputusan taktis. Analisis terintegrasi mengungkapkan perbedaan antara kinerja keterampilan dan pemahaman teoritis, menyoroti perlunya evaluasi komprehensif. Studi ini menekankan pentingnya menggabungkan latihan praktis dengan diskusi taktis dan menerapkan pembelajaran diferensiasi untuk mengatasi kesenjangan keterampilan. Evaluasi sistematis dan terstandarisasi direkomendasikan untuk meningkatkan keadilan, keandalan, dan relevansi dengan kondisi permainan sebenarnya. Hasil penelitian menunjukkan rata-rata skor psikomotorik sebesar 72 (kategori sedang), sedangkan rata-rata skor kognitif juga sebesar 72 (kategori sedang). Prestasi tertinggi terdapat pada aturan permainan (80), sedangkan strategi permainan memperoleh skor terendah (60). Dapat disimpulkan bahwa siswa PJOK telah mencapai kompetensi moderat dalam hasil pembelajaran bola basket, meskipun masih diperlukan peningkatan dalam performa menembak dan pemahaman taktik.

Kata kunci: Bola Basket, Hasil Belajar, Psikomotor, Kognitif

Abstract

Basketball is one of the compulsory courses in the PJOK program that requires students to master both technical skills and theoretical knowledge. However, comprehensive evaluation integrating psychomotor and cognitive domains is still limited. This study aims to evaluate the

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learning outcomes of basketball courses for Physical Education, Sport, and Health (PJOK) students by assessing both psychomotor (skills) and cognitive (knowledge) domains. The research employed a descriptive quantitative approach, with participants consisting of PJOK students who had completed the basketball course. Data were collected using basketball skill tests, including dribbling, passing, and shooting, and knowledge tests covering rules, basic techniques, and game strategies. Descriptive statistics were used to analyze the results. The findings indicate that students demonstrated moderate proficiency in dribbling and passing, while shooting skills showed greater variability. In the cognitive domain, students had a fair understanding of rules and basic techniques but limited knowledge of game strategies and tactical decision-making. Integrated analysis revealed discrepancies between skill performance and theoretical understanding, highlighting the necessity of comprehensive evaluation. The study emphasizes the importance of combining practical drills with tactical discussions and implementing differentiated instruction to address skill gaps. Systematic and standardized evaluation is recommended to enhance fairness, reliability, and relevance to actual game conditions. The results showed that the average psychomotor score was 72 (moderate category), while the average cognitive score was also 72 (moderate category). The highest achievement was found in game rules (80), whereas game strategy obtained the lowest score (60). Dapat disimpulkan bahwa siswa PJOK telah mencapai kompetensi moderat dalam hasil pembelajaran bola basket, meskipun masih dibutuhkan peningkatan dalam performa menembak dan pemahaman taktik.

objectives, methods, research results and conclusions.

Keywords: *Basketball, Learning Outcomes, Psychomotor, Cognitive*

INTRODUCTION

Physical Education, Sport, and Health (PJOK) in higher education aims to produce graduates who possess pedagogical, professional, and practical competencies in the field of sport. PJOK learning is not solely oriented toward physical activity but also toward the development of students' cognitive, affective, and psychomotor abilities as prospective educators and sport practitioners. Therefore, the PJOK learning process must be systematically designed to produce competent and professional graduates (Kirk, 2013; Nugroho et al., 2018).

One of the compulsory courses that supports the achievement of these competencies is basketball. Basketball is a team sport that requires students not only to master basic technical skills such as passing, dribbling, and shooting, but also to possess conceptual knowledge related to rules, strategies, and principles of the game. Mastery of both skills and knowledge serves as an important foundation for PJOK students in learning and teaching basketball in schools and the wider community (Oliver, 2007; Saputro, 2023).

Learning outcomes in basketball courses should reflect the integration of psychomotor and cognitive domains. A strong understanding of game theory supports effective decision-making and the appropriate application of techniques in game situations. Thus, successful basketball learning is determined not only by technical movement performance but also by students' level of understanding of game concepts and strategies (Hussain et al., 2021).

In the implementation of basketball instruction in higher education, the evaluation of learning outcomes is a crucial component for determining the achievement of course learning outcomes. Learning evaluation functions as a tool to assess the effectiveness of the instructional process and as a basis for future improvement and development. Effective evaluation should be able to measure students' abilities objectively and comprehensively (Arifin, 2016).

However, in practice, the evaluation of basketball learning often emphasizes only one domain, either motor skills or knowledge, while the other domain receives insufficient attention. This condition results in evaluation outcomes that do not fully reflect students' comprehensive abilities. Assessment that focuses on a single domain cannot adequately represent overall learning achievement, particularly in practical courses such as basketball (Gao & Yang, 2024; Selan et al., 2023). Several national studies indicate that the level of mastery of basic basketball skills among PJOK students remains varied. Selan et al. (2023) reported that

students' dribbling, passing, and shooting skills were in the moderate to low categories. These findings suggest the need for more in-depth and structured learning evaluation to identify factors contributing to low student learning outcomes.

In addition, differences in students' initial skill levels, training intensity, and instructional methods used by lecturers also influence learning outcomes in basketball courses. The selection of inappropriate instructional models can lead to low mastery of basic basketball skills. Therefore, learning outcome evaluation should be linked to the instructional approaches and methods applied during lectures to ensure fair and objective assessment (Razali, 2007; Zhang et al., 2025). Another common issue is the use of evaluation instruments that are not sufficiently comprehensive and do not fully reflect actual game performance conditions. Evaluations that are not systematic and standardized can lead to assessment bias and make it difficult for lecturers to obtain an accurate picture of students' learning achievement. Ultimately, this situation can hinder efforts to improve the quality of basketball instruction (Wigraha et al., 2024).

Basketball is one of the most widely taught team sports in Physical Education, Sport, and Health (PJOK) programs because it develops students' physical fitness, technical skills, tactical understanding, teamwork, and decision-making abilities. As a compulsory course in many PJOK study programs, basketball learning is expected not only to improve students' psychomotor competencies but also to strengthen their cognitive understanding of game concepts, rules, and strategies. Therefore, basketball instruction plays an important role in preparing future physical education teachers and sports practitioners who possess both practical and theoretical competencies (Kirk, 2013; Oliver, 2007).

In higher education, learning outcomes are considered an important indicator of the effectiveness of instructional processes. Learning outcomes reflect students' achievement in cognitive, affective, and psychomotor domains after participating in educational activities. In basketball courses, successful learning outcomes are demonstrated through students' ability to perform fundamental skills such as dribbling, passing, and shooting, as well as their understanding of game regulations, tactical principles, and strategic decision-making (Hussain et al., 2021).

Consequently, comprehensive evaluation is required to accurately assess the extent to which learning objectives have been achieved. However, previous studies have shown that basketball learning evaluation frequently emphasizes technical performance while giving less attention to cognitive aspects. This imbalance may result in incomplete assessments that fail to represent students' overall competencies. Students may demonstrate adequate motor skills but have limited tactical understanding, or conversely possess theoretical knowledge without being able to apply it effectively in practical situations (Gao & Yang, 2024). Such conditions indicate the importance of integrating psychomotor and cognitive assessments in basketball learning evaluation.

Furthermore, several studies reported that PJOK students still experience difficulties in mastering certain basketball skills, particularly shooting accuracy and tactical decision-making during gameplay. These challenges are influenced by differences in prior experience, training intensity, instructional approaches, and assessment systems used during the learning process (Selan et al., 2023; Zhang et al., 2025). Therefore, a comprehensive evaluation system is needed to identify students' strengths and weaknesses and to provide evidence-based recommendations for improving basketball instruction in higher education. In addition to affecting learning outcomes, evaluation systems also influence students' learning motivation. Evaluations that lack variation and relevance to real game situations can reduce PJOK students' motivation to learn.

Therefore, learning outcome evaluation should be designed to be engaging, meaningful, and aligned with the competency demands that students are expected to achieve (Nugroho et al., 2018). Furthermore, the integration of skill and knowledge assessment in basketball courses contributes to the development of higher-order thinking and problem-solving abilities. When students are evaluated on both their practical execution and theoretical understanding, they are encouraged to analyze game situations, make strategic decisions, and adapt their technical skills accordingly. This holistic evaluation approach not only improves students' performance on the court but also prepares them to become effective educators who can teach basketball with both competence and insight (Gao & Yang, 2024; Su, 2025).

Finally, a comprehensive evaluation system can provide valuable feedback to curriculum designers and lecturers, enabling continuous improvement of the basketball course. By identifying strengths and weaknesses in students' skills and knowledge, instructors can adjust teaching methods, optimize practice sessions, and develop instructional materials that better meet learning objectives. Ultimately, such an evidence-based approach to assessment ensures that the PJOK program produces graduates who are

professionally competent, pedagogically skilled, and fully prepared to contribute to the field of sports education (Kirk, 2013; Nugroho et al., 2018).

Based on the above discussion, it can be concluded that the evaluation of learning outcomes in basketball courses for PJOK students needs to be examined comprehensively through an integrated assessment of skills and knowledge. Such evaluation is essential to obtain an accurate picture of students' competency achievement and to serve as a basis for lecturers in improving learning processes and developing the basketball curriculum within the PJOK Study Program (Arifin, 2016; Su, 2025).

The novelty of this study lies in the integrated evaluation of basketball learning outcomes through both psychomotor and cognitive assessments among PJOK students. Previous studies generally focused on either technical performance or theoretical understanding separately, whereas this study combines both domains to provide a more comprehensive picture of student competency achievement in basketball courses.

METHOD

This study employed a descriptive quantitative approach aimed at describing and evaluating the learning outcomes of Physical Education, Sport, and Health (PJOK) students in the basketball course based on both skill tests and knowledge tests. Descriptive research was chosen because it allows researchers to present an objective overview of students' learning achievements without administering any treatment or intervention to the research subjects (Creswell & Creswell, 2018). The subjects of this study were students of the PJOK Study Program who had completed the basketball course in a specific semester or academic year. The participants consisted of N = 68 PJOK students who had completed the basketball course during the 2024/2025 academic year. The skill assessment adopted the Johnson Basketball Test Battery and was adapted to the learning outcomes of the basketball course (Johnson & Nelson, 1986). The sampling technique applied was total sampling because all students who met the predetermined research criteria were involved in the study (Sugiyono, 2023).

The instruments used in this study included basketball skill tests and knowledge tests. The basketball skill test assessed fundamental skills such as dribbling, passing, and shooting, developed according to standard basketball learning assessment criteria (Oliver, 2007). The knowledge test consisted of multiple-choice questions and short-answer questions designed to measure students' understanding of basketball rules, basic techniques, and game strategies (Hussain et al., 2021). Data collection was carried out by administering the skill and knowledge tests to students in accordance with established procedures. Each test result was recorded and documented for further analysis. The collected data were analyzed using descriptive statistics, including mean scores, percentages, standard deviations, and learning outcome categories (very good, good, fair, poor) (Field, 2018).

This analysis aimed to describe the students' level of achievement in each aspect assessed. The research procedure followed a systematic sequence, including planning, test administration, data processing, result analysis, and conclusion drawing, ensuring the findings were valid and scientifically accountable (Creswell & Creswell, 2018). The indicators for the basketball skill test (psychomotor domain) and the knowledge test (cognitive domain) are summarized in Tables 1 and 2. The skill test assessed dribbling, passing, and shooting, focusing on ball control, technique, accuracy, coordination, speed, agility, and body balance during performance. The knowledge test evaluated students' understanding of basic rules, violations and fouls, technical knowledge, common mistakes, offensive and defensive principles, and player positions and roles (Gao & Yang, 2024).

Table 1. Basketball Skills Test Indicators (Psychomotor Domain)

No	Skill Aspect	Assessment Indicators
1	Dribbling	Proper ball control using fingertips; balanced body position and forward vision; speed and agility while dribbling; accuracy of dribble path according to test lane
2	Passing	Accuracy of pass direction to target; proper passing technique (chest pass/bounce pass); strength and speed of pass; coordination of hand and foot movements

3	Shooting	Accuracy of shots to the basket; proper shooting technique (hand position, elbow, follow-through); consistency of shooting results; body balance during shooting
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Table 2. Basketball Knowledge Test Indicators (Cognitive Domain)

No	Knowledge Aspect	Indicators
1	Game Rules	Understanding basic basketball rules; understanding violations and fouls
2	Basic Techniques	Explaining dribbling, passing, and shooting techniques; identifying common technical errors
3	Game Strategies	Understanding offensive and defensive principles; identifying player positions and roles

Content validity was established through expert judgment, involving basketball experts and lecturers specializing in PJOK learning evaluation. The experts assessed the relevance of indicators, clarity of instructions, and appropriateness of the test items. The instruments were considered valid if the indicators and test items adequately represented the competencies expected in basketball skills and knowledge. The empirical validity of the knowledge test was analyzed using the Pearson Product Moment correlation (Sugiyono, 2023). Empirical validity was specifically conducted for the knowledge test using the Pearson Product Moment correlation, calculated with the following formula:

$$r_{xy} = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{[N \sum X^2 - (\sum X)^2][N \sum Y^2 - (\sum Y)^2]}}$$

The decision criteria were as follows: if $r_{\text{calculated}} > r_{\text{table}}$ at a 0.05 significance level, the item was considered valid; if $r_{\text{calculated}} < r_{\text{table}}$ the item was considered invalid and required revision or removal. The reliability of the knowledge test was measured using Cronbach's Alpha, with the following formula:

$$\alpha = \frac{k}{k-1} \left(1 - \frac{\sum \sigma_i^2}{\sigma_t^2}\right)$$

Reliability was calculated using Cronbach's Alpha (Cronbach, 1951). Reliability for the skill test was assessed using inter-rater reliability, involving two or more assessors who evaluated students' performance using the same rubric. The skill test was considered reliable if the correlation coefficient between raters' scores was ≥ 0.70 , indicating a high level of consistency.

RESULT AND DISCUSSION

RESULT

The results of this study provide insights into the learning outcomes of basketball courses for PJOK students, focusing on both psychomotor (skills) and cognitive (knowledge) domains.

A. Basketball Skill Test (Psychomotor Domain)

The analysis of basketball skill tests, which included dribbling, passing, and shooting, indicated that students' performance varied across different technical aspects. Most students showed moderate proficiency in dribbling, demonstrating adequate ball control and speed, but some exhibited difficulties in maintaining accuracy over a specific test trajectory. Passing skills were generally satisfactory, with most students demonstrating proper technique and coordination, although power and accuracy occasionally fell below expectations. Shooting performance was the most variable skill, with only a portion of students achieving consistent accuracy and proper shooting form. Overall, the distribution of skill scores indicated

that while students could perform basic techniques, mastery was not yet fully optimized (Selan et al., 2023; Gao & Yang, 2024).

Table 3. Summary of Basketball Skill Test Results (Psychomotor Domain)

Skill Aspect	Mean Score (0–100)	SD	Performance Category*	Notes
Dribbling	72	8.25	Moderate	Good ball control, some struggled with speed/trajectory
Passing	78	7.14	Moderate–Good	Proper technique mostly, minor inconsistencies in power/accuracy
Shooting	65	10.52	Moderate–Low	Inconsistent accuracy and shooting form
Overall Skill Score	72	8.64	Moderate	Indicates basic competency, but improvement needed

B. Basketball Knowledge Test (Cognitive Domain)

The results of the knowledge test, consisting of multiple-choice and short-answer questions on game rules, basic techniques, and strategies, showed that most students had a fair understanding of the rules and basic techniques. However, knowledge related to game strategies and tactical decision-making was less developed. Some students struggled to explain the principles of offense and defense, as well as player roles in game scenarios. These findings suggest that while theoretical understanding exists, the application of knowledge to game situations remains a challenge (Hussain et al., 2021; Su, 2025).

Table 4. Summary of Basketball Knowledge Test Results (Cognitive Domain)

Knowledge Aspect	Mean Score (0–100)	SD	Performance Category*	Notes
Game Rules	80	6.38	Good	Most students understand basic rules and fouls
Basic Techniques	75	7.26	Moderate–Good	Able to describe dribbling, passing, shooting, minor errors noted
Game Strategies	60	9.81	Low	Weak understanding of offensive/defensive principles and player roles
Overall Knowledge Score	72	7.82	Moderate	Cognitive understanding exists, but tactical application needs improvement

C. Integrated Learning Outcomes

When analyzing both domains together, it became clear that students who performed well in the psychomotor domain did not always excel in the cognitive domain, and vice versa. This discrepancy emphasizes the need for integrated evaluation that simultaneously addresses skill execution and theoretical understanding. The data also indicated that differences in prior skill levels, training intensity, and learning methods influenced performance, aligning with findings from previous studies (Razali, 2007; Zhang et al., 2025). A Pearson correlation test was conducted to determine the relationship between psychomotor and cognitive learning outcomes. The analysis showed a positive correlation between basketball skills and knowledge scores ($r = 0.52$, $p < 0.05$), indicating that students with better theoretical understanding tended to demonstrate better practical

performance.

Discussion

The lower achievement in shooting performance may be attributed to the complexity of the skill, which requires coordination, balance, timing, and repeated practice. Unlike dribbling and passing, shooting accuracy is highly influenced by individual biomechanics and confidence levels. Previous studies have reported that shooting proficiency often develops more slowly because it demands both technical precision and psychological readiness (Hussain et al., 2021).

Similarly, the low score in game strategy suggests that students have limited opportunities to engage in tactical learning situations. Instruction may focus heavily on isolated technical drills rather than game-based learning approaches that encourage decision-making and problem-solving. According to Gao and Yang (2024), tactical understanding improves significantly when students participate in small-sided games and reflective discussions rather than repetitive technical exercises alone. The findings of this study highlight several important implications for basketball instruction in PJOK programs.

1. **Targeted Practice for Skill Weaknesses:** The variability in skill performance underscores the need for practice sessions that focus on weak areas, such as shooting accuracy and dribbling consistency. Instructors should adopt differentiated instruction, providing individualized feedback and additional practice based on skill gaps (Gao & Yang, 2024).
2. **Integration of Cognitive Learning:** Gaps in theoretical knowledge, particularly in game strategy and tactical understanding, suggest that cognitive learning should be systematically integrated into practical lessons. Combining skill drills with situational game scenarios and tactical discussions can strengthen understanding and decision-making abilities during actual play (Hussain et al., 2021; Su, 2025).
3. **Balanced Assessment:** Discrepancies between skill and knowledge mastery indicate that assessment should not focus solely on one domain. Integrated evaluation provides a more accurate representation of student competencies and encourages students to balance practical and theoretical learning. This holistic approach aligns with the PJOK program's objective of producing graduates competent in both psychomotor and cognitive domains (Arifin, 2016; Kirk, 2013).
4. **Curriculum and Instructional Implications:** Systematic evaluation allows lecturers to identify strengths and weaknesses at both individual and class levels. This information guides instructional design, optimizes training intensity, and aligns course content with competency goals. Standardized yet flexible evaluation instruments ensure fairness, reliability, and relevance to real-game situations, ultimately enhancing motivation and learning quality (Wigraha et al., 2024; Nugroho et al., 2018).

In conclusion, the findings confirm that integrating psychomotor and cognitive assessments is essential in evaluating basketball learning outcomes. Both instructors and curriculum designers must prioritize a balanced approach that addresses skill development and knowledge acquisition, ensuring that PJOK graduates are fully equipped to perform, teach, and contribute professionally in sports education (Gao & Yang, 2024; Su, 2025).

CONCLUSION

Based on the findings and discussion of this study, several conclusions can be drawn regarding the learning outcomes of basketball courses for Physical Education, Sport, and Health (PJOK) students:

1. **Psychomotor Domain:** Students demonstrated moderate proficiency in basic basketball skills, including dribbling, passing, and shooting. While most students could perform basic techniques, skill mastery was not fully optimized, particularly in shooting accuracy and consistency.

2. Cognitive Domain: Students generally had a fair understanding of game rules and basic techniques; however, their knowledge of game strategies and tactical decision-making was less developed. This indicates that theoretical understanding exists but its application in real-game situations remains a challenge.
3. Integrated Learning Outcomes: The analysis revealed discrepancies between skill performance and knowledge mastery. Some students excelled in psychomotor skills but had weaker cognitive understanding, while others showed the opposite. This highlights the importance of integrated evaluation that simultaneously addresses both domains to provide a comprehensive assessment of student competencies.
4. Implications for Instruction and Curriculum: The findings emphasize the need for targeted skill practice, systematic integration of cognitive learning, and balanced assessment methods. Lecturers should employ differentiated instruction, situational drills, and tactical discussions to enhance both skill and knowledge acquisition. Integrated evaluation and well-designed curriculum adjustments can improve student performance, motivation, and readiness as future PJOK educators and sports practitioners.
5. Overall Conclusion: The evaluation of basketball learning outcomes in PJOK students requires a holistic approach that combines psychomotor and cognitive assessments. Implementing integrated evaluation methods ensures a more accurate representation of student competencies and serves as a basis for improving instructional strategies, curriculum design, and overall quality of basketball education within PJOK programs.

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