



The Effect of Learning Approach and Hand-Eye Coordination Level on Two-Point Jump Shot Accuracy: An Experimental Study in Basketball Course

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Abstract: Two-point shooting ability is an essential skill in basketball learning, but third-semester PJKR students still show differences in accuracy influenced by learning approaches and hand-eye coordination levels. This study aims to analyze the effects of learning approaches, hand-eye coordination, and their interaction on two-point shooting accuracy. The study used a quantitative method with a 2x2 factorial experimental design. The research subjects consisted of 32 third-semester PJKR students at STOK Bina Guna, who were grouped by learning approach (Technical Approach and Progressive Skill Practice) and hand-eye coordination level (high or low). Data were collected using eye-hand coordination tests and two-point shooting accuracy tests, and analyzed using a two-way ANOVA. The results showed that the learning approach and eye-hand coordination significantly affected two-point shooting accuracy, with Progressive Skill Practice yielding better results. There was also a significant interaction between the two variables, confirming that learning effectiveness depends on students' coordination abilities. This study contributes to the development of sports pedagogy by emphasizing the importance of adaptive, individual-characteristic-based shooting instruction in physical education.

Keywords: hand-eye coordination; learning approaches; physical education; progressive training; shooting baskets

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INTRODUCTION

Jump shot ability is a fundamental component of basketball performance. The success of a jump shot is not only determined by movement technique but also by the effectiveness of the learning approach and the student's coordinative capacity, especially eye-hand coordination (Fahmi 2024; Tirtawati et al., 2024). In the context of formal learning in higher education, varying learning approaches can improve the quality of movement comprehension, while differences in individual coordination levels can result in diverse responses to these learning methods (Ainunnisa et al., 2025; Wu et al., 2025). The basketball course in the Physical Education, Health, and Recreation Study Program at STOK Bina Guna, in the third semester, plays a very strategic role in preparing students to become prospective professional educators in the field of physical education. At this level, students are no longer at the basic introductory stage but have entered a phase of strengthening their technical and pedagogical competencies, which form the foundation for their ability to teach sports effectively. One important aspect emphasized is mastery of the two-point jump shot technique, as this skill is a key indicator of the effectiveness of basketball learning that they will later transfer to students in schools (Abady et al., 2025; Zhang et al., 2025).

In the context of learning, third-semester students are expected to have developed their skills to the point that they can follow instructional processes that demand greater precision of movement, consistency of technique, and tactical understanding. However, the field reality shows a gap between these expectations and students' actual abilities. The wide variation in jump shot performance, low technical consistency, and limited eye-hand coordination in some students are challenges that are often encountered in the learning process. This condition indicates that conventional learning approaches have not fully accommodated the learning needs of students with diverse ability characteristics. The main problem among third-semester PJKR students is inconsistent shooting accuracy, influenced by poor eye-hand coordination and suboptimal movement mechanics. Many students are unable to synchronize their visual focus on the target with the execution of arm movements, resulting in poor ball release timing and unstable arm swings. In addition, their ability to maintain balance and foot position remains low, which affects the stability of the ball's trajectory. This condition becomes more complex when the learning approach is not fully tailored to students' individual needs, especially those with different coordination abilities. Previous research findings paint a similar picture of students' difficulties in

mastering the jump shot technique. Various studies in the field of sports education show that students with low eye-hand coordination tend to have difficulty controlling the direction of the ball and maintaining a rhythmic movement, resulting in inconsistent accuracy in the two-point jump shot (Fadli et al., 2025; Friskawati, 2025; Mahyuddin & Sudirman, 2021). Other studies on large ball game learning also emphasize that poor visual-motor coordination is a major cause of ineffective technical performance, including in activities requiring high precision (Hassan, 2025; Nae & Pop, 2022).

In addition to coordination factors, previous studies have highlighted the low effectiveness of learning due to training approaches that lack variety and minimal feedback. Several studies have shown that monotonous training methods that lack progressivity lead students to fail to form stable movement patterns and to be unable to correct technical errors independently (Nugraha et al., 2025; Sutriawan & Setyawan, 2026). As a result, improvements in jump shot accuracy tend to be slow and insignificant. In the context of third-semester students, this condition becomes even more apparent because they are in the intermediate skill development phase, which requires structured instruction, adequate repetition, and a variety of exercises appropriate to the demands of basketball. Based on these previous findings, it can be concluded that the specific problems faced by third-semester students do not stem solely from individual abilities but are also related to the suitability of the learning approaches used in lectures. Differences in hand-eye coordination that are not properly accommodated, as well as learning strategies that are not sufficiently adaptive, can create obstacles to achieving optimal jump shot accuracy for some students. This condition underscores the importance of empirical research to examine the influence of learning approaches and hand-eye coordination levels on student jump-shot accuracy, to improve the quality of basketball learning. Theoretically, teaching the two-point jump shot to students is expected to occur in conditions that support optimal development of technical skills. In these ideal conditions, the learning approach is designed to be systematic, progressive, and adaptable to students' individual characteristics. Students should be able to master the mechanics of the two-point jump shot, demonstrate technical stability, and have adequate eye-hand coordination to achieve consistent shooting accuracy. Thus, the learning process ideally creates a learning environment that allows jump shot skills to develop in accordance with the demands of the physical education curriculum.

In the context of teaching jump shots in higher education sports programs, several ideal conditions should be in place to optimally improve jump shot accuracy (Gulo et al., 2025; Lin, 2025). Theoretically, effective two-point jump shot training in basketball is characterized by a systematic, progressive instructional approach grounded in the principles of motor learning (Midtsaluna et al., 2024; Syahrudin et al., 2025). This approach ideally provides adequate training opportunities through structured movement repetition, timely feedback, and varied training situations, enabling students to develop efficient and stable movement patterns. Under ideal conditions, students gain a conceptual understanding of jump shot mechanics and the ability to independently correct their movements through visual and kinesthetic information processing.

Ideal conditions also include aspects of students' coordination abilities, particularly hand-eye coordination, which plays an important role in shooting skills. Ideally, students have the coordination capacity to accurately adjust their arm movements and visual focus on the target, maintain a harmonious rhythm and timing of movement, and maintain body stability during the execution of a jump shot (Syobri et al., 2025). Good coordination skills result in more precise and responsive movement control, which positively impacts the outcome of the shot (Ardana et al., 2025). If both aspects are in optimal condition, students' two-point jump shot accuracy is expected to increase significantly. In ideal circumstances, students can shoot consistently, demonstrate correct technique, and make continuous improvements in their skills throughout the learning process. These improvements should occur both in controlled training situations and in conditions that resemble actual games. Furthermore, ideal conditions describe a synergistic relationship between the learning approach and the level of eye-hand coordination, where the right learning approach can optimize students' coordinative potential and, at the same time, this coordinative capacity enhances learning effectiveness.

However, field conditions reveal a significant gap between these expectations and the reality of the lectures. Observations of learning and student performance indicate that many third-semester students still struggle to maintain a consistent two-point jump shot. Inconsistent shooting accuracy, errors in movement mechanics, and weak synchronization between visual and motor skills are the dominant problems. This indicates that students' eye-hand coordination skills are still not at the level expected to support intermediate technical skills such as the two-point jump shot. This gap becomes even more apparent when the learning approach in class is general and does not account for students' varying coordination abilities. Uniform learning is not fully able to accommodate differences in basic abilities, especially for students with poor coordination. As a result, some students find it difficult to correct technical errors even after several practice sessions. This reality shows that the learning strategies applied do not fully support optimal learning outcomes, unlike the ideal condition, which expects adaptive, varied, and needs-based learning.

On the other hand, evaluation of learning outcomes shows that improvements in students' two-point jump shot accuracy are not always significant, even though the number of meetings and training materials align with the curriculum standards. The disconnect between learning efforts and skill achievement reflects a gap in

the instructional process. This indicates that, in addition to motor coordination factors, the learning approach used has not fully facilitated the formation of stable, precise movement patterns. In the cultural dimension of physical education, local pedagogical practices that tend to reproduce traditional training patterns and minimal learning differentiation reinforce the gap between students' characteristics and the teaching strategies applied, so that the learning strategies that occur do not fully support the achievement of optimal learning outcomes as expected in adaptive learning. On the other hand, learning outcome evaluations show that improvements in students' two-point jump shot accuracy are not always significant, even though the number of sessions and training materials have been in line with curriculum standards. This confirms the results of other studies, which state that the gap between learning efforts and skill achievement reflects the low effectiveness of the learning process, indicating that, in addition to motor coordination factors, a pedagogical culture that is less responsive to variations in student abilities also limits the formation of stable and accurate jump shot movement patterns (Quennerstedt & Larsson, 2015).

This study offers a novel approach by simultaneously testing jump shot learning approaches, such as the technical approach and the progressive skill practice approach. Each approach provides a different learning experience and affects the learning outcomes of the jump shot technique, as well as the level of eye-hand coordination in a factorial experimental design, so that it not only assesses the influence of each variable but also the interaction between the two on jump shot accuracy. The focus on third-semester PJKR students makes a new contribution, as most previous studies were conducted with athletes or school students, making the findings of this study more relevant to the context of physical education lectures. This study also offers a new perspective by applying a learning approach that is better suited to students' coordinative abilities. This research is important because there is a clear gap between the ideal conditions for learning jump shots and the reality in the field, where many third-semester PJKR students still struggle to achieve stable shooting accuracy due to poor eye-hand coordination and learning approaches that are not tailored to individual needs. The lack of research examining the interaction between these two factors makes this study urgent in providing an empirical basis for the development of more effective, adaptive, and student-characteristic-appropriate learning strategies.

The purpose of this study is to provide an empirical understanding of the effectiveness of the jump shot learning approach and the contribution of hand-eye coordination to the accuracy of two-point jump shots by students in basketball classes. Specifically, this study seeks to identify the extent to which different teaching methods can improve students' technical abilities and to examine the role of sensorimotor capacity as a determinant of jump shot performance. This study also aims to reveal the interaction between learning approaches and hand-eye coordination, thereby identifying the most relevant learning combination for students with diverse ability characteristics. The results of this study are expected to provide a strong pedagogical basis for lecturers to design more adaptive, effective, and appropriate instructional strategies for the development of basketball skills in higher education sports environments.

METHODS

The research approach used in this study is quantitative, with a pure experimental design using a 2×2 treatment-by-level model (Hikmawati, 2020). This approach was chosen because it provides a clear causal picture of the effect of learning treatments on changes in students' two-point jump shot skills. In addition, the quantitative approach allows the measurement of variables to be carried out objectively, in a standardized manner, and replicated in similar research contexts in the field of physical education (Ansar et al., 2024). This experiment was conducted in the context of basketball lectures in the Physical Education, Health, and Recreation Study Programme, which has an institutional learning culture based on structured technical training, classical learning, and skills assessment aligned with the physical education curriculum standards. Therefore, the learning treatment was designed with consideration of commonly applied local pedagogical practices, so that the research results not only reflect the statistical influence of the treatment but are also relevant to the real learning context in higher education physical education institutions. The research procedure began with a preparation stage that included determining the subjects, preparing the instruments, and testing hand-eye coordination and two-point jump shot accuracy. Next, all participants underwent a pretest to assess their initial abilities and determine their high- and low-coordination categories. After grouping was complete, each group received the learning treatment according to a 2×2 experimental design across several structured, controlled training sessions. The group division is shown in Table 1.

Table 1. Treatment group division

Type of Approach	High Coordination (B ₁)	Low Coordination (B ₂)
Technical Approach (A ₁)	A ₁ B ₁	A ₁ B ₂
Progressive Skill Practice (A ₂)	A ₂ B ₁	A ₂ B ₂

The research participants consisted of 32 third-semester students enrolled in the Physical Education, Health, and Recreation Study Program at STOK Bina Guna who were registered in the basketball course. Participants were selected using purposive sampling, which involves selecting samples based on criteria relevant to the research needs. These criteria included: actively participating in practical lectures, being physically fit enough to participate in jump shot training, and not having participated in any special basketball training outside of lectures that could affect the experiment's results.

Participants were categorized based on initial measurements using a hand-eye coordination test, yielding two ability groups: high and low coordination. Once the categories were determined, participants were assigned proportionally to treatment groups in a 2×2 experimental design. This approach ensured that each group had equivalent characteristics, enabling the research results to be analyzed objectively and in a controlled manner.

The research subjects were divided proportionally based on the results of the eye-hand coordination test to maintain a balance of initial characteristics between groups. Each treatment group consisted of 8 participants, and Learning Approaches A and B were applied according to the experimental model's treatment design. The main instruments in this study consisted of an eye-hand coordination test and a basketball jump shot accuracy test. The eye-hand coordination test was used to determine the participants' coordination ability category, with a measurement procedure that assessed the accuracy and speed of visual-motor responses.

The two-point jump shot accuracy test is used to measure participants' shooting accuracy before and after the learning treatment. Measurements are taken through two-point mid-range shots taken at five designated shooting areas on the basketball court. In each shooting area, participants made 10 jump shot attempts. Accuracy scores were determined by the number of shots that hit the target, with assessment standards applied consistently and aligned with basketball learning practices in physical education. The accuracy test for the 2-point shot is shown in Figure 1, and the test scores are shown in Table 5.

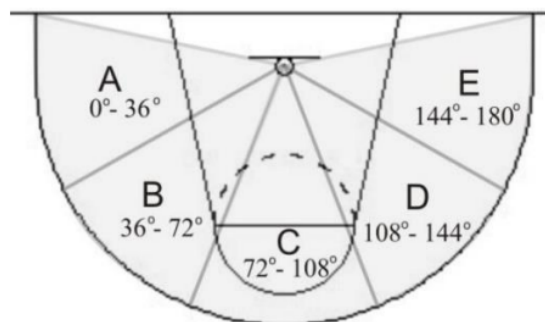


Figure 1. Two-point jump shot accuracy test

The data collection process was carried out in two main stages, namely pretest and posttest. In the pretest stage, all participants underwent eye-hand coordination measurements and an initial two-point jump shot accuracy test to obtain baseline data and establish participant groupings. After treatment according to the 2×2 experimental design, all participants underwent a posttest of jump-shot accuracy using the same procedure as the initial measurement. All data were recorded systematically to ensure the assessment's accuracy and support the subsequent analysis. Before performing a two-way ANOVA analysis, the data are first tested to ensure they meet the statistical prerequisites, so that the analysis results are valid and can be interpreted correctly. Before conducting the main analysis, the jump shot accuracy data from each group were first tested to meet the prerequisites for parametric analysis.

The normality test was performed using the Shapiro–Wilk test because the sample size in each group was relatively small ($n < 50$). The data were deemed normally distributed if the p-value was > 0.05 , indicating that the score distribution did not deviate significantly from normality. Next, a test of homogeneity of variance was performed using Levene's Test to assess the similarity of variances across treatment groups. A p-value > 0.05 indicates that the assumption of homogeneity is met, so that comparisons between groups can be made statistically valid. Data independence was ensured through the experimental design, in which participants were divided into groups proportionally by hand-eye coordination category, so that each participant acted independently and did not influence others. After all prerequisites were met, the analysis continued with a two-way ANOVA to test the main effects of the learning approach and eye-hand coordination, and the interaction between the two on jump shot accuracy. If the ANOVA shows significant differences ($p < 0.05$), a post hoc test (e.g., Tukey HSD) is conducted to compare group differences. The results of this analysis allow researchers to evaluate not only the individual effects of each variable but also their interaction, thereby determining the most effective learning strategy for students with different levels of coordination.

RESULT AND DISCUSSION

The results of data analysis show variations in two-point jump shot achievement among the four treatment groups formed based on learning approaches and hand-eye coordination levels. The high-coordination group that practiced Progressive Skill Practice (A₂–B₁) obtained the highest average score, 51.0, followed by the low-coordination group that received both approaches (A₁–B₂ and A₂–B₂), each with an average of 51.0. Meanwhile, the Technical Approach group with high coordination (A₁–B₁) recorded the lowest average, namely 45.5. Overall, the Progressive Skill Practice approach produced better performance than the Technical Approach, with a total average of 51.0 compared to 47.875. The data pattern also shows that participants with high coordination achieved more optimal results with progressive training, whereas at low coordination, both approaches tended to produce comparable results. These findings indicate the influence of learning approaches, coordination levels, and their interaction on two-point jump shot ability. The data for these findings can be seen in Table 2.

Table 2. Description of Two-Point Jump Shot Test Results Based on Learning Approach and Coordination

Group	n	Minimum Score	Maximum Score	Average	Total
A ₁ – B ₁ (Technical × High Coordination)	8	42	48	45,5	364
A ₂ – B ₁ (Progressive × High Coordination)	8	46	54	51,0	408
A ₁ – B ₂ (Technical × Low Coordination)	8	46	54	51,0	402
A ₂ – B ₂ (Progressive × Low Coordination)	8	46	54	51,0	408

The test shows that all groups have p-values above 0.05, indicating no significant deviation from the normal distribution. Thus, the two-digit jump shot results data are declared to be normally distributed.

Table 2. Shapiro–Wilk Normality Test Results

Group	W Statistics	p-value	Description
A ₁ B ₁	> 0,90	> 0,05	Normal
A ₁ B ₂	> 0,90	> 0,05	Normal
A ₂ B ₁	> 0,90	> 0,05	Normal
A ₂ B ₂	> 0,90	> 0,05	Normal

These results indicate that the distributions of scores in each treatment combination meet the assumption of normality. With this assumption met, the use of parametric analysis such as two-way ANOVA (2×2) is appropriate and valid. Homogeneity testing of the four data groups (A₁B₁, A₁B₂, A₂B₁, A₂B₂) showed that the p-values were above the 0.05 significance level. Thus, no significant differences in variance were found between the treatment groups.

Table 4. Results of the Variance Homogeneity Test (Levene's Test)

Variable	Levene's statistic	p-value	Description
Two-Point Jump Shot Results	< 2,00	> 0,05	Homogen

The test results show that the variation in jump shot scores among the four groups is within an equivalent range, thus fulfilling the assumption of homogeneity. This means that the variance between groups is relatively constant and does not show any deviations that could compromise the validity of the analysis. Fulfillment of this assumption reinforces that further analysis using two-way ANOVA (2×2) can be carried out appropriately and accurately, because all data have met the parametric requirements in terms of both normality and homogeneity of variance.

Table 10. Results of Two-Way ANOVA

Source of Variation	df	JK	RJK	F	p-value
Approach (A)	1	78.125	78.125	9.45	0.0047
Coordination (B)	1	78.125	78.125	9.45	0.0047
Interaction (A×B)	1	78.125	78.125	9.45	0.0047
Error	28	231.500	8.268	–	–

The results of the analysis of variance show that the training approach has a significant effect on two-point jump shot ability. The ANOVA test value shows $F = 9.45$ with $p < 0.01$, which means that there is a difference in ability improvement between the group using Progressive Skill Practice and the group using the technical approach. The group that practiced using the Progressive Skill Practice approach obtained a higher average score than the group that used the technical approach, which can be interpreted as meaning that progressive skill-based training is more effective in improving jump shot accuracy than conventional technical

training. In addition, the level of eye-hand coordination also showed a significant effect on two-point jump shot ability with an F value of 9.45 and $p < 0.01$. Participants with high coordination obtained better shooting results than participants with low coordination. This shows that eye-hand coordination is an internal factor that greatly determines the quality of jump shot execution, because the ability to coordinate vision and hand movements plays an important role in the accuracy of direction and ball control when shooting.

The analysis results also showed a significant interaction between the training approach and the level of eye-hand coordination. The value of $F = 9.45$ with $p < 0.01$ indicates that the effect of the training approach is not the same at every level of coordination. Participants with high coordination experienced the greatest improvement in ability when using the Progressive Skill Practice approach, while participants with low coordination still experienced improvement with this approach, but not as much as the high coordination group. These findings indicate that the effectiveness of progressive skill-based training will be more optimal when supported by good coordination skills, so that the training approach and basic skills reinforce each other in improving two-point jump shot skills. Based on the overall ANOVA analysis results, it can be concluded that the training approach has a significant effect on two-point jump shot ability, the level of eye-hand coordination also has a significant effect, and there is an interaction between the two variables. Thus, the improvement in jump shot ability is not only determined by the training method used but is also influenced by the coordination condition of the participants, so the selection of the training approach should consider the characteristics of the athletes' basic abilities.

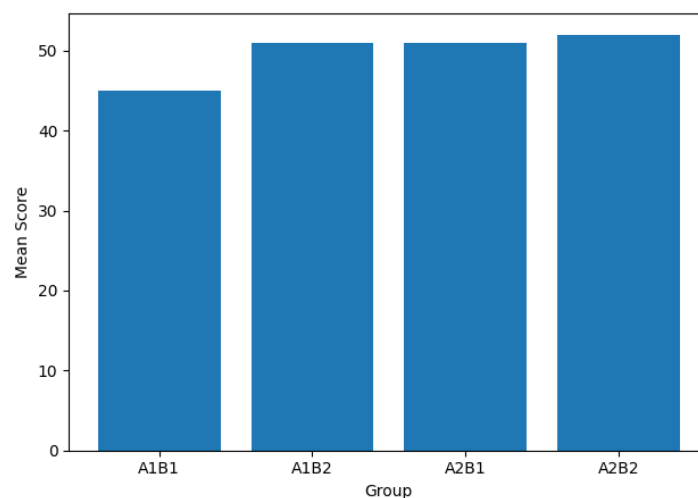


Figure 2. Comparison of the average of A₁B₁, A₁B₂, A₂B₁, A₂B₂

Figure 2 shows that the Progressive Skill Practice group (A₂) had a higher average jump shot score than the Technical Approach group (A₁) at both coordination levels. Groups A₂B₁ and A₂B₂ produced relatively balanced scores and ranked highest. Meanwhile, group A₁B₁ had the lowest average score. This pattern confirms that the progressive approach is more effective in improving two-point jump shot skills, especially among participants with better coordination. The results of this study confirm that the learning approach and level of hand-eye coordination play significant roles in determining the accuracy of two-point jump shots by third-semester PJKR students, both independently and through interaction. These findings indicate that the success of learning sports skills, particularly basketball jump shots, cannot be separated from the suitability of the instructional strategies applied and the characteristics of students' sensory-motor abilities. The right learning approach will have the greatest impact if it accommodates different individual coordination capacities. Specifically, the two-way ANOVA results show that Progressive Skill Practice is more effective than the Technical Approach in improving two-point jump shot accuracy. This interpretation indicates that progressively structured exercises can facilitate the formation of more stable, efficient, and adaptive movement patterns. Progressive Skill Practice provides students with the opportunity to learn skills gradually, starting with simple situations and progressing to more complex conditions that resemble actual games. This allows students to integrate movement mechanics, timing, and body control more holistically, thereby directly improving shooting accuracy.

This finding aligns with motor learning theory, which emphasizes that motor skills develop optimally through progressive, gradual, and context-specific practice (Irham et al., 2024). According to Rezaei et al. (2025), progressive training enables individuals to build more stable motor programs through systematic increases in task complexity, thereby enhancing the transfer of skills to real-life situations. In the context of basketball jump shots, progressive training helps students integrate movement mechanics, timing, and body control holistically, rather than simply mastering technical components in isolation (Amaro et al., 2025; Li et al., 2025). These findings are also consistent with research showing that a contextual and game-based approach to learning sports skills results in better performance improvements than traditional technical approaches that

emphasize isolated movement repetition. Other studies also reinforce these findings, concluding that varied and progressive training improves motor adaptation and consistency in precision skills, including basketball jump shots (Patterson et al., 2025; Yuliandra & Fahrizqi, 2019). Thus, the results of this study expand the validity of previous theories and findings in the context of physical education students in higher education. Thus, the results of this study reinforce previous findings while confirming them in the context of higher education in sports.

In addition to the learning approach, eye-hand coordination was found to affect the accuracy of two-point jump shots significantly. Students with high coordination showed better jump shot performance than students with low coordination. Interpretation of these results shows that hand-eye coordination is a sensorimotor foundation that strongly determines the success of jump shot skills, as shooting requires synchronization among visual perception, arm control, and ball release timing. These findings are consistent with motor control theory, which states that high-precision skills depend heavily on an individual's visual-motor integration abilities (Caro et al., 2025; Yuniarwati & Lin, 2025). The results of this study also align with previous empirical findings, which indicate that individuals with good eye-hand coordination tend to have more consistent control over the direction and trajectory of the ball, resulting in higher jump shot accuracy (Hadi et al., 2020; Putra et al., 2025). Thus, eye-hand coordination can be understood as an internal factor that accelerates the adaptation process during training and enhances the effectiveness of the applied learning approach.

The most important finding in this study is the significant interaction between learning approaches and hand-eye coordination levels. This interaction shows that the effectiveness of a learning approach is not universal but depends on students' basic abilities. Progressive Skill Practice provides optimal performance improvement for students with high coordination, as it optimizes their existing coordinative potential. Conversely, among students with low coordination, the improvement in jump shot accuracy was relatively limited, although the progressive approach still showed a tendency to yield better results than the technical approach. This indicates that limitations in hand-eye coordination can be a barrier to maximizing the impact of learning. In terms of the research's strengths, this study has several main advantages. First, the use of a 2×2 factorial experimental design allows simultaneous analysis of main and interaction effects, providing a more comprehensive picture than studies that test only one variable. Second, this study specifically recruited third-semester PJKR students as subjects, which has been relatively rare in previous research that has focused more on athletes or school students. Third, this study integrates aspects of the learning approach and coordinative abilities into a single empirical framework, making the results more relevant to the context of sports practice lectures.

Based on these results, the main contribution of this study lies in strengthening the empirical evidence that jump shot training in higher education sports programmes should be designed adaptively and tailored to students' individual characteristics. This study not only confirms the superiority of Progressive Skill Training in improving the accuracy of two-point jump shots but also shows that students' hand-eye coordination significantly influences the effectiveness of the approach. These findings enrich the study of sports pedagogy, particularly in the development of intermediate skill learning strategies in higher education. Furthermore, this study interprets these empirical findings in the context of the physical education learning culture in Indonesian universities, which in local pedagogical practice still tends to be dominated by a uniform technical approach, oriented towards lecturer demonstrations, and emphasising collective mastery of skills. Such a learning culture often limits the space for differentiation and adaptation to variations in students' coordination abilities.

In this context, the application of Progressive Skill Training becomes increasingly relevant as it challenges conventional pedagogical practices and offers a more contextual and adaptive learning approach to individual needs. The effectiveness of this approach is determined not only by its training structure but also by the alignment between the learning design and students' coordinative capacity, which is shaped by prior learning experiences. Thus, this study makes a conceptual contribution by emphasising that the effectiveness of sports skills teaching in Indonesian higher education cannot be separated from the institutional learning culture that surrounds it and demands a paradigm shift from uniform learning to a more reflective, adaptive, and student-characteristic-based pedagogical approach.

Implicitly, the results of this study provide a practical basis for PJKR lecturers to design more effective basketball learning. Lecturers are advised to use skill progression-based exercises, conduct initial assessments of students' eye-hand coordination, and adjust the difficulty of the exercises to students' coordinative abilities. An adaptive, differentiated learning approach is expected to improve learning outcomes and reduce performance gaps among students. However, this study has several limitations. The sample size is relatively small and only involves one institution, so the results need to be generalized with caution. In addition, this study examines hand-eye coordination as an internal factor only, while other variables such as motivation, muscle strength, or playing experience have not been examined. Therefore, further research is recommended to involve a broader sample, test additional motor and psychological variables, and combine a progressive approach with specific interventions to support basic coordination development. Further research could also explore the application of this approach in real games or in digital learning technologies.

CONCLUSION

This study shows that the learning approach significantly influences the accuracy of third-semester PJKR students' two-point jump shots, the level of eye-hand coordination, and the interaction between the two. These findings indicate that the effectiveness of jump shot learning is highly dependent on the fit between instructional strategies and students' coordinative capacities, with Progressive Skill Practice proving more effective at building stable and adaptive jump shot movement patterns. The originality of this study lies in the simultaneous testing of learning approaches and eye-hand coordination within a single-factorial experimental design among physical education students, thereby providing a new perspective that suggests that jump shot learning should be designed adaptively based on individual characteristics. The future orientation of this research is to develop differentiated basketball learning by integrating progressive training and strengthening eye-hand coordination, and to expand the research context to include more diverse subjects and learning models. From a scientific perspective, this study contributes to the development of knowledge in sports pedagogy and motor learning by empirically confirming the interactive role between instructional strategies and coordinative abilities in skill mastery, thereby strengthening the theoretical basis for adaptive and individualized approaches in physical education.

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