

# Advances in Peer Teaching Methods in the Skill and Physical Development



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## Abstract

**Background:** Implementation of innovative teaching methods in physical education, such as peer instruction, can enhance health outcomes among students. While sports like basketball improve specific skills, the overarching goal is to promote overall health by reducing the risk of chronic conditions and enhancing mental well-being. **Objective:** This study evaluates the effectiveness of the peer teaching method in developing basketball skills, including dribbling and shooting, among second-stage students. It aims to contribute insights into effective teaching methodologies within physical education programs. **Method:** An experimental design was employed, comparing a control group using traditional teaching methods with an experimental group using the peer teaching method. Pre- and post-tests were conducted, and data were analyzed using statistical methods. **Results:** The implementation of the peer teaching method significantly contributed to students' acquisition of dribbling and shooting basketball skills. The experimental group, utilizing the peer method, demonstrated superior performance compared to the control group, which followed the conventional curriculum in the college. Notably, the experimental group

excelled in high dribbling, low dribbling, free throw, and shooting from the jump. **Conclusion:** The study highlights the benefits of the peer teaching method in enhancing basketball skills and recommends its integration into physical education programs. The findings support the adoption of educational units structured around the peer method due to its demonstrable impact on skill acquisition. Moreover, it advocates for ongoing exploration of diverse teaching methods and activities to optimize educational outcomes.

**Keywords:** Peer teaching method, Physical education, Basketball skills, Health outcomes, Teaching methodologies

## Introduction

Implementing innovative teaching methods, like peer instruction in college fitness programs, yields improved health outcomes for young individuals. While activities such as basketball enhance specific skills like dribbling and shooting, the ultimate goal of physical education is to promote overall health. Regular participation in sports not only enhances physical abilities but also reduces the risk of chronic conditions like diabetes, cardiovascular diseases, and obesity. Additionally, engagement in sports has been shown to positively impact mental well-being, alleviating stress and depression. Therefore, integrating sports and physical activity into educational programs not only enhances physical fitness but also fosters better mental health outcomes.

In recent decades, the world has undergone rapid and far-reaching transformations across all spheres of life, prompting nations to adapt and advance their societies accordingly. With a focus on human welfare emerging as a central goal, there has been a pressing

**Significance** | The study showed an innovative education for modern needs, improving basketball skills via peer teaching. Diverse methods motivate learners, enhancing health outcomes.

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need to evolve educational processes to prepare students effectively for the challenges of the modern era. This necessitates the adoption of innovative teaching models, strategies, and methodologies aimed at enhancing the efficacy and success of education. Recognizing the pivotal role of teachers in delivering impactful lessons, it becomes imperative for educators to stay abreast of the latest educational models and methodologies. By embracing these advancements, teachers can effectively navigate the evolving educational landscape, ultimately leading to improved outcomes for students, as demonstrated by studies such as Mahasneh (2015).

It is crucial for teachers to design lessons where students are the central focus of the educational process. This approach ensures that students actively engage with the learning experiences provided, shifting the focus from the teacher to the student to achieve desired educational goals. In sports like basketball, mastering basic skills is fundamental to team success. Consequently, scholars continually seek optimal teaching methods to impart these skills efficiently, thereby enhancing learning outcomes while conserving time and effort. This underscores the significance of exploring educational alternatives such as the peer teaching method. This study aims to evaluate how the peer method can aid in the acquisition and development of basketball skills, including dribbling and shooting, among second-stage students. By doing so, it aims to contribute to enhancing students' basketball proficiency within the prescribed curriculum, thus offering valuable insights into effective teaching methodologies within physical education programs.

Various teaching and educational methods have been employed to enhance gaming skills, prompting ongoing exploration for the most effective approaches. Each method carries distinct goals, implications, and outcomes, necessitating rigorous investigation to ascertain their suitability for teaching basketball skills within physical education programs. The challenge lies in identifying methods and strategies that effectively cultivate learners' abilities and transfer educational experiences within prevailing teaching frameworks. This motivates researchers to seek answers through systematic inquiry. Thus, this study aims to investigate the impact of the peer teaching method on dribbling and basketball shooting skills within physical education classes, aiming to elevate students' performance levels using contemporary teaching methodologies.

This study aims to develop an educational curriculum using the peer teaching method for enhancing students' proficiency in dribbling and shooting basketball skills, followed by an assessment of its effectiveness. The research hypotheses posit a positive correlation between the peer learning method and students' performance levels in dribbling and shooting basketball skills. Through this investigation, we seek to contribute insights into the efficacy of peer-based teaching approaches in enhancing skill acquisition and performance outcomes among students in the context of basketball education.

## Materials and methods

### Study Design:

The research employed an experimental design to investigate the effectiveness of the peer teaching method in enhancing students' proficiency in dribbling and shooting basketball skills. This design allowed for the comparison of two equal groups, namely the control group, where traditional teaching methods were employed, and the experimental group, where the peer teaching method was implemented. Pre- and post-tests were conducted for both groups to measure skill acquisition and performance levels before and after the intervention.

### Sample Selection:

The research was conducted among second-year students at the College of Physical Education and Sports Sciences, University of Kufa. The total population consisted of 68 students. A basic sample of 40 students was randomly selected, with 20 students assigned to the control group and 20 to the experimental group. Additionally, 10 students were used for exploratory studies. Homogeneity of the sample was assessed based on variables such as chronological age, length, and mass. The skewness coefficient was used to ensure sample homogeneity regarding variables.

### Data Collection Tools:

Data collection involved various means, including Arab and foreign sources, personal interviews, tests and measurements, and special forms for recording test results. The research utilized specific tools and devices such as a basketball hall, legal basketballs, electronic calculators, stopwatches, plastic signs, adhesive tape, chalk, and whistles.

### Field Research Procedures:

The tests utilized in the research were meticulously described and administered. These included tests for high dribbling, low dribbling, free throw shooting, and shooting from the jump. Each test was conducted with specific tools and procedures, with careful attention to administration and scoring protocols.

### Exploratory Experiment:

Prior to the main experiment, an exploratory experiment was conducted to ensure the validity and suitability of the research environment, tools, and procedures. This involved assessing readiness, identifying potential challenges, and estimating time requirements. A preliminary experiment was conducted involving four students from the second-year community to validate the research hall, tools, and procedures.

### Pre-tests and Post-tests:

Pre-measurements were conducted for both the experimental and control groups to establish baseline performance levels. These measurements were conducted under standardized conditions for each test. Pre-tests were conducted for both control and experimental groups. Post-tests were administered following the completion of the intervention. The same test sequence and

conditions were maintained for both pre- and post-tests. Post-tests were conducted after the completion of the peer method implementation to assess changes in performance levels. These tests mirrored the pre-test conditions to ensure consistency.

#### **Implementation of the Peer Method:**

The implementation of the peer method involved several steps, including presenting educational objectives, assigning peer pairs, supervising task execution, and conducting skill tests. Educational curriculum according to the peer method was prepared and implemented for the experimental group. This involved organizing pairs of learners, with one serving as the learning partner and the other as the trained partner. The learning peer performed the skill while receiving immediate feedback from the peer teacher. Educational units were developed for the experimental group, while the control group continued with traditional teaching methods. The peer method was applied to the experimental group over several sessions.

#### **Statistical Analysis:**

Data obtained from pre- and post-tests were processed using the Statistical Package for the Social Sciences (SPSS) for analysis of mean scores, standard deviations, T-values, and significance levels to determine the effectiveness of the peer teaching method.

#### **Results**

The results of the pre- and post-tests for the control group, as presented in Table 2, revealed significant differences favoring the post-tests across the investigated variables, including basketball skills such as dribbling and shooting. These disparities are attributed to the structured curriculum utilized by the teaching staff, designed according to robust scientific principles, thus enhancing the performance effectiveness of the learners. This finding aligns with previous research emphasizing the role of effective learning environments in stimulating optimal performance outcomes. Additionally, the experience and teaching approach of the subject teacher significantly contributed to the observed improvements in skill acquisition among the control group. Similarly, Table 3 displays significant differences favoring the post-tests for the experimental group, particularly in dribbling and shooting tests. Furthermore, Table 4 illustrates the presentation and analysis of post-test results for both control and experimental groups. These disparities are attributed to the implementation of the peer teaching method, which offered comprehensive curricular content, balanced exercise organization, and appropriate repetitions, facilitating skill development. The optimized allocation of time for kinetic tasks and the provision of organized feedback and repetitions further enhanced learning outcomes. The peer teaching method's ability to foster homogeneous education and structured learning environments is underscored, corroborating existing theories on effective learning paradigms. Overall, these

findings underscore the efficacy of the peer teaching method in enhancing basketball skill acquisition among second-year students in the College of Physical Education and Sports Sciences, offering valuable insights into optimized educational practices and learning theories.

#### **Discussion**

The significant differences observed in both the control and experimental groups, as evidenced by Tables (2) and (3) regarding basketball skill acquisition, can be attributed to several factors. Firstly, the structured curriculum employed by the teaching staff, meticulously planned and grounded in sound scientific principles, played a pivotal role in enhancing the performance effectiveness of the learners, aligning with the notion that creating effective educational environments stimulates optimal performance (Amayra, 2002) (Zghair et al., 2022). Furthermore, adherence to sequential educational steps, emphasizing correct performance, and employing clear presentation methods by experienced subject teachers significantly contributed to skill improvement (Hashem, 2000) (Ahmad, 2016). The learning process, especially for skill acquisition, hinges upon the learner's acquisition of a set of skill abilities, facilitated by well-organized curricula that gradually scaffold learning for easy acquisition (Lotfy, 1972) (Radhi and Obaid, 2020). Additionally, the implementation of appropriate repetitions, renewal in skill nature, and teacher-guided feedback fostered a conducive learning atmosphere, further enhancing skill development (Shalash and Sobhi, 2000) (Rashid, Neamah, 2022).

In the experimental group, the effectiveness of the educational curriculum, particularly the peer teaching method, was evident in the post-tests. The comprehensive curriculum, balanced exercise organization, and appropriate repetitions facilitated skill development, as highlighted by previous research emphasizing the importance of ample opportunities for skill performance (Al-Haila, 2001) (Hashem, Al Edhary, Radhi, & Hmeid, 2022). Furthermore, the adaptation of teaching methods to suit the complexity of skills, coupled with investment in actual time allocated for kinetic tasks, contributed significantly to skill improvement (Sabr, 2005) (Muhallal & Neamah, 2023). The success of educational curricula, as measured by individual progress, underscores the importance of curriculum adaptation and learner engagement (Kat, 1999) (Shaan, Aboode, & Radhi, 2022). The peer teaching method, known for its ability to produce homogeneous education and provide organized feedback and repetitions, facilitated skill acquisition by allowing sufficient time for practice, aligning with established learning theories (Robert, 1989) (Shaker, Tuama, & Radhi, 2022).

The significant improvements observed in both groups underscore the effectiveness of structured curricula and teaching methods in

**Table 1.** shows the homogeneity of the research sample.

Variables	Measuring unit	Mean	Median	Std. Deviations	Skewness	result
Length	Cm	169.75	169	1.879	0.392	homogeneity
Mass	Kg	70.813	69.5	1.663	0.355	homogeneity
Chronological age	Year	19.8	19	0.722	0.223	homogeneity

**Table 2.** shows the arithmetic means, standard deviations, T-value calculated for the correlated samples, the test significance level, and the significance of the difference for the pre- and post-tests for the control group for the investigated variables.

Investigated variables	Measuring unit	Pre-test		Post-test		T value Calculated	Level sig	Type sig
		Arithmetic means	Standard deviations	Arithmetic means	Standard deviations			
High dribbling	Degree	3.2	1.034	5.5	1.201	5.101	0.011	Sig
Low dribbling	Degree	4.11	1.003	5.32	0.998	4.881	0.004	Sig
Shooting (free throw)	Degree	3.92	0.855	6.22	0.773	5.023	0.002	Sig
Shooting from jump	Degree	3.14	1.224	4.21	1.721	1.023	0.053	Non sig

**Table 3.** shows the arithmetic means, standard deviations, T-value calculated for the correlated samples, the test significance level, and the significance of the difference for the pre- and post-tests of the experimental group for the investigated variables.

Investigated variables	Measuring unit	Pre-test		Post-test		T value Calculated	Level sig	Type sig
		Arithmetic means	Standard deviations	Arithmetic means	Standard deviations			
High dribbling	Degree	3.63	1.221	6.15	1.441	6.017	0.001	Sig
Low dribbling	Degree	4.74	1.229	8.11	0.936	8.613	0.000	Sig
Shooting (free throw)	Degree	4.18	0.882	9.23	0.819	11.016	0.000	Sig
Shooting from jump	Degree	3.95	0.785	7.26	0.826	8.224	0.000	Sig

**Table 4.** shows the arithmetic means, standard deviations, T-value calculated for the correlated samples, the test significance level, and the significance of the difference for the post-tests for the control and experimental groups for the investigated variables.

Investigated variables	Measuring unit	Control group		Experimental groups		T value Calculated	Level sig	Type sig
		Arithmetic means	Standard deviations	Arithmetic means	Standard deviations			
High dribbling	Degree	5.5	1.201	6.15	1.441	3.115	0.011	Sig
Low dribbling	Degree	5.32	0.998	8.11	0.936	7.198	0.004	Sig
Shooting (free throw)	Degree	6.22	0.773	9.23	0.819	6.663	0.001	Sig
Shooting from jump	Degree	4.21	1.721	7.26	0.826	6.475	0.000	Sig

enhancing skill acquisition among students. The findings emphasize the importance of creating conducive learning environments, employing appropriate teaching strategies, and providing ample opportunities for practice to optimize skill development. Further research exploring the long-term effects of such educational interventions would provide valuable insights into sustained skill enhancement and academic performance.

**Conclusions**

In summary, the research findings highlight the significant benefits of employing the peer teaching method in enhancing students' acquisition of basketball skills, particularly in dribbling and shooting. Furthermore, the study underscores the importance of diversifying educational approaches to bolster learner motivation and skill development. The experimental group, exposed to peer-based instruction, outperformed the control group, indicating the efficacy of this teaching method. Recommendations stemming from the study include endorsing the use of peer teaching methods for basic basketball skill instruction, exploring various teaching methodologies, and conducting similar studies to broaden understanding and application. Ultimately, these recommendations aim to improve educational practices and optimize skill development outcomes for students.

**Author contributions**

S.G.H. conducted study design, analyzed data, wrote and drafted the manuscript.

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**Competing financial interests**

The authors have no conflict of interest.

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