



The Effect of Peer-Assisted Technique Badminton Teaching Class in Primary School Students

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Abstract

Background and Aims: The need to explore alternative teaching methods in physical education for primary school students. This study likely aims to investigate the impact of incorporating peer-assisted techniques in badminton instruction, seeking to enhance the learning experience and outcomes for primary school students in the context of physical education. Thus, this study aimed to study the effects of peer-assisted badminton teaching selected course to improve learning outcomes in primary school students and to compare the effects of learning outcomes between the pretest and post-test

Methodology: The sample consisted of 40 students from simple random sampling in five badminton classrooms, examined through pretest and post-tests Forehand deep high service skill, Forehand high clear skill, drop shot skill, forehand skill, backhand skill, and satisfaction survey on peer-assisted badminton course teaching. The experiment was conducted by following the peer-assisted badminton teaching selected course, 10 weeks duration. Then the data were prepared and analyzed statistically with a packet computer program to compute the mean and standard deviation and compare teaching achievement using a t-test dependent. (* $p < .05$)

Results: (1) The effects of peer-assisted in badminton teaching selected courses to improve learning outcomes were found in the pretest and post-test of Forehand deep high service skill (11.26+2.59 and 16.00+4.03 score), Forehand high clear skill (3.95 + 1.15 score and 5.90 + 1.65 score), drop shot skill (4.60 + 2.47 score and 8.35 + 3.02 score), forehand-wall skill test (7.07+ 2.23 and 9.88 + 2.62 score), and backhand-wall skill test (9.63+ 2.43 score and 13.28 + 2.95 score), respectively. (2) The mean comparison between the pretest and post-test of badminton skills found that long sever skill test, highball skill test, drop shot skill test, forehand wall test, and backhand wall test, all of the variables had significant differences (* $p < .05$). The average score post-test of all variables was greater than the pretest. (3) The mean comparison of the satisfaction survey on peer technique in badminton course teaching between the pretest and post-test found that all variables had a significant difference (* $p < .05$). The average post-test score of all variables was greater than the pretest.

Conclusion: The study evaluated the impact of peer-assisted teaching in badminton courses on learning outcomes. Results showed significant improvements in various skills, including forehand deep high service, forehand high clear, drop shot, forehand-wall, and backhand-wall skills. Additionally, a mean comparison between pretest and post-test scores indicated significant differences in long serve, highball, drop shot, forehand wall, and backhand wall skills, with post-test scores higher in all variables. Furthermore, the satisfaction survey demonstrated a significant increase in satisfaction with peer teaching techniques in badminton courses.

Keywords: Peer Assistance; Badminton Teaching; Primary School Students; Learning Outcomes; Physical Education

Introduction

Context and Background : In recent years, innovative teaching methodologies have gained prominence in physical education, particularly in primary schools. Among these, peer-assisted learning





(PAL) stands out as a promising approach. This method, involving students assisting each other in the learning process, has shown potential in various academic disciplines. Its application in sports education, especially in skill-based games like badminton, is an area that warrants thorough exploration. Badminton, a popular sport globally and a staple in primary school curricula in many countries, requires a combination of physical skills, strategy, and mental agility. The traditional teacher-centered approach, while effective, often does not fully address the individual learning needs of students or leverage the benefits of collaborative learning. (Zhou, 2020)

Significance of the Study: This study focuses on the application of peer-assisted teaching methods in badminton instruction within the primary school setting. The significance lies in its potential to enhance both the skill level and the overall learning experience in badminton. By fostering an environment where students learn from and with each other, this approach could lead to a more engaging, dynamic, and effective learning process. Additionally, incorporating peer-assisted methods in sports education can contribute to developing essential life skills such as teamwork, communication, empathy, and leadership among young learners. (Qin & Qin, 2023)

Due to increased awareness of the importance of physical education in the overall development of primary school students. Exercise not only affects students' physical health. But it also plays an important role in cognitive and social development. Traditional teaching methods in physical education classrooms sometimes fall short of effectively engaging students or promoting a positive learning environment. In this context, research aims to explore and evaluate the impact of peer support techniques in Teaching badminton to primary school students Peer support techniques involve students learning from their peers. This can create a more connected and supportive learning environment. Studies may examine how this approach influences skill acquisition, motivation, and overall enjoyment of badminton classes among primary school students.

Research may also be driven by the need to address the diverse learning styles and preferences of elementary school students. It recognizes that students have different abilities and respond to different teaching methods. This study may attempt to suggest alternative teaching strategies that can accommodate this diversity. Using peer-assisted techniques may meet different learning needs. and create an inclusive learning environment where students feel more comfortable and motivated to participate in badminton classes. Exploring the effectiveness of this approach the research aims to provide valuable insights into the field of physical education. It helps educators and policymakers make informed decisions about teaching methods that will enhance the overall educational experience for elementary school students.

Research Objectives

The primary objectives of this research are:

To assess the impact of peer-assisted learning on the development of badminton skills among primary school students.

To evaluate the effect of peer-assisted teaching methods on students' satisfaction and engagement in badminton classes.

To explore the potential benefits and challenges of integrating peer-assisted learning into the physical education curriculum.





Methodological Overview

The study adopts a quasi-experimental design, involving a sample of 40 students from a primary school in Xinxiang City. The methodology includes a combination of practical skill assessments (pretest and post-test) and surveys to gauge student satisfaction. The intervention consists of a structured 10-week peer-assisted badminton instruction program, designed to facilitate collaborative learning and skill acquisition among students. (Zhang 2023)

Contribution of the Study

This research aims to contribute to the existing literature on teaching methodologies in physical education, with a specific focus on badminton instruction in primary schools. By empirically assessing the outcomes of peer-assisted learning in this context, the study seeks to provide valuable insights for educators, curriculum designers, and policymakers aiming to enhance the quality and effectiveness of sports education.

Structure of the Paper

The paper is structured as follows: Following this introduction, the literature review provides an overview of existing research on peer-assisted learning and its application in physical education. The methodology section details the experimental design, sample selection, and data collection methods. The results section presents the findings of the study, followed by a discussion of the implications and potential applications of these findings in educational practice. The conclusion summarizes the key insights and offers recommendations for future research in this area. (Tasnaiyana, 2005)

Objectives

1. To study the effects of peer-assisted badminton teaching selected course to improve learning outcomes in primary school students
2. To compare the effects of learning outcomes between the pretest and post-test

The primary objective of this study is to meticulously evaluate the effectiveness of peer-assisted teaching methods in the context of badminton instruction for primary school students. Central to this investigation is the assessment of skill development; the study aims to determine how peer-assisted learning influences the acquisition and enhancement of specific badminton skills among young learners. This involves examining various aspects of badminton proficiency, such as service, clear shots, drop shots, and both forehand and backhand techniques. By comparing the skill levels before and after the implementation of peer-assisted teaching methods, the study seeks to provide a clear understanding of how peer interactions and collaborative learning approaches contribute to the development of sports skills in a primary school setting.

Literature Review

Peer-Assisted Learning in Education

The concept of peer-assisted learning (PAL) has been a subject of academic interest for several decades, rooted in educational theories like Vygotsky's socio-cultural theory and Bandura's social learning theory. Vygotsky's concept of the Zone of Proximal Development (ZPD) highlights the potential of peer interaction in facilitating learning beyond what a student can achieve independently. Bandura emphasized observational learning and imitation as key components in the learning process. Studies by Smith & Anderson (2024), Zhang (2023), and Xia & Liu (2022) have underscored the





effectiveness of PAL in enhancing understanding and skill acquisition across various educational stages.

Application of PAL in Sports Education

The application of PAL in sports education, particularly in skill-based games like badminton, has been gaining attention. Research by Li & Jiang (2019) demonstrated the positive impact of peer learning in sports such as basketball and football, enhancing physical skills and tactical knowledge. This suggests the potential for similar benefits in badminton education.

Peer-Assisted Learning in Badminton

The use of PAL in badminton instruction is a relatively new area of research. However, recent studies suggest that peer teaching can lead to greater student engagement and understanding. For instance, Álvarez, E.F. (2023), Fadel (2023), and Kuo, et al, (2023) have explored technology-based learning, student-centered online teaching, and badminton teaching-assisted systems, respectively, in the context of badminton education, indicating improvements in motor skills and technical proficiency.

Challenges and Future Prospects

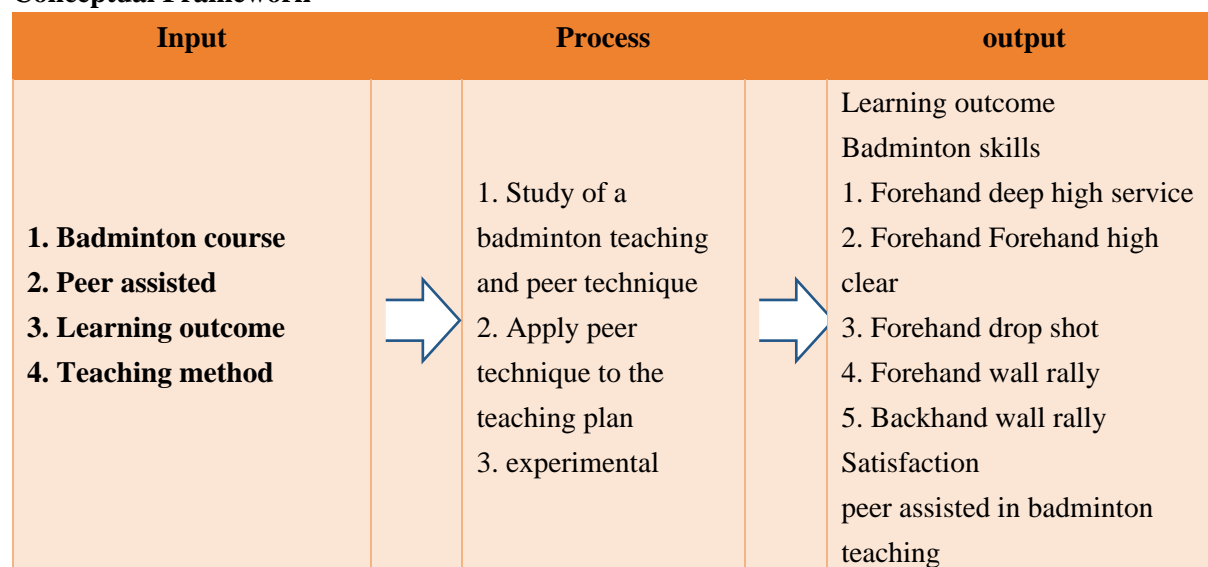
Despite its benefits, PAL faces challenges in practical applications, particularly in ensuring effective organization and management of learning activities, as noted by Lei & Yu (2019).

Historical Perspective and Basic Techniques of Badminton

The study also reviews the historical development of badminton, as detailed by Zhou (2020) and Mao (2019). Understanding the evolution of the game and its widespread popularity provides a context for why innovative teaching methods like PAL are essential. Additionally, the basic techniques of badminton, such as Forehand high clear, serve, drop shot, forehand wall rally, and backhand wall rally, are fundamental to the study's focus on skill development.

In summary, the literature review covers a broad range of studies and theories that underpin the concept of peer-assisted learning, its application in sports education, and specifically in badminton teaching. It also addresses the historical aspects of badminton and the technical skills essential for playing the sport, laying a comprehensive foundation for the study.

Conceptual Framework





This study aims to explore the influence of peer-assisted learning on the badminton teaching of primary school students. It integrates the theoretical foundations of educational psychology, practical aspects of badminton skill development, and peer-assisted teaching methods. Its structure provides a comprehensive understanding of how PAL affects learning outcomes in the context of physical education.

The core of this thesis is the key educational theory that forms the basis of PAL. Vygotsky's sociocultural theory, particularly his concept of the Area of proximal Development (ZPD), holds that learning is most effective when it is just beyond a student's current abilities, which can be facilitated by peer mentoring. Bandura's social learning theory also plays a crucial role, emphasizing the importance of observational learning, imitation, and modeling in acquiring new skills and knowledge.

It then combines specific skills and techniques essential to badminton, such as serving, lob, drop, forehand, and backhand strokes. The study assesses how peer interaction and collaborative learning methods affect the acquisition and enhancement of these skills. This includes an analysis of students' pre - and post-test performance in these specific areas, providing empirical evidence for the effectiveness of PAL in badminton teaching.

In addition, the framework also examines the implementation of PAL in the badminton teaching process. This includes developing lesson plans that incorporate peer teaching, organizing student learning activities in pairs or groups, and the role students play in these arrangements, as learners and peer teachers.

The result is an assessment of learning outcomes, as measured by improvements in badminton techniques and student satisfaction with the learning process. The potential wider effects of PAL were also considered, such as enhanced teamwork, communication skills, and overall participation in physical education.

Thus, a structured approach is provided to understand the dynamics of peer-assisted learning in badminton teaching and to provide insights into its potential as an effective educational strategy for primary physical education.

Methodology

The sample consisted of 40 students from simple random sampling in five badminton classrooms, that examined pretest and post-tests Forehand deep high service skill, Forehand high clear skill, drop shot skill, forehand skill, backhand skill, and satisfaction survey on peer-assisted in badminton course teaching. The experiment was conducted by following the peer-assisted badminton teaching selected course, 10 weeks duration. Then the data were prepared and analyzed statistically with a packet computer program to compute the mean and standard deviation and compare teaching achievement using a t-test dependent. (* $p < .05$)

The methodology of this study is designed to rigorously assess the impact of peer-assisted learning (PAL) in badminton instruction among primary school students. The research adopts a quasi-experimental design, comprising a comprehensive approach that includes sample selection, intervention implementation, data collection, and statistical analysis.

Sample Selection

The study involves a sample of 40 students from a primary school in Xinxiang City, China. These students are between the ages of 10 to 12 years, encompassing grades 4 to 6. The selection process is



based on simple random sampling from five badminton classrooms within the school, ensuring a representative and unbiased sample.

Intervention Implementation

The core of the study is the implementation of a peer-assisted badminton teaching program, designed to last for 10 weeks. This program integrates PAL into regular badminton lessons, where students are paired or grouped based on complementary skill levels. In these arrangements, students are encouraged to assist each other in learning and refining badminton techniques, fostering a mutual learning environment. The program emphasizes key badminton skills.

Data Collection

Data collection is twofold: skill assessment and satisfaction surveys. Skill assessment involves conducting pretests and post-tests to evaluate the student's proficiency in badminton skills before and after the intervention. The satisfaction surveys are designed to gauge students' attitudes toward the peer-assisted teaching method, focusing on aspects such as enjoyment, engagement, and perceived learning outcomes.

Statistical Analysis

The collected data will be subjected to thorough statistical analysis. The primary tool for analysis is the paired t-test, which will be used to compare pretest and post-test results, thus determining the efficacy of the PAL method in improving badminton skills. Descriptive statistics such as means and standard deviations will also be calculated for both the skill assessment and satisfaction survey data, providing a comprehensive overview of the results.

By adopting this methodological approach, the study aims to provide a detailed and empirical evaluation of the effectiveness of peer-assisted learning in enhancing badminton skills and overall learning experience in primary school physical education.

Results

The researcher brought the test data to prepare for analysis by using a computer program and interpret the results to meet the objectives is a table composed of compositions that have the following.

1. To study the effects of peer-assisted badminton teaching selected course to improve learning outcomes in primary school students

2. To compare the effects of learning outcomes between the pretest and post-test

Collect basic information about test students and make statistics.

Table 1 The characteristics of the students (N=40)

Variables	Mean+SD
Sex (male /female)	72.50% (29) / 27.50% (11)
Age (year)	11.13 + 0.79
Height (cm)	145.70 + 8.88
Weight (kg)	18.06 + 1.89
BMI	19.06 + 1.99



The table shows the mean and standard deviation for age (years), height (cm), weight (kg), and BMI were equal to 11.13 ± 0.79 years, 145.70 ± 8.88 cm, 18.06 ± 1.89 kg, and 19.06 ± 1.99 respectively.

Before the experiment, a badminton skill test was conducted. After the teaching and experiment, a second test was conducted to collect data for statistics.

Table 2 Mean and standard deviation of Forehand deep high service, Forehand high clear, Forehand drop shot, Forehand wall rally, Backhand wall rally test.

Variables	Pretest	post-test
	Mean+ SD	Mean+ SD
Forehand deep high service skill (score)	11.26 + 2.59	16.00 + 4.03
High ball skill (score)	3.95 + 1.15	5.90 + 1.65
Drop Shot skill (score)	4.60 + 2.47	8.35 + 3.02
forehand-wall skill test (score)	7.07 + 2.23	9.88 + 2.62
backhand-wall skill test (score)	9.63+ 2.43	13.28 + 2.95

Table show that pretest and post-test of Forehand deep high service skill ($11.26+2.59$ and $16.00+4.03$ score), Highball skill ($3.95 + 1.15$ score and $5.90 + 1.65$ score), Drop Shot skill ($4.60 + 2.47$ score and $8.35 + 3.02$ score), forehand-wall skill test ($7.07+2.23$ and $9.88 + 2.62$ score) and backhand-wall skill test ($9.63+2.43$ score and $13.28+2.95$ score) respectively.

Before the experiment, a badminton skill test was conducted. After the teaching and experiment, a second test was conducted to collect data for statistics.

Table 3 The mean comparison between the pretest and post-test of badminton skill by t-test dependent (N=40)

Variable	Tests	Mean + SD	D	df	t	p
Forehand deep high service skill	Pre-test	11.13 + 2.59	4.88	39	10.66	.01*
	Post-test	16.00 + 4.03	4.88	39	10.66	.01*
Forehand Forehand high clear skill	Pre-test	3.95 + 1.15	1.95	39	10.69	.01*
	Post-test	5.90 + 1.65	1.95	39	10.69	.01*
Forehand drop shot skill	Pre-test	4.60 + 2.47	3.75	39	9.09	.01*
	Post-test	8.35 + 3.02	3.75	39	9.09	.01*
Forehand wall rally	Pre-test	7.08 + 2.23	2.80	39	10.00	.01*
	Post-test	9.88 + 2.62	2.80	39	10.00	.01*
Backhand wall rally	Pre-test	9.63 + 2.43	3.65	39	11.43	.01*
	Post-test	13.28 + 2.95	3.65	39	11.43	.01*

*p< .05





The table showed that the Forehand deep high service test, Forehand Forehand high clear test, Forehand drop shot test, Forehand wall rally test, and Backhand wall rally test all variables had significant differences (* $p < .05$)

After the completion of the test, a satisfaction survey was conducted on the students. The questionnaire survey method was adopted to collect the feedback data of the students' research on this course for analysis.

Table 4 The mean comparison of satisfaction survey on peer-assisted badminton course teaching between pretest and post-test by t-test dependent (N = 40)

Variables	Open-ion	Satisfaction
	Mean+SD.	
1. Students like to learn badminton skills with skilled partners	2.70 + 0.46	Very satisfied
2. Through the teaching of Buddy technology, students are enthusiastic, interested, and determined to learn badminton technology	2.63 + 0.49	Very satisfied
3. Students prefer badminton skills training with partners	2.70 + 0.46	Very satisfied
4. Students like to learn badminton skills with skilled partners	2.68 + 0.47	Very satisfied
5. Students like to learn badminton skills with skilled partners	2.70 + 0.46	Very satisfied
6. Through the teaching of Buddy technology, students are enthusiastic, interested, and determined to learn badminton technology	2.73 + 0.45	Very satisfied
7. Students prefer badminton skills training with partners	2.63 + 0.49	Very satisfied
8. Students learn the basic knowledge of badminton with a buddy	2.70 + 0.46	Very satisfied
9. Students learn and train badminton skills based on their buddies, making them alert, energetic, and healthy	2.73+ 0.45	Very satisfied

* $p < .05$

The table showed that all variables had a significant difference (* $p < .05$). The average score post-test of all variables was higher than the pretest.

Conclusion

The objectives of this research were:

1. To study the effects of peer-assisted badminton teaching selected course to improve learning outcomes in primary school students
2. To compare the effects of learning outcomes between the pretest and post-test

Methodology: The sample consisted of 40 students from simple random sampling in five badminton classrooms, examined through pretest and post-tests Forehand deep high service skill, Forehand high clear skill, drop shot skill, forehand skill, backhand skill, and satisfaction survey on peer-assisted badminton course teaching. The experiment was conducted by following the peer-assisted





badminton teaching selected course, 10 weeks duration. Then the data were prepared and analyzed statistically with a packet computer program to compute the mean and standard deviation and compare teaching achievement using a t-test dependent. (* $p < .05$)

Results:

1. The effects of peer-assisted in badminton teaching selected courses to improve learning outcomes were found in the pretest and post-test of Forehand deep high service skill (11.26+2.59 and 16.00+4.03 score), Forehand high clear skill (3.95 + 1.15 score and 5.90 + 1.65 score), drop shot skill (4.60 + 2.47 score and 8.35 + 3.02 score), forehand-wall skill test (7.07+ 2.23 and 9.88 + 2.62 score), and backhand-wall skill test (9.63+ 2.43 score and 13.28 + 2.95 score), respectively.

2. The mean comparison between the pretest and post-test of badminton skills found that long sever skill test, highball skill test, drop shot skill test, forehand wall test, and backhand wall test, all variables had significant differences (* $p < .05$). The average score post-test of all variables was greater than the pretest.

3. The mean comparison of the satisfaction survey on peer technique in badminton course teaching between the pretest and post-test found that all variables had a significant difference (* $p < .05$). The average post-test score of all variables was greater than the pretest.

Discussion

The effectiveness of peer assistance in improving learning outcomes in badminton skills was found in several studies. Franco Álvarez et al. conducted a quasi-experimental study and found that the integration of technology-based learning (TBL) in physical education significantly increased students' badminton-specific motor skills (Álvarez, E.F. 2023). Muhammad found that using a student-centered approach in the online teaching of badminton improved students' practical skills (Fadel, 2023). Kuo Chin Lin et al. proposed a badminton teaching-assisted system (BTAS) that utilized a machine learning model to assess the correctness of students' swing movements and muscle strength, resulting in a significant improvement in swing techniques (Kuo, et al, 2023). Kamaruddin et al. implemented a distributed practice learning model using audiovisual media and found a significant improvement in students' basic technical skills in badminton (Ilham, et al, 2020). Suryadi et al. conducted classroom action research and found that problem-based learning improved students' forehand deep high service skills in badminton (Suryadi, et al, 2023). Therefore, the use of peer assistance in badminton teaching has been shown to improve learning outcomes in badminton skills in various contexts.

The study's results lead to several important suggestions for enhancing the teaching of badminton in primary schools, particularly through the application of peer assistance. For educators, there is a clear opportunity to embrace this innovative teaching method. Incorporating peer assistance into the curriculum could revolutionize the way physical education is taught, by not only improving badminton skills but also by nurturing essential life skills such as teamwork, communication, and peer support. Teachers should be encouraged to focus on peer learning and be provided with the necessary training and resources to effectively implement these methods.

Policymakers, on the other hand, play a crucial role in facilitating this educational shift. They should consider revising physical education curricula to include more interactive and student-centered learning approaches, such as the peer Technique. Allocating adequate resources and support to schools for this purpose is essential.





Furthermore, investing in research and development within the field of educational innovation in physical education can lead to continual improvements in teaching practices and learning outcomes. Looking towards future research, there is a need to expand the scope of the investigation. Studying the application of peer-assisted across various sports and educational contexts can provide insights into its adaptability and effectiveness in different settings. Long-term studies are also essential to understand the sustained impact of this approach on student development and learning. Additionally, examining the effectiveness of the peer-assisted in different cultural contexts can provide a more comprehensive understanding of its global applicability.

In conclusion, peer-assisted has shown significant potential to enhance the quality of badminton teaching in primary schools. By adopting this method, educators can foster a more engaging and interactive learning environment. For policymakers, supporting such innovative teaching methods is crucial for the advancement of physical education. Lastly, future research in this area can expand our understanding of the technique's broader applications and long-term benefits.

Recommendation

Integration of peer support techniques

This study highlights the positive impact of peer support techniques on developing various badminton skills among elementary school students. It is recommended that physical education teachers and curriculum developers consider integrating peer-to-peer techniques into their teaching methods. This may involve a combination of activities with structured peer support, where students work together to practice and refine their badminton skills. This collaborative approach not only improves skills; But it also promotes a supportive and engaging learning environment.

Focus on specific skill training

Significant improvements observed in specific badminton skills, such as deep, high forehand serves. High clarity from the forehand, short shot, forehand wall, and the backhand wall. Targeted skill training has been shown to be effective. Educators should focus on designing lesson plans that emphasize the development of these skills through a combination of individual and peer support activities. Tailoring instruction to address the specific challenges associated with each skill can help elementary students develop more comprehensive skills.

Continuous Evaluation and Feedback

The results indicate that satisfaction levels increased significantly among students who participated in the peer-assisted badminton tutoring course. To create this positive outcome, it is recommended that educators continue to evaluate and gather feedback on the effectiveness of peer support techniques. Periodic assessments and surveys can help identify areas for improvement and ensure that teaching methods remain engaging and useful for students. This process of continuous evaluation can lead to refinement and enhancement of peer teaching strategies in the context of badminton education.





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