

Experimental research on the application of fast tennis in universities

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Abstract: With the continuous development of the education system and curriculum reform, especially the implementation of the "double reduction policy" and the increase in physical education scores in the high school entrance examination, sports are receiving more and more attention from the country. Tennis, as an elegant and influential sport, has attracted a growing number of college students in colleges and universities, with an increasing participation rate in tennis courses. Due to the shortage of tennis facilities, it has been challenging to adjust the traditional tennis teaching approach to keep up with the rapid advancements in teaching methods. Many college students have poor physical fitness and prefer practical courses and flexible teaching methods, whereas traditional teaching methods are considered relatively simplistic and dull. Most teachers adopt the teaching method of explanation, practice, and correction. Students' lack of independent thinking habits is not conducive to the classroom and leads to a significant reduction in students' enthusiasm for learning tennis. Quick and easy tennis is taught by narrowing the court and incorporating various tennis techniques. It is different from the traditional tennis teaching method. Targeted training, fast tennis is widely used in various tennis schools and clubs. It is an effective mode to enhance the quality of tennis teaching but is rarely utilized in colleges and universities. This paper utilizes mathematical statistics, logical analysis, literature data, and experimental teaching methods to introduce the "fast and easy tennis" teaching approach to the public tennis class at Henan Polytechnic University. By using SPSS, the following conclusions are drawn from the experiments: combining the benefits of a fast tennis teaching method with those of a traditional teaching approach, and leveraging the interplay between cooperation and competition in tennis, can enhance students' communication skills, foster a conducive learning environment, and ultimately enhance their tennis skills.

Keywords: quick and easy tennis; teaching methods; tennis lessons

1. Introduction

This paper utilizes the fast tennis teaching method to conduct experimental research in colleges and universities. On one hand, the traditional tennis teaching method and the fast tennis teaching method are compared to identify their shortcomings, advantages, and similarities. By combining the two approaches, a more effective teaching method can be developed. On the other hand, some students who enjoy tennis can have more fun playing the sport, assist beginners in learning basic skills more easily, and enhance the popularity of tennis.

As one of most popular famous sports in the world, tennis is significant combination of artistry ornamental competitiveness. With the improvement and development of China's economy, such as Li Na winning the French Open women's singles championship in 2011, the influence of tennis in China increased significantly, leading to the emergence of a large number of Chinese tennis enthusiasts. The general public is enthusiastic about tennis, and there is a growing demand for tennis courses among college students. The research investigated college students' interest in tennis and found that more than half of college students really like the sport. Additionally, an analysis of university students' course selections revealed that over 90% of students choose tennis as their first preference. This indicates that college students have a very high level of enthusiasm for participating in tennis^[1].

"Fast and easy tennis" aims to streamline the field by offering various types of tennis training, allowing beginners to quickly and effectively master the technical movements of tennis. "Fast Easy Tennis" introduces a new concept that utilizes simple methods to help beginners quickly and effectively master basic tennis techniques in an entertaining atmosphere. The fast and easy tennis teaching method involves beginners simply hitting the ball to each other and practicing serving right from the start. The innovation aims to shorten the length of the tennis court, thereby reducing the force of the tennis ball,

which in turn enhances the ball's flexibility. Through continuous tennis practice, students can identify their own challenges in collaboration and competition, as well as assist beginners in swiftly acquiring tennis skills and enhancing their playing proficiency. However, despite the late start of our country's tennis course, most colleges and universities have adopted a single traditional teaching method, resulting in the fast and easy tennis teaching method being rarely utilized in teaching.

2. Literature review

2.1 Concept definition

Fast Tennis is the Play and Stay program promoted globally by the International Tennis Federation in the early 21st century. As a brand new teaching concept, the core idea of "easy to learn + happiness" is central to the teaching approach of "fast and easy tennis." Through the improvement and innovation of the field and equipment, students can enjoy tennis more easily and enter the sport happily. Simultaneously, this approach can effectively address the issue of a large number of classes and limited venues^[2].

2.2 Domestic research status

2.2.1 Domestic research on physical education teaching methods

Starting from the current situation of teaching method research, Cao Keishu compared traditional teaching with modern teaching methods and concluded that modern teaching methods should align with contemporary educational concepts. He emphasized that teaching should be continuously innovated to adapt to the development of each student^[3].

Peng Yuequn's experimental research on teaching method optimization indicates that students are the primary participants in the teaching process and the main learners. Teachers lead the classroom, engaging students as the primary participants to enhance the classroom atmosphere, modify teaching methods, enhance the effectiveness of teaching, and boost students' critical thinking skills^[4].

Yang Suyu proposed that to achieve the teaching goal, teachers and students should utilize a variety of teaching methods, means, and approaches known as physical education teaching methods. These methods outline key concepts for reforming physical education teaching in China, aiming to enhance teaching concepts, elevate the quality of education, and increase students' learning efficiency^[5].

In China, there are numerous experts and scholars specializing in physical education teaching methods, and their comprehension of these methods is detailed and clear. However, most of these research findings are applicable to traditional teaching methods aimed at enhancing students' physical fitness and basic technological skills. The lack of students' enthusiasm and interest in learning, with an emphasis on the teacher as the central figure in the classroom, the form of attention, and the unity of structure, is not conducive to improving the effectiveness of the classroom and the long-term development of students.

2.2.2 Domestic research on "Fast and Easy Tennis"

In the study of the Application of Quick Tennis in Youth Tennis Club Teaching, Fang Bin et al. found that the teaching method has not been widely used in youth training. They combined the advantages of Quick Tennis and proposed measures to improve this situation.^[6]

Lin Juan believes that the teaching concept of fast and easy tennis can be inspired by the teaching methods used in college tennis. This approach can not only enhance the reform of college tennis courses but also boost students' interest in learning tennis and cultivate awareness of lifelong physical education^[7].

Zhou Feng, Li, and others discuss the theory of "fast" tennis, illustrating its teaching characteristics, advantages, theoretical basis, etc. This paper highlights that foreign universities do not prioritize "fast" as the main teaching method. However, the concept of "fast" has been integrated into teaching practices^[8].

In conclusion, after examining the literature on domestic fast tennis, numerous articles focus on the teaching of fast tennis. However, there are few feasibility studies on speed tennis in colleges and universities, and the teaching method of speed tennis has not been implemented in colleges and universities. This paper will study the traditional teaching method and the fast tennis teaching method,

as well as the current status of foreign research.

2.2.3 Foreign research on physical education teaching methods

The core of physical education in Japan is "happy sports," which conveys optimism to students during physical education. This approach involves an extreme attitude and the use of relaxed and joyful teaching methods, influencing students' perspectives on physical education. Let the students realize that physical education is an active and enjoyable activity, rather than a difficult and tedious physical labor^[9].

Spencer proposed the theory of "happy teaching," suggesting that the goal of education is to teach people how to lead a happy life. He opposed literature education and advocated for science education. He believed that the teaching process should be active, not passive and mechanical. Teaching activities should be carried out with innovative consciousness and behavior by physical education workers.

It can be observed from numerous foreign educational publications that teaching philosophies abroad differ significantly from those in China. Domestic education places excessive emphasis on the role of teachers, focusing on a standardized teaching approach, while overlooking the significance of students as the primary learners. Foreign teaching emphasizes students' emotional well-being in the classroom and does not prioritize athletic achievements. Physical education teaching is not only reflected in the classroom but also in cultivating students to enjoy learning tennis, emphasizing the development of lifelong tennis skills, and promoting an "active sports" mindset.

2.2.4 Foreign research on "Fast and Easy tennis"

In the article "Kuaiyi Tennis Teaching Method in Tennis Sports Colleges Teaching Research on the Application," the development of sports tennis teaching in foreign schools is based on the individual differences of students. The design is comprehensive, offering diversified tennis teaching according to the varying needs of students. The tennis teaching is tailored to develop different tennis talents, ensuring that tennis meets the psychological and physical needs of students. Simultaneously, it aims to enhance physical health. Germany has been utilizing the club to train students to teach tennis on campus and to develop tennis players who can instruct primary and middle school students. The fast and easy tennis teaching method introduces a novel approach to tennis instruction, offering a unique and systematic teaching method. The reform aims to enhance the field and facilitate the development and study of tennis.

Research in foreign literature shows a deeper exploration of fast tennis teaching abroad, focusing primarily on court transformation and tennis equipment selection. This approach is widely adopted for primary and middle school students but is less common in colleges and universities. By examining the development of fast tennis in foreign universities, a suitable path for its advancement can be identified. Experimental research and analysis can be conducted to assess its feasibility and to enhance the progress of tennis education.

3. Study Subjects and Research Methods

3.1 Study Subjects

The research subjects of this paper mainly consist of students who enroll in the public tennis courses at Henan Polytechnic University.

3.2 Study Methods

3.2.1 Literature Review and Data Collection Method

In the research process, "fast and easy tennis" and "teaching methods" were searched in the Wanfang, Supernova database, and CNKI. Sixty-five journals on fast and easy tennis teaching methods were found on CNKI, out of which 16 were chosen as the main focus.

3.2.2 Mathematical and Statistical Methods

The experimental results data from the experimental and control classes were analyzed using independent samples testing. The quantitative study was conducted using SPSS software in accordance with statistical theory.

3.2.3 Logical Analysis Method

Through the literature review method and input from relevant teachers, the data is statistically analyzed. The information is then examined through a series of studies using induction and analogy, leading to the final results.

3.2.4 Experimental Method

In order to conduct experimental research on the application of a rapid tennis teaching method in colleges and universities, ordinary college students enrolled in the tennis course were selected from Henan Polytechnic University. The research sample consisted of 12 boys and 8 girls. After completing 10 courses, the experimental results were tested based on the experimental indicators.

(1) Subjects

This study focused on 12 male and 8 female students who chose the tennis course as the research subjects. After the survey, 20 students had not participated in tennis activities before. These 20 students were randomly divided into experimental and control classes, with each class consisting of 6 boys and 4 girls.

(2) Experimental teacher

Both the control class and the experimental class have the same teacher.

(3) Experimental Equipment

Special pressure balls are available in different levels of firmness: red (25% softer than the standard yellow pressure ball), orange (50% softer), and green (75% softer). Additionally, standard yellow tennis balls, rackets, sensitive rings, soft nets, tapes, etc., are also included.

(4) Experimental Time

From March 2022 to May 2022, there are 10 weeks with one class per week, each lasting 110 minutes. The classes are scheduled for the second section on Tuesday mornings for the experimental class and the second section on Wednesday mornings for the control class.

(5) Experimental Site

No. 1-5 West Tennis Court. Experimental control factors.

In order to ensure the scientific rigor and accuracy of the experiment, the teaching hours, venues, and progress of the two classes are kept consistent, and control factors such as temperature, weather, and other influencing variables are also standardized.

Experimental Design Method

Two classes were defined as Class A and Class B. Class A adopts the fast and easy tennis teaching method as the experimental group, while Class B adopts the traditional tennis teaching method as the control group. In addition to varying teaching content, other factors such as warm-up time, rest time, external weather, and practice intensity remain consistent.

(8) Experimental content

The traditional teaching method is based on standard court field and training (i.e., e., green ball). The teacher demonstrates the action, the students imitate the action, and then progress from basic movements without the ball to using the ball. Playing practice begins once a certain level of movement is achieved.

A fast and easy tennis teaching method involves enhancing the equipment and court, utilizing various types of tennis balls (such as red, orange, yellow, and green), to facilitate learning and experiencing technical actions through practical play.

The experimental class employs the fast and easy tennis teaching method, while the control class utilizes the traditional teaching approach. In addition to the varying teaching contents, other aspects such as the warm-up period before class, break times, practice intensity, etc., remain consistent.

(9) Post-experiment test content

After the experiment, the test content is conducted in accordance with the requirements of the International Tennis Federation ITN Assessment Manual published by the International Tennis Federation. The test indicators include the bottom line forehand and backhand depth test, bottom line

forehand and backhand accuracy test, and serve accuracy test.

4. Analysis and Discussion

4.1 Comparative Analysis of Bottom Line Hitting Depth between Experimental Class and Control Class

(1) Comparative analysis of the forehand and backhand hitting depth on the baseline.

In tennis, hitting shots deep along the baseline is crucial as it can effectively put pressure on the opponent. The significance of this strategy is undeniable. So, the depth of hitting the ball is an important aspect of the tennis teaching experiment and evaluation.

Table 1: The depth of forehand and backhand

classes and grades in school	number of times	Forward and backhand (M ± SD)	stability (M±SD)	T	P
experimental class	10	26.4±6.349	8.00±0.954	3.589	0.031
Control class	10	21.5±3.578	5.42±0.667		

As shown in Table 1, the average score for the forehand and backhand bottom line depth test in the experimental class was 26.4, whereas in the control class, the average score was 21.5. The p-value was 0, which is less than 0.05. significant. In the teaching experiment, it was found that the experimental class showed significant improvement in ball skills at the outset through collaborative activities involving bouncing and hitting the ball. In the test, the ball was smooth, and it had sufficient strength and speed, resulting in a deep ball depth. However, the students in the control group initially show a strong interest in learning, starting from learning how to break down movements to mastering complete movements. The focus is on mastering basic movements, but the time spent on imitation is excessive, resulting in a significant decrease in their learning interest. In the test, although the hitting action is relatively standard, it is not smooth enough. The movement is too stiff, the speed of the head is not fast enough, and there is not enough power to hit the ball with sufficient force, resulting in shallow ball depth.

(2) Comparative analysis of the depth stability of the forehand and backhand groundstrokes

In most amateur tennis matches, the outcome largely depends on the number of mistakes made by both players. If one player makes fewer mistakes, their chances of winning are higher. Whether a player can perform at a normal level depends on the stability of the depth of their tennis forehand and backhand. Therefore, the consistency of the depth of the forehand and backhand baseline is crucial.

4.2 Comparative analysis of the bottom line hitting accuracy test between the experimental class and the control class

(1) Comparative analysis of the accuracy of forehand and backhand bottom line shots

In amateur tennis, it is crucial to control the accuracy of the tennis shots. The accuracy of ball placement can effectively control the opponent, dictate the rhythm of the game, and ultimately lead to victory. So, the accuracy of the baseline shot is also an important assessment criterion.

Table 2: Precision score of forehand and backhand baseline shots

classes and grades in school	number of times	Forward and backhand (M ± SD)	stability (M±SD)	T	P
experimental class	12	24.58±4.15	7.41±1.297	6.151	0.041
Control class	12	16.83±2.87	5.87±1.431		

As shown in Table 2, the average score for forehand and backhand bottom line accuracy in the experimental class is 24.58, while in the control class, it is 16.63. The p-value was 0.041, which is less than 0.05. The significant difference indicates that the experimental class outperforms the control class in terms of the accuracy of the front and backhand bottom line. In the teaching of the Fast Easy Tennis Method, two individuals will focus on the ball's trajectory and strategize on increasing the number of

successful hits to accomplish the task within the specified parameters. The control of the bottom line strike was subtly enhanced, resulting in good accuracy during the positive and backhand bottom line strike tests in the experimental class. In traditional teaching methods, students tend to focus more on the technical correctness of movements, resulting in incomplete movements and weak control of the baseline shot. As a result, the accuracy of the forehand shot in the experimental class is superior.

(2) Comparative analysis of the accuracy and stability of forehand and backhand baseline shots. The stability of the baseline shot accuracy of the forehand and backhand refers to the ability to control the opponent's position on the baseline according to one's own will, creating opportunities for personal attacks and mastering the game's rhythm. The stability of accuracy in both the forehand and backhand baselines in the game determines whether a player can master the rhythm of the game and control the direction of the score.

As can be seen from Table 2, the average accuracy score in the experimental class is 7.41, while the average scores for forehand and backhand bottom line accuracy in the control class are 5.87. In terms of the accuracy and stability of the forehand and backhand baselines, the experimental class outperforms the control class. In the course of practice, the experimental group can regulate the strength and direct the ball to a favorable position for the opponent, focusing on controlling the height over the net and the impact force. Therefore, the accuracy of the forehand and backhand baselines is more stable in the test. The control class, according to traditional tennis teaching methods, focuses on tennis multi-ball training. In this training, students simply hit the ball back based on feeling, resulting in a lack of ball control awareness and stable technical movements.

4.3 Comparative Analysis of Service Accuracy Test Between Experimental Class and Control Class

(1) Comparative analysis of serve accuracy

The tennis serve is the most difficult and important technique in tennis. It is the only technique that is not influenced by diplomatic interference. At the start of each point, the quality of the serve significantly influences the course of the match, as a strong serve can directly lead to scoring. The tennis serve is a crucial aspect of the tennis game.

Table 3: Points of service accuracy

classes and grades in school	number of times	Service score (M ± SD)	stability (M±SD)	T	P
experimental class	10	27.36±5.23	7.72±1.512	5.724	0.013
Control class	10	20.15±3.214	5.21±0.931		

As shown in Table 3, the average accuracy of the experimental class was 27.36, while the average accuracy of the control class was 20.15. The P-value was 0.013, which is less than 0.05. There is a significant difference. The teaching method of fast tennis in the experimental class started to introduce the upper serve early. In order to win the match, the students will consider the position of the serve, unconsciously enhancing the serve's hit rate during the game. In traditional tennis teaching methods, the control class typically begins serving practice by breaking down the technique into smaller components before progressing to the full serve. While this approach emphasizes technical precision, excessive mechanical imitation can diminish students' interest in learning and dampen their enthusiasm for tennis. The use of decompression balls in experimental classes often results in greater confidence compared to control classes.

(2) Comparative analysis of service accuracy and stability

The stability of the tennis serve is crucial. The stability of the tennis serve can effectively control the rhythm of the game, allowing players to take the initiative in serving and ultimately win the match.

As can be seen from Table 3, the average score for the service accuracy stability of the experimental class is 7, while the service stability of the control class is 5. This indicates that the service accuracy stability in the experimental class is superior to that of the control class.

4.4 Comparative analysis of the total score of the ITN test

The total test score is the sum of the scores of the bottom line depth test, the bottom line accuracy test and the upper serve accuracy test.

Table 4: The ITN test scores

classes and grades in school	number of times	Total score (M ± SD)	T	P
experimental class	10	112.23±12.213	8.921	0.592
Control class	10	102.45±11.231		

As can be seen from Table 4, the mean score of the ITN test in the experimental class was 112.23, while in the control class it was 102.45. In the previous tests, the results of the forehand bottom line depth test and forehand bottom line accuracy test were better than those of the control group. In the teaching experiment, the traditional teaching method involves learning the movement first and then engaging in simulation practice, whereas the fast tennis teaching method emphasizes learning movement techniques while playing ball. Traditional tennis teaching methods need to transition from individual shot instruction to multi-ball practice, which can be a time-consuming process. Students are full of interest and enthusiasm in the early stages, but over time, their enthusiasm for learning tennis will greatly diminish. The fast tennis teaching method of the experimental class involves progressing from individual play to doubles cooperation, from cooperative competition to actual practice. This process transitions from easy to difficult.

5. Conclusion and recommendations

5.1 Suggestions

(1) After conducting a comparative analysis of the data post-experiment, it is evident that the impact of the fast and easy tennis teaching method in tennis instruction is quite significant. However, due to the limitations of the site and my own ability, the number of samples selected is too small. I aim to establish a foundation for future research and prevent errors resulting from insufficient data. Moreover, the two methods can be combined to further enhance the teaching approach.

(2) Ordinary college students' physical fitness is often poor, so they should use decompression balls more frequently during early training, reserving the regular balls for later use.

(3) We should fully utilize the relationship between tennis cooperation and competition. This can help students improve their communication skills, create a conducive learning environment, and better promote students' development in both competitive and cooperative settings.

5.2 Conclusion

(1) Compared with the traditional teaching method, the fast tennis teaching method can significantly enhance the depth and accuracy of college tennis players' baseline forward and backhand shots, as well as the precision of their overhead serves.

(2) The fast tennis method, in terms of students' emotional experience, obviously differs from the traditional teaching method. This is mainly evident in the students' enthusiasm in class, independent inquiry, subjective initiative in experimental classes, learning atmosphere in class, interest in class format, enthusiasm for participation, and class management. There are significant differences between the two methods.

(3) A fast and easy tennis teaching method is conducive to cultivating students' sense of competition, improving their initiative and enthusiasm in class, and enhancing their willingness to play tennis.

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References

[1] Yu LiRong. *Research on the value Mining of college Tennis Sports and the Growth of College Students* [M]. Beijing: China Water and Hydropower Press, 2017.

- [2] Guo Yanhan. *Research on the application of tennis in sports school [D]*. Guangzhou Institute of Physical Education, 2021.
- [3] Cao Keshu. *How to innovate the school PE teaching method in the new period [J]*. Hubei Sports Science and Technology, 2011, (4): 5-46.
- [4] Peng Yuequn. *Experimental study on optimization of basketball shooting technology in Physical Education Department [D]*. Hunan University of Science and Technology, 2009.
- [5] Yang Shouyu. *Research on the reform trend of PE teaching methods [J]*. Examination Weekly, 2010, (5): 13-14.
- [6] Fang Bin, Zhou Xuejun, Chen Juan, Wang Xu. *Research on the application of Quick and Easy Tennis in Youth Tennis Club Teaching [J]*. Contemporary Sports Technology, Issue 3, 2013.
- [7] Lin Juan. *The enlightenment of fast tennis for college girls [J]*. Youth Sports, 2016 (12): 94-95 + 59.
- [8] Zhou Feng, Li Mingzhi, et al. *On the fast and easy tennis ball [J]*. Journal of Huaibei Coal Normal University (Natural Science Edition). 2009, 7: 93-96.
- [9] Karen Lin. *Investigation on the status of China DancesSport Open [D]*. Beijing Sport University, 2017.
- [10] Yao Jing. *Application Research of "Quick and Easy" Teaching Method in Tennis Teaching in Physical Education College [D]*. Jilin Physical Education University, 2014