

# Research on Heuristic Teaching in Tennis Teaching in private universities abstract

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**Abstract:** The reform of tennis curriculum in college and universities has been constantly explored. This paper comprehensively uses the methods of heuristic teaching method, expert interview method, questionnaire survey method, experiment method and mathematical statistics method to study the influence of heuristic teaching method in tennis courses in private universities. In this paper, two different teaching methods are used to teach the experimental group and the control group, and to compare the subjective experience and attitude of the experimental group and the control group towards physical exercise. In addition, the experimental group and the control group analyzed the degree and the difference of physical quality after the experiment, and the influence of heuristic teaching on tennis positive and negative racket teaching was explored.

**Key words:** heuristic teaching, tennis teaching, teaching reform

## 1. Introduction

Since the 2004 Athens Olympic Games when the Chinese girl won the gold medal in doubles, China has made great achievements in competitive tennis. In the 2022 international women's tennis rankings, China's golden star zheng qinwen has reached the last eight of the women's singles at the WTA1000 tournament, and zhang shuai has reached the second place in the women's doubles world at the Toronto tournament. The development of competitive sports inevitably affects the rapid development of mass sports in China. The research of tennis related in our country started relatively late, the research of tennis sport is only in the last 20 years, there has been a step forward in the development. In the college tennis teaching, most of the teaching methods only focus on improving the technical level and the degree of mastery of the technical action, but ignore the repetitive boring action so that students produce slack mood. Let the newness of the beginning of learning disappear, so that the original love of the sports project produced a reverse psychology, there is ideological rejection. This requires that we can work hard from emotional teaching, continue to inspire students' interest in learning and learning methods, and guide students to develop in a positive direction, so often will get twice the result with half the effort. Interest is the best teacher, with interest there is the power of learning, teaching quality is naturally improved.

## 2. Research objects and methods

### 2.1 The research object

A total of 100 students of grade 21 in Zhanjiang University of Science and Technology were randomly selected and divided into experimental group (50) and control group (50). Two groups of students were evenly split between men and women. The research of this paper is applicable to the students of private colleges and universities in the tennis class back and forward stroke ball technology.

### 2.2 Research Methods

#### 2.2.1 Method of documentation

Consult a large number of relevant journals at home and abroad, find the relevant tennis teaching methods and tennis teaching reform and training ideas and other literature materials, for the heuristic teaching in independent colleges and universities in tennis teaching research to lay a good theoretical foundation.

#### 2.2.2 Interview method

Through interviews, interviews and telephone interviews, experts in the field were consulted and discussed and exchanged views with them on these issues so that the teaching experiment could be carried out smoothly.

#### 2.2.3 Questionnaire survey method

In the form of questionnaire survey, the experimental subjects were given questionnaires for investigation, and the recovered questionnaires were statistically analyzed. There were two questionnaires, including subjective exercise Experience Scale and Sports Attitude Scale.

#### 2.2.4 Experimental method

This project set up experimental group and control group, using heuristic teaching method and traditional sequential teaching method respectively.

#### 2.2.5 Method of mathematical statistics

SPSS 20.0 software was used to compare and analyze all experimental data between the experimental group and the control group to

ensure the validity of the experimental results.

### 3 Experimental results and analysis

#### 3.1 Comparison of post-experimental subjective experience differences between the control and experimental groups

Because we in the experiment and control before the start of the experiment statistical group, compared the two groups, to ensure that the experimental group and the experiment before no obvious systematic difference, to ensure that the level of the two groups is consistent, so on the two groups after the subjective experience of the test data comparison analysis, can show the difference between the two is meaningful.(Table 1).

**Table 1 Comparison of the subjective experience of the students in the control group and the experimental group after the teaching experiment**

	Happiness experience	Trouble degree	Fatigue degree
control group	4.56(.33)	4.78(.58)	3.27(.45)
experimental group	6.98(.37)	4.55(.32)	2.16(.25)
T checkout	35.70**	2.506*	4.973**

The results obtained from the data analysis can be seen that the experimental group and the control group have some differences in the degree of annoyance ( $t=2.506$ ,  $P < 0.05$ ). Although the difference is not big, it also shows that the heuristic teaching method has a certain effect on the degree of annoyance. In terms of well-being and fatigue, there were very significant differences between the experimental and control groups ( $t=35.70, 4.937$ ,  $P < 0.01$ ). Therefore, the heuristic teaching method is of great significance for the improvement of students' subjective experience.

#### 3.2 Comparison of different physical exercise attitudes between the control and experimental groups

After testing and analysis of the physical exercise attitude of the control group and the experimental groups, we found that the experimental group after implementing the heuristic teaching method was significantly enhanced ( $t$ -values were greater than 2.636,  $P < 0.01$ ). From the analyzed data, the statistics can see that the  $P < 0.001$  in these eight aspects besides the sense of behavior control, and it can be concluded that the experimental group students using heuristic teaching method have a significant effect in the sports attitude change after the experiment. The heuristic teaching method has great significance to the cultivation of students' sports consciousness.(Table 2).

**Table 2**

	behavioral habit	Behavioral attitude	Target attitude	Behavioral cognition	behavior disposition	Emotional experience	A sense of behavioral control	Subjective standards
control	36.43(6.31)	29.24(6.49)	41.31(5.98)	18.89(3.93)	21.45(6.81)	30.34(6.99)	29.81(6.63)	22.42(5.21)
experimental	42.75(5.68)	35.43(5.87)	50.22(5.42)	29.19(3.94)	31.66(6.79)	45.38(6.21)	33.47(7.03)	11.88(2.82)
T checkout	5.443**	4.982**	8.073**	13.531**	7.764**	11.761**	2.771**	-12.976**

#### 3.3 Comparison of forehand and backhand hits in the control and experimental group

Because when we grouped before implementing the teaching experiment, we explored the tennis level of the two groups and assigned the two groups reasonably, so comparing the tennis technology test and the physical fitness test after the experiment was effective.

Test method: strike at the wall. Students participating in the test stood 7 meters away from the practice wall, hitting the ball on the wall, using the tennis forehand and the backhand, and both kept hitting the ball for 30 seconds. The ball shall be controlled between the two horizontal lines of the practice wall, the first is the simulated tennis net height of 0.914 m above the ground; the second is the height limit line of 1.5 m above the net height. The teacher scored the hitting stability and control of the ball. Through this test, the experimental class and the control class can master the basic movement skills of tennis after the completion of the teaching experiment.

After the experiment, the experimental group and the control group were tested. The test comparison found that 13 students in the control group had the movement coordination standard in hitting the wall, while 35 students were in the experimental class.

**Table 4 Differences of positive and backhand hitting scores between the control and Experimental groups**

	forehand stroke	backhand
Control group (n=50)	8.95(2.95)	7.96(2.58)
Experimental group (n=50)	12.37(2.99)	10.28 (3.31)

T checkout	5.872**	4.011**
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It can be seen from the comparison chart of the difference between the results between the control group and the experimental group (3-7) that the experimental group with heuristic teaching did better in both forehand and backhand shots than the control group with traditional teaching method. It is also proved that heuristic teaching plays a certain role in promoting the implementation of teaching.

#### 4. Conclusion

In the public sports tennis teaching of private colleges and universities, the use of heuristic teaching method can change a variety of effective teaching methods to improve students' interest in learning; Through the application of emotional experience and other methods can make students establish a happy emotional experience, these good emotions on students' life, study, have a great impact. In tennis teaching, heuristic teaching is better than traditional teaching methods in terms of students' ability to master skills and the formation of skill level, classroom atmosphere and teaching quality. The main role of heuristic teaching in college tennis teaching is to intervene in students' learning ideas, guide students to establish positive cognition of sports, stimulate students' interest in learning, develop the habit of active learning, so as to improve the quality of learning.

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