

The Application Research of Flipped Classroom in Public Physical Education Teaching in Colleges and Universities

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Abstract: In recent years, with the development of education in China, the concept of "flipped classroom" has been introduced into the public sports teaching in colleges. The main purpose of this paper is to introduce the theory, method and effect of the flipped classroom into the public physical education in colleges and universities. Based on the teaching mode and its components, this paper first explores the basic theory of flipped classroom, and then analyzes the theory and method of the introduction of flipped classroom into public physical education in colleges. The teaching experiments demonstrate the effect of the introduction, and finally put forward the value, problems and suggestions of flipped classroom teaching in common colleges and universities. The research results of this paper have promoted the development of college PE teaching information, solved the contradiction between the unification and individualization of public PE teaching in colleges and universities, helped to unify the instrumental and humane features of public PE classes in colleges, actually implemented the guiding ideology of "health first", improving the physical education classroom effect.

Keywords: Flipped Classroom; Teaching Mode; Colleges and Universities; Physical Education; Online Teaching

1. Introduction

After the reform and opening up, the pace of teaching reform in higher education has never stopped. The new curriculum view, student view, teacher view, teaching material view, evaluation view and so on have formed the huge impact to the traditional teaching idea. The change of educational values and social demand for talents has become an important

factor to promote the deepening of the reform of higher education [1]. Although our country has carried out education teaching reform for many times, the basic form of university sports classroom teaching has not had the essential change. The traditional class teaching system is still in the leading position. The teaching model of Teacher teaching and students listening, which takes the teacher as center and ignores the students' subjective status has not been improved. Students' interest, hobbies, personality, psychology and innovation abilities have still not been effectively developed. The phenomenon that students like sports but do not like physical education is still prevalent. It can be seen that the traditional model of physical education has been unable to meet the current requirements of personnel training in China, and the drawbacks are more and more obvious [2-4]. The "Outline of National Medium and Long-term Education Reform and Development Plan (2010-2020)" promulgated in 2010 has pointed out the direction for the reform of physical education and teaching in Chinese colleges and universities. The "Outline" made it clear that we must take reform and innovation as a powerful driving force for education development and take quality improvement as the core task of education reform. Take moral education as the first priority, ability as the core and comprehensive development as the strategic theme of educational reform and development. When people are entering the information society of today, continuing to promote the reform of education and teaching situation, in order to adapt to the needs of society, improve personnel training mode, promote the development of general physical education teaching work faster and better, our country on College PE teaching reform will continue [5-7].

2. Research on Flipped Classroom

2.1 Research on Flipped Classroom at Home and Abroad

The results of Cheryl P. Talley's research show that the teaching mode of flipped classroom effectively increases students' classroom practice time by embedding the corresponding network technology into the teaching of the main course. Students eventually get better grades. Oiqara, James N., et al. studied the influence of flipped classroom teaching on student learning initiative. Through the teaching experiment, it is proved that this model has a good effect on improving students' learning initiative [8-10]. The value of this research mainly lies in the analysis of the influence of flipped classroom teaching modes on relevant abilities beyond knowledge and skills. The main purpose of turning the classroom is not just to promote students' knowledge and skills. This personalized teaching model also advocates the respect of individual differences in students, carries out individualized teaching of students, promotes students' learning initiative and, and promotes the development of students' comprehensive ability. Therefore, we can see that the evaluation of the effect of overturning classroom teaching mode can not be limited to the students' academic performance, but also should pay attention to the students' learning attitude, interest in learning, autonomy in learning and communicative ability, inquiry ability and social adaptability.

Flipped classroom is introduced to our country in 2011, and has gradually become the research hotspot of our education. From core papers on turning classrooms inquired in China National Knowledge Infrastructure (CNKI), there was only one in 2012, and 46 in 2013, 180 in 2014 and 310 in 2015. The research results show a rapid upward trend. On the whole, the domestic research on flipped class is mainly divided into three categories: comprehensive theoretical and practical research, theoretical and practical research in basic education, and theoretical and practical research in higher education.

2.2 Research on Flipped Classroom in Physical Education

The study of flipped classroom began in 2013 in the domestic sports community, and the literature of the study was also slightly

increased. "Flipped classroom", "flipped learning" and "inverted classroom" are the key words. Through the search of CNKI, we can see that as of March 2016, there are 27 studies on flipped classroom research related to sports, including 7 in 2014 and 20 in 2015, but only 3 core journals.

In 2015, Liu Bin studied the practice of flipped classroom teaching mode in the teaching of "PE and health" in junior high school, elaborated the research status of flipped classroom at home and abroad, introduced the theoretical basis of flipped classroom, The results of the experiment of "PE and health" classroom teaching in junior middle school are analyzed. The results show that the application of overturning classroom teaching mode in a short time is beneficial to improve students' performance of motor skills, enhance students' self-confidence, improve self-learning ability, optimize teaching process and improve teaching efficiency and quality.

In general, the research on flipped teaching in the field of physical education is still in its infancy. The breadth and depth of research is gradually increasing. The method of research is changing from logical reasoning to empirical research. The research results are constantly enriched. People are constantly exploring the value and method of using flipped teaching in PE teaching. Whether flipped classroom teaching model can be applied to the teaching of physical education, and how to build a flip teaching model applicable to physical education need further practice and argument.

3. Research on Teaching Modes of Flipped Classroom

3.1 Teaching Mode and Its Connotation

Teaching mode is the concrete teaching theory and educational practice experience summary, is a bridge between educational theory and educational practice. As a compelling problem in educational research, teaching mode is the first to be studied by American scholar Joyce et al. In 1972, Joyce and Weir proposed a definition of "Teaching Model Theory"; the teaching model is a plan and paradigm that forms the curriculum, chooses teaching materials and guides the teaching activities. Since the early 1980s, some scholars in our country began to study the teaching mode and define the connotation of the teaching mode.

Connotation mainly includes three aspects, as shown in **Figure 1**.

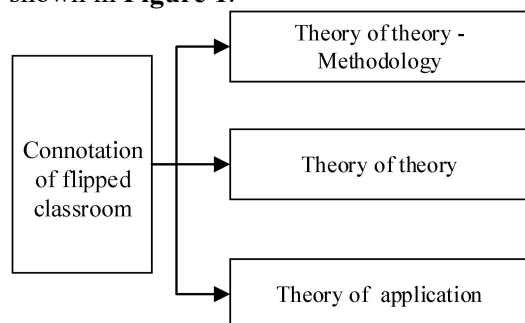


Figure 1: Connotation Constitution

(1) Theory of theory – Methodology. This view holds that the teaching model is not only a method and means, but also a theoretical operation paradigm.

(2) Theory of theory. The theory holds that the teaching model is the teaching theory formed after the sublimation of teaching practice experience.

For example, the teaching model is a simple form of expression of the design and organization of teaching theory.

(3) Theory of application. According to the theory, the teaching model is a standardized procedure formed under the guidance of certain teaching ideas to fulfill the prescribed teaching objectives.

It can be seen from the explanation that different teaching modes will appear under different teaching guiding ideology.

3.2 Elements of Teaching Model

Domestic scholars have different opinions on the elements of teaching mode. The composition of teaching mode in "Cihai" is divided into five parts: theoretical basis, teaching goal, teaching strategy and method, teaching procedure framework and teaching evaluation. Wang Wenjing believes that the teaching mode includes guiding ideology or theoretical basis, objectives, operating procedures, conditions for implementation, teaching strategies and evaluation of five aspects.

Comprehensive results of previous studies, combined with the understanding of their own elements of the teaching mode, the teaching mode consists of 7 aspects: teaching concept, theoretical basis, teaching objectives, teaching strategies and methods, teaching procedure, teaching condition and teaching evaluation. The theoretical basis is the premise and

foundation of the formation of teaching mode. Under the influence of the theoretical basis, teachers will form a certain educational philosophy, and will affect the subsequent teaching process. The establishment of teaching objectives will be influenced by teaching ideas. In order to achieve the teaching goal, it is necessary to formulate teaching strategies, select the appropriate teaching methods and establish teaching procedures. The teaching procedure is the concrete implementation step to complete all kinds of teaching objectives. The realization condition of teaching is the sum of all kinds of conditions to achieve the preset teaching goal. Teaching evaluation is the evaluation of teaching objectives and teaching process. The relationships among the elements are shown in Figure 2.

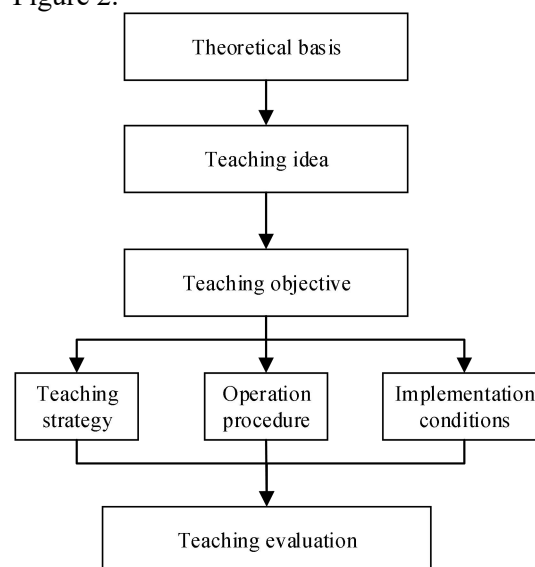


Figure 2: Components of Teaching Mode and The Relationship Between the Various Elements

4. Study on Flip Class in Public Physical Education in Colleges

4.1 Teaching Experiment

Teaching experiment in Flipped Class in Public Physical Education in Colleges is carried out. Through the horizontal comparison between the experimental group and the control group, the effect of flipped classroom teaching model in public physical education in ordinary colleges in our country and the difference of teaching effect with the traditional physical education teaching mode are tested. Explore the value, problems and

countermeasures of flipped classrooms in physical education so as to provide the basis for further popularizing of flipped classrooms in public physical education in Chinese colleges.

83 subjects in 2014 classes of Public Physical Education (volleyball) in a university are selected as experimental subjects. And they are divided into experimental group (using flipped classroom teaching mode) and control group (using traditional sports teaching mode) two groups. The number of the experimental group is 42, and after the withdrawal of 1 male student due to illness, the number of experimental group changes to 41 (29 boys, 12 girls). The number of control group is 42 (30 boys, 12 girls).

The online sports teaching system of Saike is chosen as the online sports teaching platform. The online teaching platform has such functions as online publishing of teaching resources (video and various learning materials), online testing, online job publishing, online discussion, online tracking of students' login times and time. QQ Group and WeChat Group as an online sports teaching support platform could improve the timeliness of online feedback and exchange. Use SPSS19.0 for statistical analysis of the experimental data to provide evidence for the difference between the experimental group and the control group in teaching effectiveness.

4.2 Experimental Results and Analysis

After the teaching experiment was finished, the volleyball technique of students in experimental group and control group was tested by means of separation of teaching and testing. The two groups of samples were tested for normal distribution. The results showed that the total number of samples represented by the two groups meet the normal distribution, indicating that the results between the two groups should be carried out by independent sample t-test. According to the test level of $\alpha = 0.05$, there were significant differences in Volleyball technical test results between the experimental group and the control group. It shows that after 32 hours of volleyball teaching, the volleyball skill level of the experimental group is better than that of the control group. At the end of the teaching experiment, by measuring the skill level of the students in the experimental group and the

control group, we can see that the skill measurement results of the two groups have significant differences. The skill level of the students in the experimental group is better than that of the control group. To some extent, this shows that the flipped classroom teaching mode is more conducive to the study and improvement of students' sports skills than the traditional sports teaching model.

5. Conclusion

Compared with the traditional sports teaching model, the implementation of flipped classroom in public sports teaching in colleges helps students better grasp the sports technical movements, and have a more positive impact on the students' attitude towards physical exercise. But there is no obvious difference on the effect of students' physical fitness compared with traditional sports teaching mode. This is related to the long interval of public sports curriculum arrangement, the poor students' exercise consciousness and living habits, and the lack of public sports curriculum attention by students. The research of this paper has promoted the development of public sports in Colleges, and has accelerated the research of education in China on a certain basis. Therefore, the study of this paper has great significance and value.

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