

# Research on the Implementation Strategy and Evaluation System of the Flipped Classroom Teaching Model of Table Tennis Course in Colleges and Universities Based on the Network Environment

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**ABSTRACT.** *As an important part of school physical education, table tennis course in colleges and universities is generally welcomed by students. With the rapid development of Internet technology, the development of table tennis course in colleges and universities is based on the national education policy. According to the age characteristics of students in colleges and universities, the teaching content suitable for students in colleges and universities is formulated. This paper takes the implementation of flipped classroom of table tennis course in colleges and universities as the research object, draws lessons from the experience of flipped classroom teaching at home and abroad and its own classroom teaching practice to study the implementation strategy and evaluation system of flipped classroom teaching mode of table tennis course in colleges and universities, trying to build a teaching mode suitable for colleges and universities students to learn table tennis course, and form a complete and comprehensive set of teaching methods effective table tennis teaching evaluation system.*

**KEYWORDS:** *table tennis, flipped classroom, Internet, teaching mode, evaluation system*

## 1. Introduction

In today's society, science and technology are changing with each passing day. The change and transmission speed of information are very fast. The projector, computer and other hardware facilities of science and technology teaching are in full swing in the market, and the scientific and technological teaching has been developing rapidly. The school is the cradle of talent training, and all aspects of school teaching have been greatly impacted by the progress of science and technology, and great changes have been made in teaching concepts, teaching

objectives, teaching methods and teaching modes [1]. The traditional indoctrination teaching method can not fully meet the current needs of talent training, so it is urgent to combine teaching with technology, highlight the dominant position of students and teachers in the classroom, and find a new teaching method of autonomy, cooperation and exploration. Flipped classroom was born and grew up in the United States. It has achieved good results in many teaching fields and has gradually been recognized by people. With the development of science and economy in China, the seeds of flipped classroom teaching have come across the sea to take root in China. In the field of basic teaching in primary and secondary schools in China, flipped classroom teaching method has been widely used and its effect is remarkable. It has been actively studied by Chinese scholars, "flipped teaching" has become the breakthrough of basic teaching reform. From the trial of primary and secondary schools, flipped classroom teaching method has been gradually launched in colleges and universities teaching [2]. For the flipped classroom teaching method in colleges and universities table tennis classroom teaching research, the purpose is to optimize the traditional teaching mode, enrich in colleges and universities physical education teaching methods, and promote the improvement of teaching effectiveness.

## **2. Flipped classroom concept definition and theoretical basis**

### ***2.1 The concept of flipped classroom***

Flipped classroom is derived from English, which intends to give the initiative and decision-making power to students instead of teachers [3]. When the concept of flipped classroom was born, it attracted the attention of many scholars with its novel conceptual knowledge and creativity. Many scholars and experts also put forward their own opinions on flipped classroom. Foreign scholars Kenneth and others have shown through research that flipped classroom is actually the behavior of students gradually transferring learning activities to personal learning space under the guidance of teachers. Chinese scholar Qin Weiwei believes that the basis of implementing flipped classrooms is a learning model in which students preview the teaching materials to be used in the class and the teachers in class guide them [4].

On the basis of the existing theories at home and abroad, this article also gives the definition of flipped classroom. Flipped classroom is based on information-based multimedia teaching, focusing on cultivating students' independent learning ability and allowing students to preview knowledge before class. A teaching mode in which students are internalized and absorbed through the teacher's directional guidance in class and consolidate the knowledge they have learned in time after class [5]. One of the focuses of physical education is to cultivate students' abilities. Multimedia teaching is one of the effective forms of enriching classroom teaching. Student group learning shows that the teaching mode of flipped classroom is more focused on cooperative learning and independent learning among students. This is also an important manifestation of the flipped classroom structure.

The characteristics of the flipped classroom mainly include the following aspects: First, the changing role of teachers. The teaching concept emphasized by the flipped classroom teaching model is to give the initiative of the classroom to the students, and the teacher is no longer the leading role in the classroom, but becomes the assistant and instructor of the students' independent learning. Although teachers no longer play an important role in classroom teaching, they still play an important role in guiding students' learning. Second, the changing role of students. With the advent of the information age, education has gradually entered the information age [6-7]. Teachers can also use some educational platforms or some video websites to provide high-quality learning resources suitable for students' learning. Students can also obtain the knowledge they need from the learning channels given by the teacher to complete autonomous learning. In this process, students also shifted from a passive position to an active position. Third, class time that can be redistributed. Regardless of the traditional education model in the past or the flipped classroom teaching model, the learning time is directly proportional to the learning effect. Therefore, teachers should give students more study time, which will also better promote students to understand the knowledge at a deeper level. This is also one of the advantages of the flipped classroom teaching model.

## ***2.2 Ubiquitous learning theory***

In fact, ubiquitous learning theory refers to jumping out of the environment of traditional education mode and using appropriate learning tools to study at any time and place, which is the effective implementation of the concept of lifelong learning. First of all, people's learning behavior does not have to be carried out in a specific environment [8]. According to the growth process of human beings, the occurrence of human learning behavior should be autonomous, rather than be guided and educated by others. Learning will happen anytime and anywhere. When people have a strong interest in a certain event or behavior and try to demonstrate it in mind, it has already happened Learning behavior. Even if this kind of behavior is produced unconsciously, it is also a learning activity. Secondly, in daily life, the demand for learning is not phased but continuous, which is to improve their competitiveness and adaptability in the future. Constantly learning to adapt to life and learning is also in line with the requirements of social progress. Thirdly, learning resources exist in the corner, everywhere. Broadly speaking, there are quite a number of learning resources in every corner of our life. In a narrow sense, learning is to study a certain aspect of knowledge or theory in a specific environment and appropriate facilities.

On the basis of ubiquitous learning theory, learners can choose to preview or learn independently at home or at school by means of information technology, such as tablet computer or mobile phone. This function is also widely used in flipped classroom. Learners can choose online or online by themselves, which is more flexible.

### **2.3 Motivation theory**

Motivation theory, in short, is the source of all activities. Take the ship as an example, the whole ship is the human body, and the wheel that controls the direction of the ship is the motive force. In the whole learning process, learning activities are planned, organized and purposeful. In other words, under the premise of being guided, the learning process of maintaining a certain knowledge theory is called learning motivation. Therefore, we can regard learning motivation as the key factor to determine the quality of academic performance. In order to make a student study better and achieve better learning effect, we should arouse their learning motivation to the greatest extent. We all say that interest is a person's best teacher. No matter what form of learning, we should first establish a strong interest, which can further promote students to form good learning habits and learning concepts. In today's flipped classroom teaching mode, it is emphasized that the status of students should be changed from passive to active, and the role of teachers should also be transformed from leading to guiding. In flipped classroom, when students encounter difficulties in autonomous learning, they can seek the help of teachers and arrange the learning process independently. This is also more in line with the students' learning motivation.

## **3. The necessity and feasibility of implementing "flipped classroom" teaching mode in colleges and universities physical education**

### **3.1 The necessity of implementing "flipped classroom" teaching mode in colleges and universities physical education**

In the network information age, the application of information technology plays an important role in our daily life and even our study life. In order to adapt to the development of the times, education informatization will become the inevitable trend of education development.

Flipped classroom is different from the traditional education mode in the past. It integrates daily teaching and information technology effectively, and uses information technology to reinterpret the classroom, so as to meet the needs of modern students for learning activities, arouse students' strong interest, and promote students to adapt to the development of the future society. Compared with other courses, physical education classroom pays more attention to students' time. In physical education teaching, teachers should not only impart students basic sports theoretical knowledge, but also pay attention to training students' sports skills to improve their physical quality. Teachers can make full use of the network media, through the network media to teach students knowledge points or skill action demonstration, students can also repeatedly watch at any time and anywhere, when they do not understand, they can pause, retreat, etc., to meet the actual needs of students. This way saves a lot of time for students, and also provides convenience for students to master relevant knowledge and skills. Secondly, flipped classroom meets the needs of China's education reform. With the renewal and change of

educational ideas, the higher education is also in constant reform in China. In 2010, China issued the outline of national medium and long term education reform and development plan (2010-2020), which proposed that education should meet the needs of today's society, innovate talent training mode, promote students' all-round development and improve teaching quality. Therefore, as a product of educational informatization, flipped classroom teaching mode is more in line with the basic requirements of national education development and reform. The colleges and universities should also timely promote flipped classroom to promote the continuous development of higher education reform.

### ***3.2 The feasibility of implementing "flipped classroom" teaching mode in colleges and universities physical education***

First of all, one of the fundamental differences between flipped classroom teaching and traditional physical education teaching is the application of new technology and multimedia. Before the practice teaching in flipped classroom, the basic knowledge and skills of physical education are always taught to students in the form of micro video or other forms, so that students can communicate with teachers and classmates in time when they encounter problems in the process of autonomous learning, and finally achieve the effect of solving problems. In this process, whether it is the micro video produced by teachers and other learning methods, or students' self-study and mutual communication, they are inseparable from the support of new technology and new media. This also laid a hardware foundation for the implementation of flipped classroom. In addition to the first time, software such as QQ and wechat has been quite popular, and college students also widely use electronic products such as laptops, which also enables students to study freely regardless of place and time.

Secondly, because most of the colleges and universities students are young, their thinking and the ability to accept new things are at a relatively high stage. If there are relatively new and innovative things in front of these students, they will surely pay attention to them. Flipped classroom is to emphasize teaching with a new education mode, which can not only attract students' curiosity and attention, but also give the classroom to students, so that they can give full play to their imagination and creativity.

## **4. The implementation strategy of flipped classroom teaching mode in table tennis course in colleges and universities**

### ***4.1 Take interest as the guidance and adopt incentive methods to cultivate students' autonomous learning habits***

As an effective learning method, autonomous learning can not only promote students to learn theoretical knowledge better, but also lay a foundation for students to achieve lifelong learning and lifelong development. In particular, flipped

classroom, as a new education mode, naturally also puts forward corresponding requirements for students' self-learning ability. In flipped classroom, it is mainly to cultivate students' autonomous learning ability. It is the first step to cultivate students' self-study ability to take appropriate measures in class to arouse students' interest in learning. For example, let students watch valuable learning videos before class, carry out some game activities timely in class, and arrange sports homework on topics that students are more concerned about after class, so as to arouse students' strong interest in table tennis learning, and further promote the formation of students' self-learning ability. The colleges and universities students are from the three stages of junior high school. If the teaching methods they are exposed to in colleges and universities are the same as before, students' learning enthusiasm will not be aroused, and they will not become the masters of the classroom. Therefore, when P.E. teachers in table tennis teaching, should be appropriate use of incentive teaching methods to guide students to self-study. For example, praise the students with good performance, and reward the group with high enthusiasm.

#### ***4.2 Teach students new learning methods and give full play to students' self-study ability***

Flipped classroom makes students become the master of the classroom. Students can make full use of the learning resources shared by teachers to learn the basic knowledge and skills of tennis on the network platform. Therefore, we can regard flipped classroom as a very open classroom environment. Students also have the freedom of learning in the flipped classroom, and have the space to develop their creativity and autonomous learning ability. However, as the students who accept flipped classroom for the first time, it is difficult to change their ideas in a short time. It is considered that table tennis learning is unable to be self-taught and lacks necessary self-study methods. Therefore, physical education teachers should teach students the necessary self-study methods when teaching table tennis courses. In addition, although flipped classroom emphasizes the development of students' self-learning ability, so that students can change from passive to active, but teachers can not put down their vigilance, for students in the classroom behavior, problems, to timely attention, give help and guidance. Table tennis course is different from other courses, it is a very practical subject, so whether in the preview before class or in class, after class students' autonomous learning needs teachers' timely guidance to avoid students' blind learning.

#### ***4.3 Effectively use the resources around to improve the quality of teachers***

No matter what kind of teaching mode or teaching reform is adopted, teachers are always the direct factors to determine the success or failure. The implementation of flipped classroom not only requires students' self-learning ability, but also puts forward higher requirements for teachers' teaching ability and oral expression ability. Therefore, in this context, teachers should continue to learn and constantly improve their teaching ability. First of all, there are abundant teachers in colleges and

universities. The teachers who teach table tennis course can ask teachers of other disciplines to improve their ability. Secondly, the popularization of information technology not only brings great convenience to modern college students, but also gives teachers a chance to take a free ride. Teachers can learn from the network teaching platform like students. Thirdly, teachers can make use of the resources of university library to enrich themselves constantly.

### 5. Construction of evaluation system of flipped classroom teaching mode of table tennis course in Colleges and universities

The construction of the evaluation system is a complex system engineering. Based on consulting relevant materials, expert interviews and investigating the problems existing in the table tennis course in colleges and universities, the flipped classroom is applied to the table tennis course in colleges and universities, and the evaluation system is preliminarily established for the flipped classroom teaching mode of table tennis course in colleges and universities, as shown in Table 1.

*Table 1 Evaluation System of flipped classroom teaching mode of table tennis course in colleges and universities*

First level objective	Secondary objective
Pre-class evaluation	Teaching objectives and tasks, understanding of students' self-study, preparation activities, layout of venues and equipment
In-class evaluation	Teacher's explanation of important and difficult points, movement decomposition demonstration, students' practical exercises, students' activity participation, teacher-student interaction
After-class evaluation	Teachers' feedback after class, teachers' self-correction, students' autonomous learning after class
Student feelings	Mastery of learning content, cooperative learning ability, self-correction ability

The teaching idea emphasized by flipped classroom is no longer to absorb fixed knowledge, but to develop and perfect oneself through learning various experiences. Besides mastering necessary knowledge, students should also cultivate their practical ability. The construction of an effective evaluation system of flipped classroom teaching mode of table tennis course in colleges and universities promotes the continuous optimization of the teaching process and realizes the student-centered teaching concept.

### 6. Conclusion

The flipped classroom teaching mode is well implemented in the table tennis course of colleges and universities. What it emphasizes is the development of students' personality, the degree of students' participation in classroom activities and the communication and interaction between teachers and students, which provides a new idea for the teaching mode of table tennis course in colleges and universities. The combination of flipped classroom teaching concept and teaching evaluation can

establish a multi angle and all-round evaluation system. However, the construction of the evaluation system is not perfect and needs to be further studied. In order to better achieve the teaching objectives of table tennis course in colleges and universities, more physical education workers are needed.

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### **References**

- [1] Zhong Xiaoliu. Research on Instructional Design Based on flipped classroom concept in information environment [J]. Open education research, 2013 (1): 58-64.
- [2] Liu Rong. Flipped Classroom: the revolution of learning and Teaching [J]. Basic education curriculum, 2012 (12): 28.
- [3] Wu Zhongliang. Preliminary study on flipped classroom teaching mode based on e-learning space [J]. China audio visual education, 2014 (4): 121-126.
- [4] Bu Caili. Feasibility analysis on the application of flipped classroom teaching mode in Colleges and universities in China [J]. Software guide, 2013 (7): 9-11.
- [5] Zhong Zhencheng. Brief introduction of the research on SWOT analysis of table tennis teaching based on flipped classroom teaching mode [J]. Contemporary sports science and technology, 2019 (36): 97-98.
- [6] Tai Panpan. Research on the application of flipped classroom teaching mode in College Physical Education [J]. Educational theory and practice, 2018 (15): 63-64.
- [7] Fei Hongcheng. Empirical Study on "flipped classroom" of table tennis teaching in Colleges and universities [J]. Journal of Dalian University, 2020 (3): 140-144.
- [8] Guo Xiaoyan. Research on flipped classroom teaching and its improvement based on practice [J]. Contemporary education science, 2016 (3): 23-28.