# The Theoretical Construction and Practical Exploration of the Teaching Mode of "MOOC + Flipped Class" of Table Tennis in General Colleges and Universities

**Jieguo Lu, Xianfeng Dong**[*]

*The Fundamental Deparment, Yinchuan University of Enegry, Yinchuan 750105, China*
*\*Corresponding author e-mail:dxf801125@163.com*

***Abstract:*** *It is the inevitable requirement and development trend of the reform of physical education in the new era to construct a new teaching mode that combines table tennis "MOOC + flipped classroom". This article uses research methods of literature and survey questionnaire for systematic exploration. The research results show that under the background of the mobile Internet era, the reform of physical education in ordinary universities must take a connotative development path of transformation and upgrading, and provide professional reserves and knowledge for physical education teachers. Ability and development path put forward higher requirements. At the same time, in order to enhance the endogenous motivation of physical education teachers to participate in the reform and innovation of teaching models, schools should innovate the incentive and evaluation mechanism of physical education teachers, improve the campus network learning service platform, and make table tennis moot courses form high-quality educational resources and open to the society for sharing.*

***Keywords:*** *table tennis, MOOC, flipped classroom, teaching mode*

## 1. Introduction

With the change of the information age, the curriculum teaching mode is undergoing a historic change of digitalization, networking and globalization in the world's colleges and universities, and MOOCs and flipped classrooms have undoubtedly become the two focal points of this transformation [1]. MOOC deconstructs the chain of teaching and learning in the traditional face-to-face person-to-person communication system, and rebuilds the Internet-based interaction system[2], realized the platform, teachers, learners and learning resources Link age between 4 major elements [3]. Flipping the classroom by transforming the traditional teaching process requires learners to use the educational resources such as video to complete autonomous learning of knowledge points before the class. The classroom mainly conducts teacher-student interactive question-and-answer discussions, which brings the advancement of knowledge transfer and the optimization of knowledge internalization has realized the role of teacher and student in traditional teaching. At present, domestic languages, computers and other subjects have tried and applied research on MOOCs and flipped classroom models. Related scholars have also discussed the localization of MOOCs and the application of flipped classroom teaching under MOOCs. In contrast, physical education teaching, applied research on physical education lessons, sports flipped classroom is rare. Table tennis is an important part of college physical education. Table tennis is a ball sport that competes against each other. It is a small ball game that can be played indoors and outdoors. It is a popular sports activity with moderate venues, simple equipment, full of fun and physical fitness. It is also a highly competitive event. This sport is loved and sought after by college students for its fun, entertainment, ornamental, fitness and other characteristics. To this end, analyze necessity of the teaching mode of "flipped classroom", designing the curriculum content of the table tennis MOOC, exploring the application mode of the table tennis "MOOC + flipped classroom" in colleges and universities, and exploring the innovation of the guarantee and incentive mechanism for physical education teachers in the university under the Internet. To encourage teachers to change teaching concepts in a timely manner, to speed up the update and upgrade of PE teachers' educational technology, to awaken the inherent motivation and enthusiasm of PE teachers in teaching, to improve the effectiveness of PE classroom teaching, and to promote colleges and universities to

speed up the attempt and application, popularization and promotion of new teaching models important meaning.

## 2. The necessity of teaching mode of table tennis "MOOC + flipped classroom"

MOOCs, which originated in foreign universities and colleges, are often college students or adults. Students mainly study online, watch videos, complete homework, and discuss exchanges. After the courses are completed, students receive credits or the teachers' approval. Obviously, the simple form of study is not suitable for the students who are used to teaching knowledge as the main teaching mode in Chinese test-oriented education, and it is not suitable for table tennis teaching where both practice and theory coexist [4]. In addition, MOOC's autonomy to students means that learners need to bear the main responsibility for their own learning, and therefore have higher requirements for autonomous learning. Previous studies have shown that domestic learners' autonomous learning effect in a virtual environment is not ideal, which will inevitably affect the effectiveness of MOOC learning. MOOC can provide high-quality, systematic online learning resources and platforms, but it cannot enable face-to-face communication and discussion between teachers and students. Therefore, if we want to use MOOC for teaching, we must explore the MOOC application mode suitable for Chinese localization.

College table tennis is one of the most popular physical education courses for college students. However, in the actual table tennis teaching process, factors such as the large number of teaching objects, mixed specialities, uneven levels, and limited number of venues have led to student motivation. There are notable problems such as low practice intensity and density, and weak competition and cooperation consciousness [5]. Moreover, the law of the formation of table tennis technology and tactics requires students to study the theory and practice the basic techniques repeatedly in the learning process. It means that if students want to fully grasp the table tennis technique and complete the objectives of the table tennis course with high quality, they can not only conduct theoretical learning and technical practice in the classroom, but must increase the time of table tennis technique learning and improve the basic technique practice. Strength and density. In response to this situation, this study explores the "MOOC + flipped classroom" teaching mode that combines the two advantages. It not only solves the problem of the large number of students, the weak subjectivity of learning, the narrow interaction between teachers and students under the traditional class teaching mode, There are many issues such as single curriculum resources and fixed teaching methods. At the same time, it also provides high-quality teaching resources for inter-schools, explores individualized, autonomous, and interactive innovative talent training models, promotes the interactive exchange of cutting-edge ideas in professional fields, and promotes educational fairness. Implementation offers great possibilities.

## 3. Course design content of table tennis MOOC

The online learning platform is the carrier of the teaching mode of "MOOC + flipped classroom". Whether the carrier is perfect or not directly determines the success of "MOOC + flipped classroom" teaching. In other words, table tennis MOOC is the carrier of the teaching model of "MOOC + flipped classroom", and the quality of MOOC is the important prerequisite for the trial and application of "MOOC + flipped classroom" teaching model. The content of the table tennis MOOC is an online implementation path to complete the table tennis teaching goal, and the realization of the table tennis teaching goal is the ultimate goal of the table tennis MOOC. The classes are different from micro-classes and high-quality courses. The content and structure of Mu classes are more systematic and rigorous than the above-mentioned multimedia teaching video resources, and they realize the transformation from one-way to two-way and multi-directional interactions. upgrade. Therefore, before thinking how to use the "table tennis+ flipped classroom" mode of table tennis for table tennis teaching, it is necessary to design the overall content of the table tennis table in order to achieve the design effect of the content reflecting the goal and the target role content.

## 4. Application of "MOOC + flipped classroom" teaching mode in table tennis

After the course content design of table tennis MOOC is completed, the construction of the college table tennis MOOC + flipped classroom teaching model is constructed. In traditional table tennis lessons, students generally study in the classroom-After class review-homework-assessment, while the table tennis learning class is to watch the video-Autonomous learning-Online interaction-Complete homework-Assessment. From the perspective of form, table tennis MOOC are online learning,

traditional table tennis lessons are field learning. From the perspective of students' learning order, the table tennis MOOC is "traditional table tennis lesson moved to the Internet", the difference is that it can face more audiences in time and space. The flipped classroom emphasizes watching teaching videos before class, practice error correction during the class, and refining and summarizing after class. It puts the knowledge transfer before the class and keeps the internalization of the knowledge in the class. This learning method helps to consolidate and strengthen the memory, and is helpful to inspire students' learning thinking. It can significantly improve the subjective status of students and speed up the role change of teachers. However, whether it is consolidation of table tennis lessons and traditional table tennis lessons in class, after-class practice, final assessment, or in-class self-study and self-learning before class reversal, actual correction in class, and consolidation after class, these two take all of them are one-sided, which are inadequate for the development of students' thinking and the development of learning habits. If the emphasis is on table tennis MOOC online self-study, there is a lack of face-to-face communication and interaction between students and teachers. If they focus on simple classroom flips, it is impossible to monitor and quantify the effect of students' pre-class learning. On this basis, after researching these two teaching modes, it is found that the two are actually interdependent and not contradictory; the teacher's lecture in the table tennis MOOC video can replace the traditional order of table tennis lessons, and self-learning before flipping the classroom The stage plays an important role, and flipping the classroom can also make up for the situation that table tennis MOOC can't make teachers and students face to face and lack actual communication. Therefore, based on the combination of the advantages of the two as the starting point, create a new teaching mode of table tennis "MOOC + flipped classroom". In fact, this kind of interactive method that can both learn online through the network and teach knowledge face-to-face through offline teachers and students is essentially a blended learning model. Therefore, the design of the "MOOC + flipped classroom" application model of college table tennis should belong to the design of the blended learning model.

The design of blended learning curriculum can be divided into three stages: front-end analysis, activity and resource design, and teaching evaluation design. Among them, activity and resource design includes online activity design and classroom activity design. Combining the characteristics of table tennis teaching, the pre-course activity part was added before the design of online activities and classroom activities. The reason is that online and classroom activities can achieve the desired results only after a certain understanding and distribution of class students.

### 4.1 Front-end analysis

This stage includes an analysis of the table tennis teacher's own educational thoughts, educational concepts, teaching design capabilities and cross-disciplinary status, as well as an analysis of public students, table tennis teaching goals, learning content, and practice environment. After the table tennis lesson is determined, the teacher uploads the completed table tennis lesson to the campus curriculum network system, or selects a high quality table tennis lesson from other schools or online platforms to understand its teaching content, teaching plan, etc. Based on the training objectives of the school's table tennis class and the characteristics of public students, the school has established the teaching objectives, teaching content, and teaching plan of the school-based curriculum under the mode of "MOOC + flipped classroom".

### 4.2 Pre-course activity design

This stage is the verification of the front-end analysis stage, and it is also the "pathfinder" for the design of online activities. After the teacher determines that the table tennis class is available this semester and has uploaded the table tennis lesson, the students watch the table tennis course video online and decide whether to take the course. Teachers and students have a meeting. The purpose is to determine the class size and understand the basic information of the students in the class. At the same time, divide the students into several study groups, select the group leader, and finally announce the overall plan and related requirements of table tennis online and classroom teaching for the semester. Lay the foundation for a smooth classroom activity.

### 4.3 Online event design

Online activities are mainly teaching and learning processes such as online interaction between teachers and students, asking questions and asking questions. Teachers' online activities mainly include, based on front-end analysis and preliminary understanding of students before the start of the course, to

determine the teaching plan, course content, and knowledge type of table tennis. Before students watch the table tennis teaching videos, assign learning tasks based on the training objectives of table tennis lessons and the characteristics of public students, and throw out problems that should be found and solved when watching the video (such as observing the importance of forehand arc ball technology Difficult, imitate the forehand pull arc ball movement in the video and practice). Students' online activities mainly include completing table tennis MOOC videos and other course resources provided by teachers, participating in online forums, WeChat circle of friends, Micro-blog groups or field discussion groups, etc. Before the video, teachers asked questions, assigned tasks, and raised online problems and doubts during the learning process, and discussed and exchanged with classmates and teachers.

### 4.4 Feedback Evaluation Design

The feedback evaluation design is a single evaluation method that is generally used at present, such as determining the course results based on the final exam results. The multiple evaluation design under this teaching mode first combines digital quantitative evaluation with qualitative evaluation. Various types of data such as video clicks and forum postings for online learning can be collected into the teacher's course analysis database through computer processing as the basis of quantitative evaluation, meanwhile, students' technical performance and learning attitude in classroom activities can be used as important indicators of qualitative evaluation. Secondly, this mode enables the combination of procedural evaluation and final evaluation. Process evaluation includes online learning performance and classroom learning performance, as well as the frequency and performance of daily participation in competitions; final evaluation includes online table tennis theory Exams and classroom end-of-hand arc ball exam results. As an attempt and application of a new teaching mode, in addition to the diverse evaluation design of students, teachers should also be evaluated. The evaluation standard for teachers is generally carried out from the aspects of the quality of table tennis MOOC, the ability of teaching organization, teaching methods, and teaching effects.

### 5. Conclusion

With full coverage in the field of higher education in the information age at any time, the "MOOC + flipped classroom" teaching model will be widely used in various fields of physical education. As China's national game, table tennis is the first to try emerging teaching models. The promotion and popularization in colleges and universities has important value and significance.

### References

[1] Zhang M L, Sun X J. Research on the teaching mode of flipped classroom based on MOOCs [J]. Modern Educational Technology, 2015 (8): 81-87.
[2] Zou J P. The spirit of MOOC is more important than form [J]. China Distance Education (Information), 2013 (8): 72.
[3] Chen B B. MOOCs Curriculum Model: Contribution and Dilemma [J]. Electrified Foreign Language Teaching, 2014 (3): 38-43.
[4] Roure C, D Pasco. Exploring Situational Interest Sources in the French Physical Education Context [J]. European Physical Education Review, 2018, 24(1):3-20.
[5] Xu Y, Lao Y, Liu W , et al. Mathematical Modeling Analysis of Strong Physical Unclonable Functions[J]. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2020, PP (99):1-1.