

# *Exploration and Practice of Flipped Classroom in Physical Education Teaching in Vocational Colleges*

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**Abstract:** In view of the problems existing in the traditional physical education teaching mode of higher vocational colleges, such as insufficient innovation, low enthusiasm of students and insufficient action standards, this paper changes the traditional cramming teaching mode, takes students as the center, and puts forward the mixed teaching mode of "one main line, two ways and three-dimensional space". The curriculum practice shows that, this teaching mode can effectively improve students' autonomous learning ability, and students' satisfaction rate and interest in the course can reach more than 90%.

## 1. Introduction

With the increasing popularity of Internet plus education, the combination of online teaching and offline teaching has raised a heated trend in the education sector. From the analysis of occupation students' learning situation, how to arouse students' enthusiasm for learning and cultivate their autonomous learning ability has always been the focus of teaching reform. After the flipped classroom teaching model was put forward in 2011, it has been widely recognized by the educational community. This teaching model will change from teacher-centered to student-centered, which improves students' learning initiative and enthusiasm effectively. For vocational colleges, most students have poor foundation, and the study of professional courses and subject basic courses occupies most of their time. For them, physical education is nothing more than free activities. Blindly cramming teaching is difficult to mobilize students' enthusiasm, especially for courses with very high posture requirements such as basketball, volleyball and Taekwondo, Students are prone to fear and disgust, which leads to the inability to improve their physical education skills. Therefore, it is very necessary to explore and practice the flipped classroom teaching method in the process of

physical education teaching.

## 2. Research Status of Physical Education in China

After searching for key words such as physical education, basketball and flipped classroom, according to the retrieval data of CNKI (China National Knowledge Infrastructure), articles on the application of flipped classroom in physical education are increasing year by year, which also shows that physical education is no longer a free activity in the eyes of many people, and it needs a more systematic and standardized teaching mode. From the literature retrieval results, Most of its research is aimed at higher education, and there is little research on Physical Education in higher vocational colleges, especially in secondary vocational schools. SPOC teaching platform to teach college students' basketball is introduced by literature [1]. The students are divided into experimental group and control group. The examination and analysis shows that the students in the experimental group are better than the ordinary teaching group in both the mastery of theory and the application of basketball technology. Literature [2] constructs the flipped classroom teaching model for the traditional physical education teaching model, and constructs the flipped classroom model from four aspects: teaching content screening, personalized teaching, pre class teaching design and effective control ways. Literature [3] takes Xi'an Foreign Affairs University as an example. Firstly, starting from the education concept and teaching concept, it formulates the comprehensive assessment mechanism of "daily management and technical evaluation", and ensures the benign operation of the reform from many aspects, such as increasing publicity, establishing sports associations and formulating club operation system, and has achieved remarkable results.

## 3. The Main Path of Physical Education Reform

In the process of curriculum design of flipped teaching, physical education is divided into three parts: pre class preparation, in class implementation and after class inspection. The mixed teaching mode of "one main line, two ways and three-dimensional space" is formulated. The physical education curriculum based on flipped classroom is designed from five dimensions: Learning objectives, learning content, classroom form, resource construction and process evaluation. The mixed teaching mode of "one main line, two ways and three-dimensional space" is shown in Figure 1.

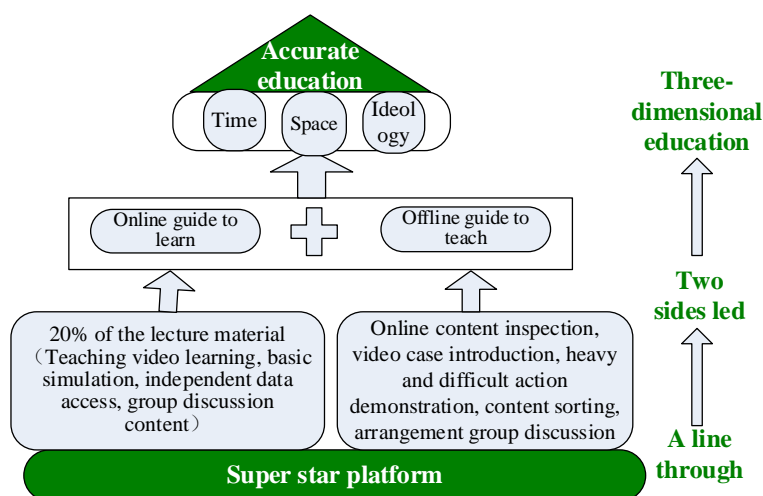


Figure 1: The mixed teaching mode.

### 3.1. Select Teaching Content According to Students is Characteristics

Because of the large gap of students in vocational colleges, poor cultural foundation, uneven physical and mental quality and poor independent learning ability, the traditional PE teaching effect is poor. Therefore, the teaching content is broken down into small units, and part of advanced theoretical knowledge is abandoned, and the enthusiasm of students is aroused by skill training. Take the basketball course as an example, take the origin and development of basketball as the breakthrough point, according to the basic technology, basic tactics two main lines, split the course units, such as grabbing the ball, playing, breaking the ball, etc., set the teaching objectives of each lesson, from simple to difficult, gradually in-depth, relieve students' fear of difficulty.

### 3.2. Online Teaching Content Design

Using "cloud class class", "super star" three end flat network teaching platform, such as to upload each section of the course to class teaching resources platform, mainly contains action video technology, technical advice, easy wrong project and practice methods, group work, etc., and set the learning objectives of each lesson, students will be random grouping, and select the teaching content of 20% as of students' autonomous learning content [4]. Before class, students completed the self-training of basic movements. Taking the two-handed chest pass in the basketball course as an example, the teacher recorded the demonstration video and analyzed the postures from different angles. Students followed the video to practice before class, and recorded the practice video as a group on the uploading platform. Teachers should choose online self-study content according to students' level, and complicated technical essentials are not suitable for students' online self-study. With the help of online punching in before class on the network platform, it can effectively avoid the disadvantages of limited time in class content and teachers' inability to take into account each student, and effectively supervise students' learning.

### 3.3. Flipped Classroom Design in Class

In class, the teacher summarizes the existing problems and explains them in a concentrated manner according to the videos of students before class. In combination with the "Classroom activities" of the online teaching platform, the teacher carries out various teaching activities such as online emergency response, group demonstration, video playing, ball throwing and so on. Students are the main body in the teaching process. Mobilize students' enthusiasm through case teaching, flipped classroom, group confrontation and other modes; Give full play to the advantages of mutual assistance within the group. After the teacher demonstrates the technical actions, the content and requirements of cooperation will be clarified. The groups will study cooperatively and encourage students to solve problems independently. When students practice in groups, teachers should patrol each group and correct and solve the situation of non-standard movements in time.

Give full play to the leading role of each group leader. In the process of cooperative training, the leader should supervise students' practice and standardization of movements, while ensuring their safety. After finishing the basketball action exercise, the group leader will report the completion of the group members on behalf of each group, and show the group separately. Each group can score the standardization of the action of the demonstration group. The combination of teacher evaluation and student evaluation will enhance the subjective initiative of students and make them become the main body of learning.

### 3.4. Three-Dimensional Education of Time, Space and Thought

After class, the teacher in teaching platform release to consolidate requirements, the so-called "one minute on stage, the audience ten years of work", is different from other subjects teaching, sports skill mastery requires continuous practice after class, after class, practice is the sustained, physical education teachers according to the class learning situation, decorate the study content of each group, and by the heads of the organization to complete the report. Students can also communicate with teachers through QQ, Wechat and other means.

### 3.5. Take Learning Effect as the Guidance, Develop New Measures of Assessment

The traditional process management methods of "punching card" and "checking attendance" are abandoned, and a management method oriented by learning effect is proposed, which combines formative evaluation with summative evaluation. Formative evaluation includes discussion class scores, classroom exercises, online assignments, daily tests, online experiments, group presentations, etc. The summative assessment includes a final exam and an online test. At the end of the course, all students' scores will be summarized and a course analysis report will be formed. Online learning does not limit students' learning methods. Teachers use online teaching platforms to test students' learning effects through quiz, pre-answering, group tasks and other methods. Offline learning is mainly composed of group discussion and group achievement display, and consists of teachers and students' mutual evaluation, students' mutual evaluation and self-evaluation.

## 4. The Implementation of PE Teaching Reform

According to the talent training program and curriculum syllabus, basketball course is selected for teaching reform. The basketball teaching plan is shown in Table 1.

*Table 1: Basketball teaching plan*

	Teaching content and key points	Teaching objectives	Main measures
1	In-situ dribbling Change hands before body dribble	1. Understand the technical essentials of basketball dribbling position and landing point. 2. Master the left and right hand dribble exchange and crotch low hand dribble. 3. Cultivate quick reaction ability and stimulate practice	1. Students imitate the dribbling practice of left and right hand exchange with their bare hands. 2. Practice one ball per person. 3. Look at the teacher's gesture and do the right hand dribble. 4. Turn back running relay practice ball
2	Learn to dribble in a straight line Key points: dribble position and landing site, the combination of man and ball	1. Understand the straight dribbling technique and action essentials of left and right hands during marching. 2. Master the straight dribble of the whole court, go from left hand to right hand, and improve the physical quality of agility, coordination and rapid response. 3. Cultivate the excellent quality of positive, unity and cooperation.	1. In situ dribble forward direction change exercise. 2. Dribble in place and look at the teacher's gesture to answer the question. 3. Detect right hand dribble to left hand dribble back

The first class of e-commerce major of 2020 in Jilin Vocational and Technical College is selected as the experimental object. There are 46 students in this class, including 35 boys and 11 girls, and they are divided into two groups to establish experimental group and control group.

According to the course requirements, select the same learning content and make a detailed learning plan, as shown in Table 1 (the second course is taken as an example here), and be taught by the unified teacher. The experimental group adopts the flipped classroom teaching mode, and adopts the three-step strategy of "self-study before class, answering questions in class and consolidating after class" according to the mixed teaching mode of "one main line, two approaches and three-dimensional space". In addition, the schedule, teaching duration, teaching place and date of the course should be the same as far as possible to ensure the effectiveness of the experimental comparison.

The improvement of sports skills has a certain impact on body shape and physical state. In order to ensure the accuracy of experimental data, the height, weight, vital capacity and BMI index of students in the control group were measured before the beginning of the course. The results show that they are at the average level. At the same time, the basic quality of students was measured, including basic quality test items such as 50m speed running, long jump and sitting forward flexion, so as to ensure that there is no significant difference in physical quality between the two groups.

After the experimental course, each student is scored according to the scoring standard of basketball skills. The scores of the experimental group and the control group are summarized according to the mastery of basic knowledge, knowledge digestion and absorption and comprehensive application, and the average scores of the two classes are calculated. The comprehensive evaluation method is shown in Figure 3.

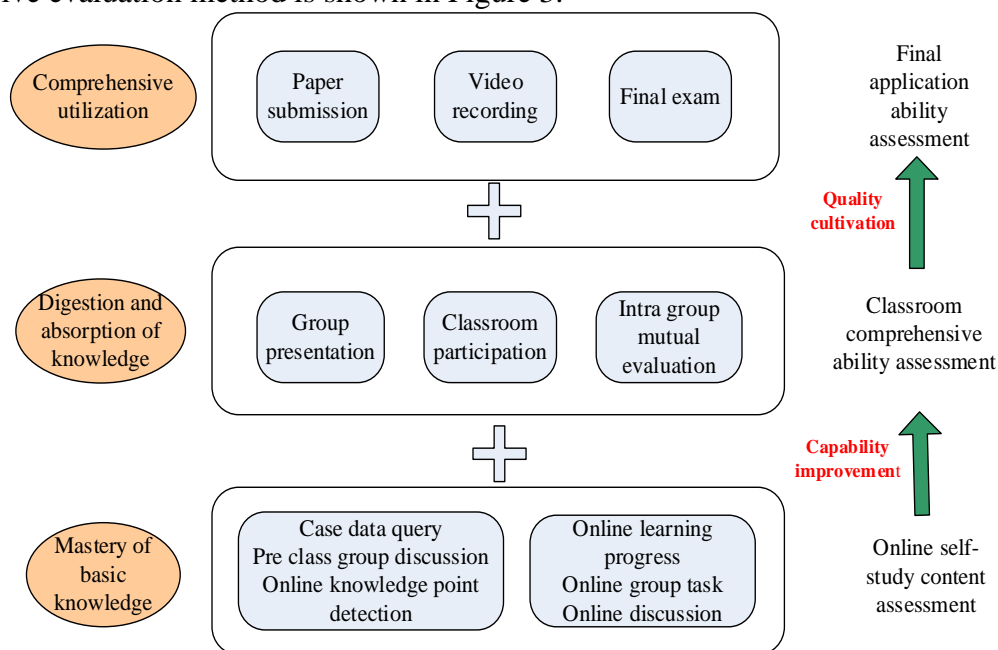


Figure 2: Comprehensive evaluation method

From the theoretical test scores of the experimental group and the control group, the average score of the experimental class before class is 32.5 points, the score after the reform is 87.2 points, the average score of the control group before class is 33.6 points, and the average score after class is 73.1 points. Compared with the average values before and after class, it can be seen that the score of the experimental group increases by 54.7, which is far greater than 39.5 of the control group. In addition, it can be seen from the questionnaire survey results of students that the satisfaction rate of students in the experimental group is 93.9, while the satisfaction rate of students in the control

group is 79.8 [5].

## 5. Conclusions

Based on the above experimental data, it can be seen that the flipped classroom plays a good role in promoting the development of physical education. Through the mixed teaching mode of "one main line, two ways and three-dimensional space", students can effectively stimulate their interest in physical education and improve their autonomous learning ability. At the same time, the construction of online resources also facilitates students to watch teaching videos after the course, providing a strong guarantee for their effective exercise in the future.

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