A Study into the Reform of "Online + Offline" Compound Basketball Teaching Mode at Colleges and Universities

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Abstract: Basketball plays an important role in college physical education. In the traditional college basketball teaching mode, teachers rely on face-to-face instruction in class, and it is difficult to get to know the learning situation of a specific student in time in the face of dozens of students, let alone to guide them pertinently. In addition, basketball skill teaching takes up a lot of class time, which is not conducive to the cultivation of college students' sports literacy. In this context, this paper uses the "rain class" to collect and analyze learning data, constructs the "online + offline" compound teaching model in college basketball teaching, and sets up experiments to verify the "online + offline" compound basketball teaching model, hoping to promote the development of college basketball teaching in the theoretical and practical level.

Keywords: colleges and universities; basketball teaching; teaching mode reform

The development of science and technology has promoted the continuous improvement of network technology and the reform of college physical education teaching mode. Especially in the context of "Internet plus", the Internet has not only improved the quality of education and teaching, but also increased students' interest in learning basketball. From the perspective of physical education teaching content, Internet technology has not been fully applied in physical education teaching, resulting in the lack of novel online information in offline physical education. How to realize the reform of sports teaching mode under the background of "Internet plus" is an important subject in the current sports reform. This paper takes basketball teaching reform as an example, combines online resources and offline education, and discusses the way of using the network to reform college basketball teaching mode under the background of "Internet plus".

1. The Necessity of Developing "Online + Offline" Compound Basketball Teaching

1.1 Enrich college basketball teaching curriculum resources

Basketball textbooks are usually used as the main teaching resources in basketball teaching in China. Although basketball textbooks are highly scientific and systematic, they are relatively slow to update and contain a single type of knowledge, which cannot meet the diverse needs of modern college students and hinder students from conducting divergent learning. Under the background of Internet plus, the time-space limitations of traditional physical education classroom teaching have been broken. The popularization and application of various high-tech equipment has made basketball teaching more possible. Physical education teachers can search for a large number of teaching resources in the network and selectively apply them in teaching. With the help of the characteristics of the Internet, such as large amount of information, fast update of information, and diversification of information presentation, they can obtain more information resources and use them in offline teaching to stimulate college students' interest in physical education[1].

1.2 Make college basketball teaching more scientific

Only by using scientific teaching methods can the quality of physical education in colleges and universities be improved. At present, basketball teaching in colleges and universities in China is mainly based on the traditional teaching method, questioning method and demonstration method. Although

these teaching methods can impart a large amount of knowledge in a short time, they overemphasize the learning of knowledge and ignore the needs of college students in physical training and comprehensive quality, resulting in the lack of students' analytical ability, judgment ability, cooperation ability, etc. Network teaching in colleges and universities can realize personalized teaching for college students, and use Internet technology to realize anytime, anywhere, one-to-one, collaborative teaching in the network platform. This can not only improve the efficiency of basketball teaching, but also stimulate college students' interest in learning basketball and improve the overall quality of basketball teaching in colleges and universities [2].

2. Design of "Online + Offline" Compound Basketball Teaching Mode

"Rain class" is a hybrid teaching tool created by using the "school online" function in the network MOOC platform. In the construction of the "online + offline" compound basketball teaching mode, the data collection and analysis function in the "rain class" can be used to build a college basketball teaching mode with three stages of preview at the front of the class, classroom demonstration and comment, and extended learning after class [3], as shown in Figure 1.
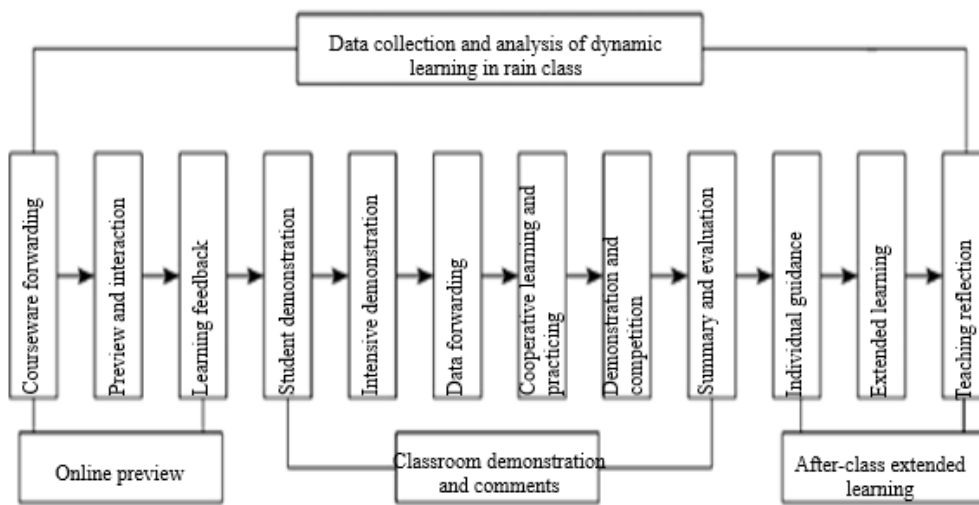

Figure 1: Intelligent teaching mode of college basketball based on rain class

2.1 Online preview

Before class, teachers should make appropriate teaching plans according to the actual situation of students, fully consider the integration of multimedia teaching in the course, and adopt appropriate multimedia teaching mode. When making the courseware before class, the teacher can add the content of basketball history to the courseware as a foreshadow, lead to a fun basketball game, integrate basketball knowledge into it, so as to stimulate students' interest in learning, and finally push the prepared basketball learning courseware to students through the "rain class". Using courseware for preview before class not only helps students develop good learning habits, but also can make full use of fragmented time, open courseware at any time for preview, realize mobile learning, and effectively use extracurricular space and time for learning. In the preview process, if you encounter problems that you don't understand, you can click the "don't understand" option in the software. The teacher can use the data statistics function of "rain class" to investigate the students' preview situation, and select the key points of explanation in this course through the students' feedback. Through the preview on the front line of the class, students can establish the concept of basketball movement and generate learning interest. Teachers can also design classroom teaching according to the teaching difficulties, so as to achieve "learning before teaching, and teaching according to learning" [4].

2.2 Classroom demonstration and comments

In the classroom teaching, the teacher will give targeted explanation and demonstration according to the feedback before class, and then organize students to practice skills in groups. In addition to the explanation of the basic technical content of basketball and the practical technical strategy in the teaching process, the culture and entertainment contained in basketball can also be integrated into the

classroom to improve the teaching quality, stimulate students' interest in learning, and make students feel the joy of sports while taking into account the teaching. If encountering more complex difficulties, teachers can use the "rain class" to push the relevant information to students, create a reasonable learning situation, guide students to learn independently or cooperatively according to the information, let students build a reasonable knowledge framework in the process of solving problems, and deepen their understanding of basketball technology. After the technical practice, the teacher can choose a certain time and place to create a basketball game with perfect rules to let students experience the fun of basketball competition. Finally, the "Internet plus" technology is used to build a more complete diversified network evaluation model in the network platform. Teachers evaluate students' classroom performance, and organize students to complete self-evaluation and mutual evaluation, laying the foundation for communication between teachers and students [5].

2.3 After-class extended learning

In the "online + offline" compound basketball teaching mode, the after-class extended learning and the new round of pre-class preview are related to each other, which is an important part of the coherent teaching unit before and after the class, and has an important impact on the integration inside and outside the class. With rich online basketball teaching guidance resources, students can carry out basketball skills independent practice activities at any time and place. In the after-class learning, the teacher can use the function setting of "rain class" to guide the course again in the form of video recording to consolidate the basketball knowledge content. At the same time, teachers can use the platform to provide students with diversified online basketball teaching resources, so that students can acquire more basketball knowledge and hone basketball skills in independent learning. Teachers can also set offline tasks and activity blocks in the "rain class", guide students to play basketball through certain task arrangements, and use the data statistics function in the "rain class" to help students develop long-term basketball learning plans. This will help students to improve their basketball skills in the after-class time, and promote the continuous optimization of "teaching and learning" between teachers and students [6].

3. "Online + Offline" Compound Teaching Experiment of College Basketball

3.1 Experiment object and content

In this experiment, 60 college students in the 2020 level of basketball course will be selected as the research objects, including 24 girls and 36 boys. The students were randomly divided into two groups, 30 in the experimental group and 30 in the control group (12 girls and 18 boys). Random grouping can reduce the impact of grouping on the experiment as much as possible.

The experiment is divided into basketball knowledge test, skill test and physical ability test. The basketball knowledge test is mainly in the form of closed-book test, the basketball skill test is mainly in the form of half-court dribbling lay-up, dribbling turn-back run, etc., and the physical fitness test is mainly in the form of 1000-meter run (boys), 800-meter run (girls) and one-minute rope skipping. The experimental group used the "online + offline" compound basketball teaching mode for teaching, while the control group used the traditional basketball teaching mode for teaching.

3.2 Experiment result and analysis

3.2.1 Physical fitness level pre-test

Taking the physical education syllabus of a university as the division of the physical ability test, the physical ability level of the two groups of test students was tested before the experiment, and the test results were tested by normal distribution. The results show that the two groups of sample data meet the normal distribution, so the independent sample t-test can be carried out for the two groups of student data $\alpha = 0.05$, as shown in Table 1, there is no significant difference between the physical fitness test results of the experimental group and the control group before the experiment. ($t = -1.126$, $P > 0.05$)

Table 1: Physical Fitness Level Pre-test

Test item	Experimental group	Control group	t	P
Physical fitness level	26.63±4.20	27.97±4.94	-1.126	0.256

3.2.2 Post-test of basketball technical theory level experiment

After the experiment, the basketball technology and basketball theory of the experimental group and the control group were tested, and the data obtained were tested by normal distribution. The results show that the experimental results of the two groups of samples are in accordance with the normal distribution, and can be analyzed using the independent sample t-test method. according to $\alpha=$ According to the test standard of 0.05, independent sample t test was conducted on the experimental data, as shown in Table 2. After the experimental teaching, there was a significant difference between the experimental group and the control group in basketball technology (t=2.877, P<0.05) and basketball theory (t=3.222, P<0.05). The students in the experimental group obtained higher basketball technology and basketball theory scores than the control group. This can prove that the "online + offline" compound basketball teaching mode has significant effect in basketball technology and basketball theory teaching.

Table 2: Post-test Data of Theoretical Knowledge Experiment

Test item	Experimental group	Control group	t	P
Basketball skills	49.57±5.66	45.17±6.17	2.877	0.006
Basketball theories	79.64±6.74	73.90±7.06	3.222	0.002

3.2.3 Post-test of physical fitness level

After completing the basketball teaching contrast experiment, the physical fitness level of the two groups of students was tested again, and the covariance statistical analysis was performed on the increased values of the physical fitness level test results. As shown in Table 3, after adjustment according to the test results, the added value of physical fitness test in the experimental group was 5.279 (95% CI: 4.441-6.117), and the added value of physical fitness test in the control group was 3.698 (95% CI: 2.863-4.532). according to $\alpha=$ 0.05 test standard, after the basketball teaching, the practice results show that the "online + offline" compound basketball teaching method is better than the traditional basketball teaching method in improving the physical fitness of college students.

Table 3: Incremental Estimate of Physical Fitness Measurement after Experiment

Group	Average value	Standard error	95% confidence interval	
			Upper limit	Lower limit
Experimental group	5.279[a]	0.418	4.441	6.117
Control group	3.698[a]	0.417	2.863	4.532

Note: a Evaluate the covariates in the model according to the following values: pretest score=27.30

4. Conclusion

In basketball teaching, college PE teachers should fully realize the promotion of "online + offline" to basketball teaching reform, transform multiple perspectives to interpret it comprehensively, realize the integration of network and teaching, and promote the deepening and upgrading of basketball teaching methods. The "online + offline" compound teaching mode can improve students' love of basketball to a certain extent, thus helping students improve their basketball skills. Compared with the traditional teaching mode, the "online + offline" compound teaching mode has obvious advantages in teaching. It can promote students to actively carry out basketball teaching content learning and practice, help students master more sports skills, enhance students' interest in sports, guide students to form positive sports ideas, and improve the overall physical quality of students.

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