

Research and Practical Application of Online and Offline Mixed Teaching: Taking College Public Physical Education as an Example

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Abstract. This article takes the public physical education course in universities as an example, using research methods such as literature review, questionnaire survey, and interview to explore the research and practical application of online and offline blended teaching. By analyzing the problems existing in traditional public physical education teaching models, the necessity of combining online and offline teaching models is proposed. This article further explores the application of this model in public physical education courses, including online preview, offline explanation, online testing, offline practice, and online expansion. It also evaluates the application effect of this model through empirical research, including aspects such as student interest, academic performance, and satisfaction. Finally, the research findings of this paper are summarized to provide a reference for the teaching reform of public physical education.

Keywords: Online and Offline Blended Teaching; Research; Practical Application, Universities; Public Physical Education

1. Introduction

Public physical education is an important part of higher education, playing a vital role in promoting students' physical and mental health and improving their overall quality. However, there are currently some issues with public physical education courses, such as single teaching methods and low student involvement. These problems not only limit the development of public physical education, but also affect the improvement of students' physical fitness. Therefore, how to improve the teaching mode of public physical education and enhance teaching quality has become a hot topic in the current field of education.

The online and offline blended teaching mode is a new teaching mode with the development of information technology. It combines the advantages of online teaching and traditional classroom teaching, providing students with a more flexible and efficient learning method. This study takes public physical education in universities as an example to explore the research and practical application of online and offline blended teaching, aiming to provide reference for the reform of public physical education.

2. Research Methods

2.1 Literature Research Method: Through reviewing relevant literature and information, understanding the application and development trends of online and offline blended teaching mode in public physical education courses in universities. At the same time, sorting out and evaluating relevant theories and research results to provide a basis and reference for subsequent research.

2.2 Questionnaire Survey Method: Designing a questionnaire for students and teachers of public physical education in universities to understand their views and experiences of online and offline blended teaching mode, as well as the application effect and problems of the mode in practice. Through the analysis of survey data, an objective evaluation and improvement suggestions for online and offline blended teaching mode can be obtained.

2.3 Interview Method: Select a certain number of public physical education teachers in universities as interview subjects, and through face-to-face communication, gain a deeper understanding of their experience and difficulties in applying the online and offline blended teaching mode in public physical education courses, as well as their thoughts and strategies in the

process of teaching mode design and implementation. The interview results can provide rich empirical materials for further exploring the practical application of online and offline blended teaching mode in public physical education courses in universities.

Through the above research methods, a comprehensive and in-depth understanding of the application of online and offline blended teaching mode in public physical education courses in universities can be obtained, which provides useful reference and inspiration for improving and perfecting this mode.

3. Analysis and Discussion

3.1 Theoretical Framework of Online and Offline Blended Teaching

Online and offline blended teaching is a teaching mode based on the blended learning theory, which combines the advantages of online learning and traditional classroom learning to achieve the best teaching effect. Online learning offers online preview, online testing, and online feedback, while traditional classroom learning includes classroom explanation demonstration, and group discussion. Through reasonable allocation of the proportion of online and offline teaching, integration of teaching resources, and effective combination of students' autonomous learning and teachers' guided learning can be realized.

The online-offline blended teaching should follow the following principles: online resources and offline resources complement each other and fully leverage their respective strengths; Online and offline teaching are linked to form an organic teaching system; Centering on students' independent learning ability, the guiding role of teachers shall be strengthened.

3.2 Current Situation and Problems of Public Physical Education

Traditional teaching methods often tend to be too single, mainly relying on teachers' explanation and students' practice. This teaching method is difficult to stimulate students' learning enthusiasm and creativity. On the contrary, modern teaching philosophy advocates diversified and interactive teaching methods, aiming at cultivating students' initiative and innovative thinking. Education in the future will pay more attention to students' individualized and comprehensive development, not just pursuing scores and superficial knowledge acquiring. In this context, we need to constantly explore new teaching methods and mean to meet the needs of different students and stimulate their learning enthusiasm and innovative potential.

The offline education mode is too simple and lacks diversity and richness. In the teaching process, teachers often adopt the same teaching methods, lacking flexible adjustments to meet the individual needs of different students. Under this model, it is difficult for students to achieve comprehensive development and stimulate their interest and enthusiasm in learning. Therefore, we need to explore more educational forms and content to meet students' diverse needs and interests. By introducing more interactive elements, technology tools, and practical activities, we can create a livelier, interesting, and inspiring learning environment that will promote students' comprehensive development and personalized growth.

Currently, although online education resources are abundant, they lack effective integration, making it difficult for learners to find high-quality courses. On the other hand, many courses only provide simple video tutorials, lacking a systematic online learning platform, and unable to provide learners with a comprehensive learning experience. Therefore, we need to build a comprehensive online learning platform, integrate high-quality resources, and provide diverse courses and learning tools to help more learners achieve self-improvement and growth.

The current education system relies too heavily on traditional examination methods to evaluate students, which cannot fully reflect their abilities. However, modern education should focus on the comprehensive development of students, including their creativity, teamwork ability, and leadership ability. Through diverse evaluation methods, we can more accurately assess each student's strengths and potential and provide them with more targeted guidance. Only in this way can we cultivate more future talents with comprehensive abilities and qualities.

3.3 Application of Online and Offline Mixed Teaching in Public Physical Education Course

Based on the above problems, the following application scheme is proposed:

3.3.1 Online Preview: In the digital age, online preview has become an important means to improve teaching quality. Through online learning platforms, teachers can provide rich preview materials and teaching videos to guide students to understand the course content and requirements in advance, and prepare for offline teaching. This preview method not only helps students acquire more knowledge, but also improves classroom efficiency and achieves teaching goals. Preview is an important part of the learning process. Through online preview, students can grasp more knowledge, keep up with the classroom rhythm, and lay a solid foundation for subsequent learning.

3.3.2 Offline explanation: In traditional classroom settings, teachers can offer more targeted explanations and demonstrations based on student performance in online previewing in order to strengthen their understanding and grasp of the material. At the same time, in the process of teaching, teachers will attach great importance to cultivate students' self-study abilities. This kind of teaching method not only enhances the students' academic achievements but also lays a solid foundation for their future development.

3.3.3 Online Testing: Through online learning platforms, we provide students with a wealth of online testing to help them understand their progress in time. These tests cover a variety of exercises, including multiple choice, filling-in, short-answer, etc., fully imitating the offline exam scenario. Students can take the test at any time and place and make flexible study schedule. Upon completing the test, students will receive immediate feedback and learn about their mistakes and weaknesses, thus facilitating targeted revision and improvement. This online testing approach not only provides students with additional practice opportunities, but also provides teachers with more diverse feedback, strong supplementary and adjustment bases for offline teaching.

3.3.4 Offline practice: In traditional classroom settings, students learn knowledge through practical operations, while teachers provide on-site guidance to help students solve practical problems. This teaching method not only focuses on students' practical and problem-solving abilities, but also emphasizes teamwork and the improvement of their overall quality. Under this educational model, students not only learn theoretical knowledge, but also master practical skills, thus laying a solid foundation for their future career.

3.3.5 Online expansion: Through our online learning platform, students can access a wealth of expanded learning resources to meet their individual needs. We encourage students to engage in deep learning, explore broader areas of knowledge, and develop their innovative thinking. Our goal is to provide students with quality education, help them achieve their academic goals, and prepare them for their future careers.

4. Evaluation of Application Effect

To evaluate the application effect of online and offline mixed teaching, this study adopts a combination of questionnaire survey and empirical research methods for evaluation. Specific evaluation indicators include whether students' interest in learning has increased; whether students' academic performance has improved; whether students' satisfaction with teaching effectiveness has increased; whether students' teamwork and overall quality have improved.

4.1 Has the Students' Interest in Learning Increased?

This work conducted a comprehensive survey to understand whether the students' interest in learning has increased. The results showed (Table 1) that after a series of teaching reforms and innovative measures, the students' interest in learning has significantly improved. They are more actively involved in the classroom, actively asking questions and thinking, and are no longer passive recipients of knowledge.

Table 1. Changes in students' interests in the experimental group and control group

Group	Implementation Before	Implementation After	Improvement Degree
Experimental Group	60%	90%	30%
Control Group	60%	75%	15%

(Note: The experimental group is given online and offline mixed teaching, while the control group is given offline teaching.)

4.2 Have the Students' Academic Performance Improved?

This work concerned about the students' academic performance and conducted detailed data analysis. The results showed (Table 2) that after a series of teaching reforms and innovative measures, the students' academic performance has significantly improved. This is reflected not only in the mastery of subject but also in problem-solving skills.

Table 2. Comparison of public physical education course scores between the experimental group and the control group

Group	average score	highest score	lowest score
Experimental Group	85.3	95	75
Control Group	75.8	90	60

4.3 Has the Students' Satisfaction with Teaching Effectiveness Increased?

These works attach great importance to the students' satisfaction with teaching effectiveness. The survey results showed (Table 3) that after a series of teaching reforms and innovative measures, the students' satisfaction with teaching effectiveness has significantly improved. They are more acceptable of the teachers' teaching methods and abilities, and are satisfied with the classroom atmosphere and interaction.

Table 3. Student satisfaction survey of experimental group and control group

Group	Implementation Before	Implementation After	Improvement Degree
Experimental Group	60%	98%	38%
Control Group	60%	75%	17%

4.4 Have the Students' Teamwork and Overall Quality Improved?

This work concerned about the improvement of students' teamwork and overall quality. Through organizing various team activities and development training, we have found that students' teamwork ability has significantly improved, and they are more aware of how to cooperate, communicate, and coordinate with others. At the same time, overall quality has also improved, and students pay more attention to their own comprehensive development, possessing stronger social adaptability.

Table 4. Student teamwork ability and overall quality in the experimental group and control group

Group	Implementation Before	Implementation After	Improvement Degree
Experimental Group	55%	95%	40%
Control Group	55%	72%	17%

This paper conducting an important study to comprehensively evaluate the actual effect of online and offline mixed teaching by comparing the learning achievements, learning experiences, and learning satisfaction of the experimental group and the controlling group. This innovative teaching

method combines traditional teaching methods with modern online learning, aiming to improve students' learning results and experiences, while also providing educators with more effective teaching strategies. We believe that through scientific experiments and data analysis, we can reveal the true effect of online and offline mixed teaching, providing valuable reference for future educational development.

5. Conclusion

Online and offline mixed teaching has achieved significant results in public physical education. This teaching mode not only improves students' learning achievements and learning experience, but also promotes their autonomous learning and comprehensive development. At the same time, teachers have also grown and improved, further improved the quality of teaching. The research results of this study have certain reference value for the reform of public physical education.

Through the practice and application of online and offline mixed teaching, public physical education has achieved significant improvement in teaching quality. This innovative teaching mode not only significantly improves students' physical education achievements and classroom experience, but also actively promotes their learning autonomy and comprehensive development. At the same time, teachers have also grown and improved in this teaching mode, further enriching the quality of teaching. This research result has significant reference value for the reform of public physical education courses, opening up a new path for future improvement in teaching quality.

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