Received: 8 Apr. 2024 | Revised: 28 Apr. 2024 | Accepted: 21 May 2024 | Published online: 24 May 2024

RESEARCH ARTICLE

Contemporary Education and Teaching Research
2024, Vol. 5 (5)169-174
DOI: 10.61360/BoniCETR242016230502

# Exploration and Research on Online and Offline Blended Teaching Mode of Practical Class Courses

**Miao Zhao** *, [1]
[1]*Suzhou University, China*

**Abstracts:** With the rapid development of information technology and the popularity of the network environment, the education and teaching mode is undergoing a profound change. The traditional teaching mode of practical courses has time and space limitations, which cannot meet students' personalized learning needs and the requirements of teaching quality improvement. Therefore, exploring a blended teaching mode that integrates online and offline teaching resources has become one of the important issues in the current education and teaching reform. In this context, the online-offline blended teaching mode of practical courses makes use of the advantages of online and offline teaching resources to provide a more flexible and diversified teaching method for the teaching of practical courses. The purpose of this paper is to analyze its theoretical basis and teaching principles and to discuss the design and implementation of online blended teaching mode for practical courses, to provide new ideas and methods for education and teaching reform and innovation.

**Keywords:** practical courses; online and offline; blended teaching

## Introduction

Practice-based courses refer to a class of courses that are dominated by practical learning and operative activities, aiming to cultivate students' practical operation ability, problem-solving ability, and innovation ability. Such courses emphasize students' consolidation of theoretical knowledge and mastery of practical skills through practical activities, and the application of learned knowledge and skills to real problem-solving and innovative practice. Blended teaching mode refers to a teaching mode that combines traditional face-to-face teaching and online teaching to improve the teaching effect and learning experience. This teaching mode gives full play to the advantages of online and offline teaching, provides students with more flexible and diversified learning methods, and promotes the cultivation of students' learning interests and independent learning abilities (Han & Zhong, 2022). The online-offline blended teaching mode of practical courses is a teaching mode with a wide range of prospects for application and far-reaching impact, which can promote the stimulation of students' interest in learning, improve the teaching effect and learning experience, and is a teaching mode with broad prospects for development.

## 1. The Theoretical Basis of Online Blended Teaching for Practical Courses

The theoretical foundation of online blended teaching for practical courses is mainly rooted in the theoretical systems of educational technology, cognitive psychology, and pedagogy. Firstly, the theory of educational technology provides technical support and methodological guidance for blended teaching. The theory focuses on how to use modern information technology and teaching tools to promote the enhancement of teaching effectiveness, emphasizing the diversity and individuality of teaching design and the clever use of technological

**Corresponding Author:** Miao Zhao
Suzhou University, China
Email: 644703171@qq.com

tools, to achieve the organic integration of online and offline teaching resources and optimize the teaching process. Secondly, the theory of cognitive psychology provides the theoretical basis of cognitive learning for blended teaching. This theory studies the cognitive process and psychological mechanism of human learning, emphasizes the active participation and constructive learning of learners, and advocates the teaching mode based on problem-solving and cooperative learning, which provides cognitive support for the design and implementation of blended teaching (Liang et al., 2022). Further, pedagogical theory provides guidance on educational principles and teaching methods for blended teaching. The theory focuses on the goals, contents, methods, and evaluation of education, emphasizes the comprehensive development and personality growth of students, advocates student-centered teaching concepts and diversified teaching strategies, and provides theoretical guidance and methodological support for the practice of blended teaching.

## 2. Principles of Online and Offline Blended Teaching for Practical Courses

First of all, blended teaching should be student-centered, emphasizing personalized learning and differentiated teaching. Teachers should flexibly design teaching content and activities according to students' learning characteristics and needs, provide diverse learning experiences and paths, and meet the learning needs of different students. Secondly, blended teaching should take teaching quality as the core, focusing on the choice of teaching methods and the evaluation of teaching effects. Teachers should combine online and offline teaching resources, design rich and diverse teaching activities, stimulate students' interest and initiative in learning, and improve teaching effectiveness and learning outcomes. In addition, blended teaching should be supported by information technology, making full use of advanced technical means and teaching tools to improve teaching efficiency and quality. Teachers should master the corresponding teaching techniques and skills, flexibly use information technology, design innovative teaching activities, and realize the organic integration and interactive communication of online and offline teaching. Finally, blended teaching should be based on the principle of cooperation and co-construction, emphasizing cooperation and communication between teachers and students. Teachers should play a guiding and facilitating role, create a positive learning atmosphere and a cooperative culture, promote interaction and cooperation between teachers and students, and jointly promote the achievement of teaching goals.

## 3. Challenges Facing the Online-offline Blended Teaching Mode of Practical Courses

### 3.1 Technical facilities and network conditions limitations

In today's digital era, it has become the norm to rely on the network and technical equipment for teaching, however, the lack of technical facilities and the limitations of network conditions may cause obstacles to the effective implementation of the blended teaching mode. Some districts or schools may have aging equipment and inadequate facilities, resulting in teachers not being able to successfully utilize advanced technological tools for teaching and students not being able to have a high-quality online learning experience. Limitations in network conditions may also affect teaching and learning. In some areas, the network bandwidth may be insufficient, resulting in frequent network delays or disconnections, which affects the effectiveness of students' online learning. In addition, the network equipment and network environment in some students' homes may not be able to meet the needs of online learning, making them unable to participate in blended teaching activities smoothly.

### 3.2 Insufficient transformation of teachers' teaching concepts and capabilities

Some teachers still tend to favor the traditional face-to-face teaching mode and lack recognition and acceptance of online teaching. They may be confused about how to conduct instructional design and teaching activities in the online environment, leading

to poor teaching results. In addition, some teachers may lack the relevant educational technology competence to make proficient use of online teaching platforms and teaching tools and to organize online classrooms and teaching resources effectively, which affects the smooth running of teaching and students' learning experience. Therefore, the problem of insufficient teaching concepts and abilities of teachers has become an important factor restricting the development of blended teaching mode.

### 3.3 Lack of effective integration of teaching content and resources

Teachers need to organically combine online and offline teaching content and resources to achieve the teaching objectives and enhance students' learning effects. However, there is a lack of effective integration of teaching content and resources in practice. This may be due to the teachers' lack of relevant instructional design ability and experience to organically integrate online and offline teaching resources, resulting in a lack of coherence and systematicity in the students' learning process. Alternatively, it may be due to a mismatch between the quality and quantity of online and offline teaching resources, failing to meet teaching needs and students' learning needs. These problems may affect the smooth running of teaching and reduce the teaching effect and learning experience.

### 3.4 Inadequate management mode and institutional support

The online-offline hybrid teaching mode of practical courses requires the establishment of a corresponding management mechanism and institutional support to ensure the smooth implementation and effective management of teaching activities. However, in reality, there is a situation where the management mode is not sound enough and the institutional support is insufficient. This may be due to the lack of relevant management experience and the improvement of system construction, resulting in the lack of effective organization and coordination in the teaching process, which affects the quality and effect of teaching. Alternatively, it may be due to the inadequacy of relevant management systems and policies to effectively support the implementation and development of the blended teaching mode. These problems may lead to confusion and instability in teaching activities, reducing teaching effectiveness and students' learning experience.

## 4. Design and Implementation of Online-Offline Blended Teaching Models for Practical Courses

### 4.1 Strengthen the design and integration of course content

The design of course content should take into full consideration the characteristics and learning objectives of practical courses. Practical courses usually focus on cultivating students' practical ability and problem-solving abilities, so the course content needs to be closely centered on practical tasks, combined with specific cases and examples so that students can deeply understand the theoretical knowledge in the learning process and apply it to the real world. Secondly, the integration of course content requires the organic combination of online and offline teaching resources to form a complete learning system to meet the needs of students in different learning scenarios. Teachers should effectively integrate these resources through careful planning and organization so that they complement and support each other, providing students with rich and diverse learning experiences. In addition, the design and integration of course content should also focus on interdisciplinary fusion and cross-field intersection. Practical courses often involve knowledge from multiple disciplines and fields, so teachers should organically combine knowledge from different disciplines and fields through interdisciplinary integration and crossover to form comprehensive learning content, to promote students' comprehensive application of knowledge and comprehensive enhancement of their abilities (Zhou & Zhang, 2021). Finally, teachers should adjust and optimize the course content promptly according to students' learning needs and feedback. In the teaching process of practical courses, teachers should pay close attention to the students' learning situation

and feedback information, and adjust the course content and teaching methods promptly, to ensure that the course content is closely integrated with the practical activities, and to enhance the students' learning effect and practical ability.

**4.2 Rational design and arrangement of teaching activities**

The design of teaching activities should take into account students' learning objectives and practical needs. In practical courses, students usually need to consolidate theoretical knowledge and develop problem-solving ability through practical operation. Therefore, the design of teaching activities needs to be closely related to the course content, focusing on practical operations and case analyses, to promote students' in-depth learning and ability enhancement. The arrangement of teaching activities should fully consider the advantages and limitations of online and offline learning environments. In the online environment, knowledge transfer and conceptual understanding can be carried out in the form of online courses, teaching videos, and online discussions; while in the offline environment, practical activities and problem-solving can be carried out in the form of experimental operations, field trips, and case analyses. Teachers should rationally arrange online and offline learning activities according to the learning tasks and teaching objectives so that they complement and support each other. In addition, the design and arrangement of teaching activities should also focus on student participation and interaction. Through group discussion, teamwork, and practical projects, students' learning interests and initiative are stimulated, and communication and cooperation among them are promoted.

**4.3 Selection and provision of learning resources**

For the selection of online learning resources, teachers should carefully select online courseware, teaching videos, online literature, etc. that are appropriate to the course content and learning objectives. These resources should be information-rich, easy to access, and easy to understand to meet the needs of students learning online. Meanwhile, practical learning experiences can also be provided in the form of virtual laboratories and network simulation software to help students consolidate their theoretical knowledge and develop practical operational skills. For the provision of offline learning resources, teachers can make use of resources such as laboratory facilities, fieldwork venues, and practical guidebooks to provide students with rich and diverse practical opportunities. Through practical operation and field observation, students can gain an in-depth understanding of the nature and solution of practical problems and develop problem-solving ability and practical skills. In addition, teachers can provide students with learning resources related to actual work scenarios through case studies, discussion sessions, group projects, etc., guiding them to learn, discover, and solve problems from practice, and enhancing their practical and innovative abilities (Xie et al., 2020). Finally, to ensure the effective use of learning resources, teachers should adjust and optimize the provision of resources promptly according to students' learning needs and feedback, and provide students with personalized and differentiated learning support. At the same time, they should also strengthen students' guidance and instruction on learning resources, cultivate their ability to learn independently and explore on their own, and improve their learning effect and learning satisfaction.

**4.4 Construct and maintain a good technology platform**

The construction of the technology platform should be based on the characteristics of the course content and teaching objectives, and suitable technology tools such as teaching management systems and online learning platforms should be carefully selected. These tools should have stable performance, easy-to-use interfaces, and rich functions to meet the needs of teachers and students learning online. For example, a learning management system (LMS) can be used to organize and manage course content, provide online assignments, discussion boards, and other features, as well as video conferencing tools for distance learning and

student interaction (Chen, 2020). The maintenance of the technology platform needs to ensure the stable operation of the system and information security. Technical failures and network problems are resolved promptly to ensure that the teaching and learning process is not interrupted. This requires professional technicians to monitor and maintain to ensure the high availability and reliability of the platform. It also requires regular updating and maintenance of the content and functions of the platform to meet changing teaching needs and technological developments. When teachers and students use the platform, technical support and training are also needed to help them familiarise themselves with and master the use of the platform to improve teaching effectiveness and user experience. In addition, the construction and maintenance of the technology platform require close cooperation with technology service providers and relevant departments (Shi & Su, 2019). Actively participate in the research and application of educational technology to promote continuous innovation and optimization of the technology platform. For example, technologies such as artificial intelligence and big data analysis can be introduced to provide more accurate support and personalized services for teaching. Finally, to ensure the continuous development and improvement of the technology platform, it is also necessary to strengthen the training and support for teachers and students to improve their ability to use technology tools and their awareness of teaching innovation. Promote the organic integration and interactive communication of online and offline teaching to further improve the quality of teaching and learning effects.

**4.5 Establish learning evaluation and feedback mechanism**

Learning evaluation should be comprehensive and diversified, aiming at objectively evaluating students' knowledge mastery, practical ability, and problem-solving ability. Evaluation methods can include exams, assignments, lab reports, project presentations, case studies, and other forms to cover different levels and types of learning content and to reflect students' learning in a comprehensive way (Wang, 2018). The evaluation process should be timely and continuous, making full use of online and offline teaching resources and platforms to collect students' learning data and performance promptly to provide a basis for teaching adjustment and personalized guidance. At the same time, a learning feedback mechanism is established to collect students' evaluations and suggestions on the teaching process through questionnaires, discussion feedback, and students' self-assessments, to promote teachers' improvement and optimization of the teaching process and teaching methods. In addition, learning evaluation and feedback should be personalized and targeted, providing students with personalized learning support and guidance according to their individual differences and learning needs. For example, personalized learning paths and resource recommendations can be provided to students based on their learning data and performance, helping them to make up for the shortcomings in their knowledge and abilities, and improving their learning effectiveness and learning satisfaction. Finally, evaluation results should be credible and reliable, and teachers should strictly follow evaluation standards and procedures to ensure objectivity and fairness. Evaluation results should also be announced to students and parents promptly to help them have a comprehensive understanding of students' learning and to promote active participation and support from students and parents.

**4.6 Teacher role orientation and training**

Teachers' roles should be changed from traditional knowledge transmitters to learning guides and organizers of the learning environment. Teachers should play the role of stimulating students' interest in learning, guiding them to learn independently and co-operatively, actively participating in the learning process, and providing timely guidance and support to students. Teachers need to possess a variety of abilities and qualities, including instructional design ability, technology application ability, subject knowledge, and practical experience. Given the characteristics of blended teaching mode, teachers

also need to have the ability to integrate online and offline teaching and make good use of teaching resources and technological tools to create rich and diverse learning environments and learning experiences. Teacher training, on the other hand, is a key way to enhance teachers' role orientation and competence. Training can include teaching theory and methods, teaching design and evaluation, and the application of technological tools, aiming to improve teachers' teaching level and effectiveness. In addition, teachers can be trained in practical experience and teaching skills through practical activities, teaching observation, and case analyses to enhance their teaching ability and professionalism (Peng, 2019). Teacher training should be continuous and systematic, providing teachers with all-round support and assistance so that they can adapt to the changing teaching environment and teaching needs.

## Conclusion

In summary, the online-offline blended teaching mode of practical courses, with its advantages of flexible and diverse teaching methods and resource integration, provides students with a more personalized and autonomous learning environment and promotes the stimulation of students' interest in learning and the cultivation of their practical ability. However, it also faces deficiencies and challenges in practice. In response to these challenges, the relevant departments should continue to research and practice, this teaching mode will continue to improve and develop, and make greater contributions to the cause of education and teaching.

## Acknowledgement

This research was funded by:

Exploration and research on the blended online and offline teaching mode of practical courses in the post epidemic era（szxy2021jyxm13）

## Conflict of Interest

The author declares that she has no conflicts of interest to this work.

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**How to Cite:** Zhao, M (2024). Exploration and Research on Online and Offline Blended Teaching Mode of Practical Class Courses. *Contemporary Education and Teaching Research,* 05(05),169-174.
https://doi.org/10.61360/BoniCETR242016230502