Original Paper

Research on the Implementation Status and Improvement Strategies of Online Teaching for Practical Courses in Universities

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Abstract

With the development of Internet technology, a new channel choice has been provided for the development of practical courses in colleges and universities. In order to ensure the implementation of practical courses keeps pace with the times, and also to meet the intelligent requirements of the country for practical courses in universities, more and more universities are choosing to adopt online teaching methods for practical courses. Based on this, the article explores the current situation of online teaching of practical courses in universities, identifies existing problems, and proposes corresponding improvement strategies for the implementation of online teaching of practical courses in universities, in order to provide certain reference for improving the quality and effectiveness of online teaching of practical courses in universities.

Keyword

colleges and universities, practical courses, online teaching

In the context of the information age, various advanced information technologies have begun to deeply integrate with various industries, including higher education. Influenced by information technology, online education has begun to enter the public's vision. In the traditional teaching process of universities, offline classroom teaching is mainly used. However, with the development of the times, the country has put forward higher requirements for talents. Traditional offline education can no longer meet the learning needs of students. It is imperative for universities to carry out online teaching around practical courses. However, due to multiple factors, there are still many problems in the implementation process of online teaching of practical courses in many universities. Only by overcoming these problems can we ensure the smooth implementation of online teaching of practical courses and achieve good teaching results.

1. The Current Situation of Online Teaching Implementation for Practical Courses in Universities

As early as 2015, Government Work Report for the first time proposed to develop an action plan of "Internet plus", requiring all walks of life to quickly set off a wave of deep integration with the Internet. "Internet plus education" came into being in this wave, and online education has thus entered the public's vision. Subsequently, with the maturity and improvement of information technology in China, more and more universities have taken the initiative to implement online teaching models around on campus courses. At first, this exploration only focused on theoretical courses in university majors. However, with the release of the article "Breaking through the Limits - A New Path to Reshape Higher Education" by UNESCO at the Third Higher Education Conference in July 2022, which proposed that "higher education should provide students with a more comprehensive learning experience and ways to meet the lifelong learning needs of young people." In February 2023, the Central Committee of the Communist Party of China and the State Council issued the "Overall Layout Plan for Digital China Construction," which proposed to "vigorously implement the national education digital strategy action and improve the national smart education platform". After that, universities gradually expanded the implementation of online education, until it was combined with practical courses. However, due to the difference between practical courses and professional theoretical courses, which place great emphasis on cultivating students' technical skills, there are still many problems in the implementation process of online teaching of practical courses in universities. These problems are mainly reflected in the following aspects:

Firstly, the feedback on the effectiveness of online teaching for practical courses is not timely. Unlike offline teaching teachers who can directly observe students' learning progress in practical courses, online teaching teachers cannot directly observe students' practical actions. Therefore, when students make mistakes in practical operations, teachers cannot provide feedback and correct them in a timely manner. In addition, in online teaching of practical courses, there is less communication and interaction between teachers and students compared to offline teaching. Whenever the online teaching of practical courses ends, teachers do not have a clear feedback mechanism after class, which makes it difficult to ensure the teaching quality and effectiveness of practical courses.

Secondly, there are limitations to the supervision of online teaching in practical courses. Usually, in order to ensure that students participate in online teaching of practical courses, teachers often use methods such as clocking in, online roll call, and observing the number of people on online learning platforms. However, the above methods can only ensure that students participate in online teaching of practical courses, but cannot guarantee that students will fully immerse themselves in online learning of practical courses. Compared with offline teaching of practical courses where teachers directly supervise students, online teaching does not have direct supervision from teachers, and students face a more relaxed learning environment. Therefore, some students with weak self-discipline are easily distracted during the learning process, and in severe cases, they may even do things unrelated to learning during

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online teaching of practical courses, thereby affecting the learning effectiveness of practical courses.

Thirdly, teachers use inappropriate teaching methods for online teaching of practical courses. For a long time, university teachers have been accustomed to implementing time courses using offline teaching modes, and their experience in online teaching is very limited. Therefore, when using teaching methods, they are easily influenced by traditional teaching habits and lack the application of information technology and intelligent tools. Taking programming as an example, teachers often use classroom teaching combined with computer exercises to carry out practical teaching, hoping to improve students' programming ability through this teaching method that combines theory and practice. However, in the implementation of online teaching in practical courses, teachers can only integrate both theory and practice into online teaching. At the same time, due to the limited interaction and communication between teachers and students in online teaching, teachers can only teach program design content unilaterally, and students can only passively receive knowledge, thereby weakening the practical value of practical courses.

Fourthly, there is insufficient allocation of online teaching resources for practical courses. Advanced computer software and hardware equipment, stable networks, and a comprehensive teaching platform are the foundation for implementing online teaching of practical courses in universities. However, in practical reality, there is a common problem of insufficient allocation of network resources. On the one hand, in the network environment, online teaching of practical courses requires high requirements for computer software and hardware as well as network quality. However, not all teachers and students can have advanced computer software and hardware equipment and stable networks. Therefore, the most common problem encountered in online teaching of practical courses is that the network is not smooth, which affects the effectiveness of online teaching. On the other hand, on online teaching platforms, many teachers are accustomed to using methods such as Tencent Meeting and Enterprise WeChat to give lectures, assigning practical course assignments through Learning Pass, and sharing practical course teaching resources with students through MOOC. This decentralized online teaching platform selection not only increases the teaching burden on teachers, but also affects the learning enthusiasm of students. Therefore, it is necessary for universities to make unified arrangements for online teaching platforms for practical courses.

Fifth, the assessment and evaluation methods for online teaching of practical courses are too single. Online teaching, as a new educational model that differs from offline education, requires university teachers to make corresponding distinctions when setting assessment and evaluation methods for online teaching of practical courses. However, many teachers still regard teachers as the absolute subject of assessment when evaluating online teaching of practical courses. The assessment and evaluation method mainly uses "regular grades+exam scores" to test students' learning outcomes of practical courses, without taking into account their learning experience and feelings. These factors will greatly hinder the implementation of online teaching of practical courses.

2. Implementation and Improvement Strategies for Online Teaching of Practical Courses in Universities

2.1 Improve the Mechanism for Correcting and Providing Feedback on Technical Actions

In response to the problem of delayed feedback on the effectiveness of online teaching of practical courses in universities, universities should continue to improve the mechanism for correcting and providing feedback on technical actions. Firstly, before the online teaching of each practical course begins, teachers can transmit the theoretical knowledge and technical action points to be taught to students in the form of articles, videos, pictures, etc. through class WeChat groups, QQ groups, etc., requiring students to preview and familiarize themselves with technical actions and operating norms before the formal online teaching of practical courses begins. Secondly, in the online teaching process of practical courses, teachers can use video conferencing tools such as Tencent Meeting and DingTalk, and use the cameras provided by video conferencing tools to first show students for practical operation, and then ask students to operate according to the teacher's demonstration. During this process, teachers can ask students to display their operations under the camera for easy observation and guidance. Thirdly, when students demonstrate practical operations to teachers, teachers need to provide personalized feedback based on their actions, in order to provide personalized improvement methods and suggestions for different students' practical operation problems. Fourthly, in the after-school stage, teachers need to summarize the entire process of online teaching of practical courses in class, and produce videos and exercise guidance materials to package and send to students, so that students can also repeatedly train according to the content of the videos and exercise guidance materials after class.

2.2 Establishing a Supervision Mechanism for Online Teaching of Practical Courses

Establishing a supervision mechanism for online teaching of practical courses in universities is the key to ensuring the quality of online education for practical courses. Through the supervision mechanism, teachers can observe the learning status of students at any time during online teaching, and help students develop the habit of self-directed learning, improving their self-discipline. The supervision mechanism for online teaching of practical courses includes the following content. Firstly, in order to make the online teaching of practical courses more standardized, universities should utilize existing learning management systems to build an online teaching platform for practical courses. On this teaching platform, teachers from the academic affairs office of universities uniformly distribute the teaching content, learning materials, homework requirements, etc., of practical courses to students. Students can log in to the teaching platform to query the specific information of all practical courses, facilitate their selection of practical courses, submission of homework, and online discussions. Secondly, in addition to online teaching of practical courses, teachers should set a fixed time period every week as a Q&A session for online teaching of practical courses aimed at students. During this time period, the teacher will open a live broadcast room online and indicate the professional students targeted by the live broadcast room on the title interface. In the live broadcast room, students can directly send barrage messages, and teachers can answer questions and clarify questions based on the

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barrage messages provided by the students. Thirdly, every time the online teaching of practical courses is completed, teachers should assign students skills exercises for practical courses as homework after class. After assigning homework, students can complete the homework through video format, upload the completed homework to the online teaching platform for practical courses, and the teacher will evaluate and score the completion of the homework. Fourthly, universities should establish a dedicated online teaching supervision group around the implementation of practical courses, and the members of the supervision group will be mentors from each college. Whenever online teaching of practical courses is carried out, members of the supervision group will randomly select live rooms to enter, and conduct specific evaluations of the online teaching situation of practical courses by observing the teacher's practical content teaching and the student's learning status. The evaluation results will be uniformly fed back to the teacher, and the teacher can also improve the teaching content in a timely manner based on the feedback results.

2.3 Online Teaching Methods Based on People-oriented Innovative Practice Courses

In the implementation of online teaching of practical courses in universities, teachers should break the traditional concern of offline teaching, transform the teaching philosophy and role played in the teaching process, fully respect the subject status of students, innovate the online teaching methods of practical courses, and enable students to improve their technical skills through online learning. Taking programming as an example, teachers can design some pre class games before each online teaching of programming practice courses. The content of the games mainly revolves around programming, allowing students to warm up before formally learning programming practice skills. In addition, teachers can also build a program design answering system based on the online teaching mode of practical courses to consolidate the effectiveness of online teaching. On the one hand, teachers can make full use of the Moodle online teaching management platform to build a program design intelligent question bank with the rich practical question types available on the platform. On the other hand, in order to fully mobilize students' enthusiasm for practical course learning, teachers can occasionally intersperse some questions during online teaching. For example, every time a teacher demonstrates technical actions in practical content, they can ask students about the norms and precautions of technical actions, in order to stimulate their learning enthusiasm.

2.4 Optimize Network Resources and Select Suitable Online Teaching Platforms

In order to effectively address the problem of insufficient allocation of online teaching resources for practical courses in universities, universities should optimize network resources and choose appropriate online teaching platforms. Firstly, for teachers and students who do not have advanced software and hardware equipment, universities can use leasing to lease laptops and tablets that can meet the requirements of online teaching and learning to students. After the online teaching of each practical course is completed, the university can arrange a dedicated person to collect it uniformly. Secondly, universities can establish cooperative relationships with local network operators to expand campus broadband traffic, allowing teachers and students to enjoy stable network connections, and providing a

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basic guarantee for the online teaching of practical courses. Thirdly, universities should comprehensively consider various online teaching platforms and select the software suitable for practical course online teaching as the only designated online teaching platform. Fourthly, in order to enable teachers to devote all their energy to online teaching of practical courses, universities should proactively provide resources and materials such as online courseware and teaching videos for teachers. In addition, teachers can also share these resource materials on the online teaching management platform for practical courses. Fifthly, when teachers face any technical questions in online teaching of practical courses, they will be solved by professional technical teams established by universities to ensure smooth implementation of online teaching of practical courses.

2.5 Establishing an Online Teaching Evaluation System for Practical Courses

In the implementation process of online teaching in practical courses in universities, traditional offline teaching evaluation systems should not be used as the evaluation criteria for online teaching. Instead, based on the particularity of practical courses and online teaching, universities should establish a new teaching evaluation system. In this regard, universities can diversify the evaluation subjects of online practical courses from three perspectives: teachers, study groups, and students themselves. Among them, teacher evaluation is mainly carried out by the teacher on the attendance rate of students in online teaching of practical courses, participation in practical tasks, and completion of after-school practical homework. The evaluation of learning groups is mainly carried out by members of the online teaching supervision group in universities to evaluate the participation of students in practical courses, the contribution of student groups, and the cooperation ability of students in online teaching of practical courses. Student evaluation is mainly based on students evaluating their performance throughout the online learning process of the practical course. After the evaluation is completed, the university will provide fair and objective scores based on a comprehensive evaluation of multiple subjects, as a result of the online teaching of practical courses by teachers.

3. Conclusion

In summary, the popularization of information technology has provided many possibilities for the development of practical courses in universities, among which online teaching is one of the more reliable and convenient. Utilizing online teaching to carry out practical courses in universities not only conforms to the trend of the times, but also maximizes the satisfaction of students' learning needs. Therefore, in the implementation process of online teaching of practical courses, universities can use measures such as improving technical action correction and feedback mechanisms, building a supervision mechanism for online teaching of practical courses, innovating online teaching methods based on people-oriented approaches, optimizing network resources and selecting appropriate online teaching platforms, and establishing an evaluation system for online teaching of practical courses to continuously improve and enrich the quality of online teaching of practical courses, thereby improving the effectiveness of online teaching of practical courses.

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