The Development and Application of Micro-course in Colleges and Universities in the "Internet +" Era

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Abstract: With the arrival of the "Internet +" era, the deep integration of the new generation of Internet-based information technology and education has become an inevitable trend. This deep integration not only involves the penetration and integration of technology, but also heralds the reform and innovation of education. In the context of "Internet +" higher education, how to carry out the construction of micro-course resources scientifically and efficiently, and give full play to the advantages and values of micro-course, is an important task to promote the sustainable development of micro-course. Based on the author's learning and practice experience, this work first analyzed the basic cognition of micro-course, then discussed the current status and problems of teaching application of micro-course in China, and finally proposed an application strategy of effectively integrating micro-course with teaching in colleges and universities.

1. Introduction

With the development of technology and information technology, the Internet has become one of the indispensable tools for people to work, live and study. Traditional industries are beginning to combine with the Internet to make full use of the existing advanced information and communication technology to create a new mode of life [1]. In terms of education in colleges and universities, changing the traditional education model based on the "Internet +" education model has become one of the breakthroughs in the reform of education and teaching methods in today's colleges and universities. As a new form of educational resources, micro-course is mainly played by network media [2]. Therefore, this work analyzed the current application status of micro-teaching in colleges and universities, discussed and studied the development strategy of micro-teaching in colleges and universities from the "Internet +" perspective, and provided new opportunities for the further development of micro-teaching in the "Internet +" era.

2. Basic Cognition of Micro-course

2.1 Concepts and goals of micro-course

Micro-curse refers to structured digital resources that use information technology to present fragmented learning content and processes, and expand materials in accordance with cognitive rules. The goal of micro-course is to reduce cognitive costs and burdens, which means that micro-course can provide low-cost and cost-effective support for students' knowledge construction and skill construction. Micro-course is structured resources composed of subjects and supporting materials with internal connections; the content of learning and teaching is visualized and fragmented with technical support to reduce the burden and cost of learning; learning and teaching methods are non-linear individualization and differentiation; learning and teaching forms meet the fragmented time requirements of the new form of "Internet +" learning [3].

2.2 Structure of micro-course

Micro-course is composed of learning videos or software, supporting courseware, learning basic (extended) materials or suggestions (outside chain), learning (teaching) cases and other elements (as

shown in Fig. 1). Combining traditional and modern technologies, and using visualization, fragmented, non-linear learning videos and interactive software can make it easy for learners to complete the construction of knowledge and skills. The supporting courseware is to complement the description and supplement of the main body of the micro-course, adapting to the learning of learners and the teaching of teachers. Learning basic resources is the basic extension to support the main body of micro-course, which is convenient for learners to find the foundation and support point of learning. Learning extension resources is the follow-up development or advanced learning paths of micro-course learning, which facilitates the continuous learning of learners. Learning (teaching) plan is to provide learners with knowledge or skills of thinking visual learning path, or to provide teachers with teaching visual path [4].

2.3 Features of micro-course

Micro-course has the characteristics of fragmentation, visualization, structure, and non-linearity. It presents fragmentation of learning form, visualization of learning content, structuralization of learning form, and nonlinear learning style. The "micro" of micro-course is represented by time, content, form and cost. Specifically, it reflects that the governing time of learning is fragmented but can be spliced (continuous and uninterrupted), and the learning content is fragmented and can be spliced (continuous and uninterrupted). The presentation form is adapted to the rapid transmission of "Internet +" learning and teaching applications, and the cost of supply and consumption, production and cognition is the lowest. If knowledge and skills are described as a connectable network, micro-course is in the visualization resource for each intersection node.
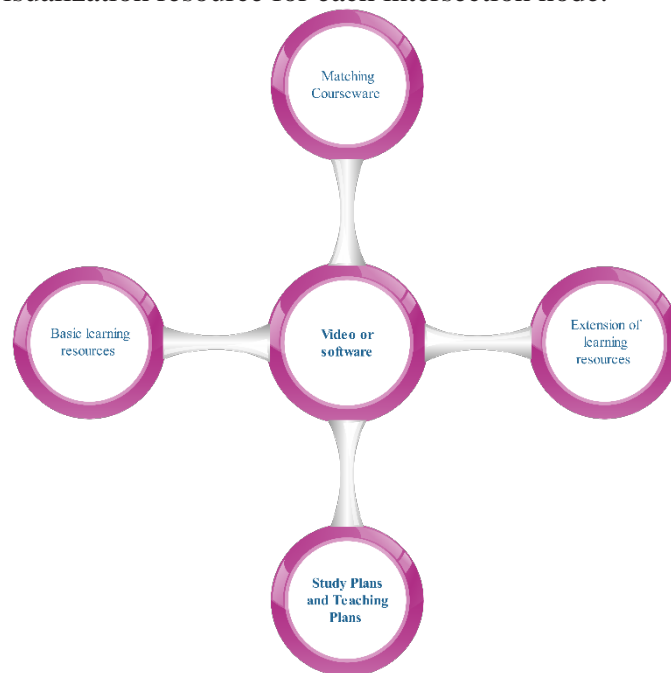

Fig. 1. Schematic structure of micro-course

3. Status and Problems of Teaching Application of Chinese Micro-course

3.1 Micro-course focuses on participation and formalization

To some extent, micro-course is driven and developed by policy. The application scenarios of micro-course that college teachers are most exposed to are various micro-course competitions. Because of the various micro-course competitions held, the content of micro-course has also been rapidly developed, continuing to produce excellent micro-courses. However, these awarded micro-course works are only applied to actual front-line teaching, but lack an application platform, failing to be applied into daily teaching. Some college teachers are eager to improve their teaching level, the quality or effect of teaching, but because of some interests involved, the current situation of the application of micro-course teaching mainly leans on the training of micro-course or the

competition of micro-course. Therefore, micro-courses are mainly represented in some competitions, so normalized teaching is difficult to achieve due to lack of application platform and sufficient resources.

3.2 Micro-course teaching is too instrumental

Compared to traditional classroom teaching, micro-course has changed the past teaching mode to some extent; however, depending only on micro-course will greatly reduce the affinity between teachers and students since students just face micro-course video. This is also one of the phenomena that some teachers who are keen on micro-course teaching should seriously change. Compared with the past, the support of teaching equipment and the environment has made the realization of micro-classes much less difficult. It has made it convenient for college teachers to make micro-lectures and apply them to teaching [5]. Although to a certain extent, the traditional full-teaching teaching model has been abandoned, the labor intensity of college teachers has been reduced, and the teaching method has been changed from the perspective of information technology, but it has outstanding teaching problems in terms of application effect. Therefore, micro-course teaching is not just a playback tool used in the teaching process, but it should be considered from the perspective of "curriculum teaching development" to improve the teaching process and improve teaching efficiency.

3.3 The teaching quality of micro-course lacks complete evaluation system

To a certain extent, micro-course is a teaching process derived from the development of Internet and multimedia technology. It does not have a complete teaching evaluation system like other traditional teaching links. Therefore, the design and production of micro-course lack a unified standard and have different forms of expression. At present, most excellent micro-course works come from micro-course competitions. In the ordinary teaching process, there is a lack of evaluation indicators for micro-course systems. Therefore, if micro-course teaching is too comprehensive in science and engineering, it will ignore the differences in professional structure and affect the improvement of teaching quality; in addition, whether micro-course is really accepted by students and whether it meets the learning needs of students lack teaching supervision and evaluation indicators.

4. The Path of Effective Integration of Micro-course and Teaching in Colleges and Universities

4.1 Integrating micro-course into textbook

In the "Internet +" era, online teaching resources are constantly being enriched and improved. Under the drive and influence of rounds of education reform projects, the status and role of textbooks have been impacted. In order to avoid being replaced, and to play its value, textbooks must be up-to-date and integrate new elements, such as micro-course. The full integration of micro-course and textbooks is conducive to deep learning and effective learning for learners. Therefore, as long as the chapters and contents written and the knowledge organized are clear, the related textbooks need not not to list a large amount of knowledge as before, but should update the knowledge in time through micro-course and corresponding websites. It is recommended that the publisher cooperate with Taoke network to create a micro-course platform. Each chapter consists of different knowledge points, and each knowledge point is made of a micro-course, so that learners can download or learn online by scanning the QR code on the textbook [6].

4.2 Integrating micro-course into teaching

At present, college teachers are not enthusiastic in making and using micro-course for two reasons: first, the production of micro-course requires venues, equipment, costs, and technical requirements, and ordinary teachers cannot do it; second, the production of micro-course is not once for all, but must be updated in a timely manner, including finding resources for micro-course, and applying them to teaching, which requires a lot of time and effort, but they are not driven by benefits. At

present, almost every college and university has its own online teaching platform, which should be fully utilized and self-built to establish micro-course or organize existing micro-classes and place them on the online teaching platform for free use by teachers and students. Schools should develop plans to guide teachers to make micro-course and gradually integrate it into teaching, and establish a reward and punishment system. Micro-course production can be listed as teaching and research project, and teachers should be encouraged to apply for projects, allocate funds for project establishment, and appraise merit awards, or give extra points when they are promoted; as for micro-course, in addition to volunteering, tasks should be assigned. In view of the large demand for public courses and the lack of teachers, it is recommended to start from the public and elective courses, use micro-course resources to implement flipped classes, and accept assessments. After that, the professional elective courses and public compulsory courses should be further promoted, and finally the micro-course is truly realized.

4.3 Reforming the teaching evaluation mechanism

In the context of "Internet +" big data, the traditional education model of colleges and universities has been difficult to adapt to today's education requirements. The evaluation content has changed from a single test score in the past to a student-centered and modern education measurement evaluation system oriented to comprehensive literacy is established, which makes the evaluation become more objective and comprehensive, and the enthusiasm of teachers and students will become higher [7]. With the continuous development of "Internet +" technology and the popularity of smartphones, the need for students to learn independently at any time is increasing. The evaluation mechanism of college micro-course has become an important aspect of teaching in the new period, which directly affects the effectiveness of micro-course teaching. While referring to the traditional teaching evaluation mechanism, teaching institutions in colleges and universities should pay attention to the individualized teaching and diversified characteristics of micro-course, which can meet the personalized needs of contemporary college students for knowledge. Therefore, the "Internet +" micro-course evaluation mechanism should do the following: first, micro-course is based on "Internet +" and requires the full use of the technical advantages of the Internet. Establishing a effectiveness feedback evaluation mechanism can lay a foundation for better improvement of micro-course content and micro-course level; second, it is necessary to change traditional teaching evaluation links and processes, focus on a evaluation system with multiple aging, which not only includes the evaluation of teachers, students, and teaching content, but also establishes dynamic evaluation system including the use of micro-lecture application platforms and online teaching support systems, and build dynamic real-time evaluation indicators, so as to adjust the teaching and learning strategies of micro-course in time to promote the development of "Internet +" micro-course.

5. Summary

The micro-course competition in colleges and universities has shown the wonderful works of micro-courses, making people feel its unique charm, and also pointing out the direction for its development. However, in order to apply micro-course to practical teaching activities, it is necessary to continue to reform and innovate, study new teaching and learning theories, study training and guidance, models and strategies, measures and mechanisms, effects and evaluation of micro-course application, pay attention to the expandability, interaction and growth of micro-course, making them fully integrated in various teaching activities. In this way, through application-reformation-reapplication, the quality level and utilization rate of micro-course can be continuously improved, serving students better, and enabling students to acquire knowledge directly, on demand, conveniently and effectively.

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