Research on the Application of Micro Course Resource Development Technology for Digital Teaching Platform

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ABSTRACT
Micro era has entered people’s life inadvertently and influenced their production experience imperceptibly. In the case of the popularization of digital, micro course shows its unique advantages, has gradually been welcomed by people and been applied to teaching. The introduction of micro course may have a great impact on traditional resource construction and teaching methods. Nowadays information technology is developing rapidly and is widely used in every field. The teaching reform in colleges and universities should also make use of new resources and new media, and the current hot spot—micro course can effectively promote the teaching reform, construction of digital learning resources and individualized learning way. It is a new way of the teaching reform in colleges and universities.

Key words: micro era, digitization, micro course.

INTRODUCTION
People's living environment is constantly changing with social progress and the innovation of science and technology. Now there are the era of innovation, the era of internet, the era of creation and the era of information. Digitization is influencing everyone’s life, and the emergence of micro-things makes this influence more concrete. As for teaching, micro course and micro lecture have sprung up in educational fields. Its appearance is likely to induce a series of teaching reforms. Therefore, the research of the definition, features and design patterns of micro course can be referred by relevant personnel and play a valuable role in promoting teaching reform.

DEFINITION OF MICRO COURSE
There are many explanations of course, but “process and coursework” is recognized by most people. In education fields, it can be generally regarded as the plan and the contents of teaching. In a narrow sense, it refers to activities, contents and processes of a certain discipline.

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In a broad sense, it can be understood as all activities of all disciplines, teachers and students. Miniaturizing traditional course can form micro course. In the study, it is generally only for one discipline.

Mr. Tiesheng Hu is a representative researcher and practitioner in the study of micro course in China. He holds that micro course can be represented by micro video. After analyzing and studying, he learned that in class, students can concentrate for only 5 to 8 minutes. If the wonderful part of each lesson is presented by video to other people for reference and learning, it can be beneficial to improving teaching quality. Such video can be understood as a micro course. Therefore, he specifically defines micro course as: According to teaching requirements, using video to express all the teaching resources that teachers use when explaining knowledge points in class. The emphasis of micro course is class teaching video. In addition, student experience, teaching reflection, teaching design, teacher reviews, practice testing and material courseware should be included.

FEATURES OF MICRO COURSE

(1) The theme is clear. Micro course has a clear theme, which is based on an experiment, a topic or a knowledge point. As long as micro course only reflect a teaching activity, a teaching theme or a link in the class, the aim is single and clear.

(2) It is convenient to expand. Now, micro course is mainly represented by short teaching video. Additionally, teaching auxiliary resources, reviews of teachers and students, teaching design and so on, have make up resource packages with clear the me and rich contents, which are open to outside world and can add new things and be updated constantly.

(3) It can build strong empathy engagement. Micro course has many different resources and many contents. The contents is generally a problem in the class, or a case from real life. They jointly build a real and vivid situation which can effectively promote teachers’ growth and stimulate students' enthusiasm for learning.

(4) It is easy to learn. Cognitive psychology proves that people can concentrate on learning only for a few minutes. The short video duration of micro course is generally not more than 15 minutes, which can effectively improve learning efficiency. And micro course is not very large, including a variety of visual format, convenient for teachers and students to use.

(5) Collaborative cooperation is necessary. Micro course follows 4A principle, namely, Anywhere, Anyone, Any knowledge and Anytime. Micro course makes full use of cloud technology, making learning environment not limited to library or classroom. People who need to learn can learn anytime, anywhere through internet, and different teachers and students can also communicate with each other through cloud technology.

DESIGN PATTERNS OF MICRO COURSE

The advent of micro era has made experts and scholars all over the world pay more and more attention to the development of micro course and actively devote themselves to the development and research of it. In China, Suqin Liu put forward M6 model very early, that is, completing the design of course through 6 steps. She interprets micro course as 6 modules, course objectives, course units, teaching contents, teaching design, evaluation setting methods and course management.

Clarifying course objectives is the first step in the design of micro course. It can be
divided into three parts: values and sentiments, approaches and processes, skills and knowledge.

Determining course units is the second step of designing micro course. The course is divided into extensible units of knowledge for a specific target.

Organizing course contents is the third step. The contents can not only be textbooks, but also come from other ways. It is buildable, extensible and open.

Thinking about teaching forms is the fourth step. There is no need to remain unchanged in form. Flexible use of various ways to express the course content can stimulate more interest of students.

Formulating evaluation methods is the fifth step, and the evaluation methods should be reasonable. Concept map, portfolio, class record card, learning contract and rubric can be used to get evaluation.

Course management is the last step. The details of course management and some of the data can be recorded in a table for reuse and analysis, which is of great significance for the development of micro course.

MICRO COURSE OPERATION MODE OF DIGITAL TEACHING PLATFORM

National Engineering Research Center for E-Learning of Central China Normal University has developed an integrated cloud platform, which can provide cloud playing technology, cloud sharing technology, cloud storage technology for the teaching in various colleges and universities. At present, many colleges and universities across the country have joined the integrated cloud platform. They are trying to tap the potential of this new platform to create value for teaching. Some colleges and universities have started to use the cloud platform to teach, and students can even learn across schools. The integrated cloud platform provides feedback module, forum module, statistics module, member management module, calendar module, notification module, resource module, cloud disk module, operation module, program module, test module and team module, and its functions are still being developed. With increasing number of teachers and students join this platform, it will become a trend.

In the digital teaching platform which is built with cloud technology, teachers are the specific persons to create and implement micro courses. Teachers can use learning topics to help students learn and analyze, create micro courses and publish them on learning topics in resource module, assign homework through notification module, receive homework in homework module, communicate with students in problem feedback module and forum module, and use statistics to know the percentage of online students.

Students have special ways and accounts to log on to the digital teaching platform. They can directly view courseware, documents and teaching videos on the platform, and hand over the homework arranged by teachers after finishing them. If students have any questions that they do not understand, they can ask questions through the platform and wait for the feedback of teachers. If students feel there is an unreasonable place or bug in the platform design, they can timely give feedback to technicians through the platform. In order to better run the cloud platform and meet the needs of students and teachers, technicians also need to constantly maintain the platform and update it when needed. School administrators can use the cloud platform to see the advice of students and teachers and conduct research to improve related modules.
CASES OF MICRO COURSE DESIGN

As early as 2012, Huanggang High School cooperated with an enterprise in micro course project. This project combines the teacher's strength of Huanggang High School with the solid capital of the enterprise, and has become a very successful case of school-enterprise cooperation. In April of the same year, the micro course project was officially launched, and its design object was the key points of the college entrance examination in different disciplines. This micro course project is a relatively large and comprehensive micro course combination project, and its design process has certain reference significance.

Its design process can be divided into three parts:

(1) Project preparation. The contents and the way of class were chosen by the senior teachers of Huanggang High School, and were recorded by the specialized staff of the enterprise. Class contents included introduction of contents, analysis of knowledge points, analysis of cases, explanation of examples, arrangement of homework and summary. The process was recorded in real time. The teacher was on the right side of the projector, the projector was on the left side of the blackboard, and the PPT was made by teachers themselves according to requirements. There were a few points to be noticed in the recording process. The time of the video was about ten minutes, cannot be too long or too short. Suitable font, size and color should be used, words of the first line and the color of background should also be considered so as to give students a good visual experience. Pictures should be taken as the main part and as far as possible to replace the text, so as to present knowledge points vividly. In addition, PPT contents should be logical and easy to understand.

(2) Video shooting. Firstly rehearsals were conducted to help teaching adapt to new teaching environment and to allow the recording staff to adjust the device to find the best perspective and volume. When shooting, projector, video recorder, and a timer and prompt screen were needed. The recording staff should have communicated well with the teacher. The teacher can pause for a while and then continue if met any problem in explaining. Before the shooting began and after the shooting ended the teacher should stay still for a few seconds. The teacher should dress properly and control the time in about ten minutes. The recording staff should record the time point when explaining problems occurred so as to facilitate the subsequent work.

(3) Post processing. In post-processing, unity should be paid attention to, that is, unified editing, unified material and unified packaging, and the wrong points in the explanation process should be dealt with. There is a clear specification in the post-processing, so as to ensure the quality of video.

Inspirations can be got from the “Huanggang micro course”, that is, micro course can replace the previous teaching methods, but also can be used as a supplement of the traditional teaching mode; The production process of regular micro courses needs to comply with certain norms. While ensuring vivid and innovative, it is also bound by certain constraints. There are a lot of people taking part in the process of making regular micro courses, so it is necessary to communicate well in advance. Video is the key point of a micro course, and some other ways are necessary for communication. Cooperation can be sought to take advantage of the strength of each part.
Today, when digital technology is widely used, Huanggang High School has made full use of information technology to integrate the developed micro course with the integrated cloud platform, and implement courses with digital platform, which has facilitated the learning of teachers and students in all schools.

LiuZhou City Vocational College, where the author work, actively and continuously learns and explores new knowledge, applies new technologies and new methods emerged in the field of education. Now our college is using the integrated cloud platform provided by Dascom InfoTech Ltd to carry out micro course teaching. The 24 courses of the six department of Liuzhou City Vocational College are all on the digital platform for micro course teaching. And the interactive micro course teaching model has greatly improved the learning enthusiasm and learning efficiency of students.

CONCLUSION

With the continuous development of network technology, the establishment of the digital teaching platform and the application of micro course can effectively promote the teaching reform in colleges and universities. Teaching in the new way of micro course is a new idea of university reform. It can not only make class contents more vivid, but also facilitate students’ independent learning, making it easier for students to interact with the school.

The problems that how to integrate the digital platform and the development and design of micro courses together and how to carry out the courses on the digital platform are of great research value. Micro course design process should follow certain steps and be carried out reasonably and in accordance with standard. Scripts should be used and own experience should be taken into account to meet the needs of students while transferring knowledge. Knowledge is the key point and students should be taken as the core. The development process of micro course can try to take advantage of new technologies, such as cloud technology, so as to get better teaching results.

REFERENCE