Teaching Design and Practice Research based on "Micro-Class"

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Abstract: On the basis of combing the practice and research of "micro-course" at home and abroad, the paper analyzes the main teaching behaviors and design and production process of "micro-course", in order to provide enlightenment for the development of "micro-course".

1. Introduction

The emergence and development of "micro-courses" promoted the integration of education and the Internet, realized the informationization of teaching preparation, teaching and learning, assessment and assessment, and opened up the era of digital-based digital learning in the true sense. "Micro-course" practitioners must attach great importance to the "micro-course" teaching design, use advanced concepts, start from the two aspects of structural instruction and improve penetration and adhesion, and develop the video learning resources of fragmented and rich media. The foundation of successful "micro-course" teaching lays the foundation.

2. The teaching design and practice of "micro-course"

"Micro-class" is a kind of video-based carrier, which has the characteristics of prominent theme, easy expansion, and short and precise features: According to its application perspective, "micro-course" gives students a fragmented time. For the teaching design behavior of "micro-courses", we should pay attention to the following two points: First, select a teaching content with clear focus and prominent themes, and fully mobilize the necessary teaching strategies and teaching methods to promote the production of clear teaching ideas; secondly, the steps of filming, post-processing, evaluation feedback, etc., in order to ensure quality.

Design topics. "Micro-courses" must have precise selection of topics, clear teaching content, can focus on pre-class introduction, concept teaching, and solving difficult courses; or focus on post-class expansion and extension, on the relevant knowledge of teaching materials, The questions and test points involved are explained and summarized. They can also be skills such as teaching methods and teaching experience. The duration of the course is usually about 5~10min, and the longest time should not exceed 20min. The teaching process of "micro-course" should include teaching problems. The presentation of teaching activities, student collaboration and problem solving.

Resource design. The teaching content selected by the "micro-course" generally requires a clear orientation, and the theme is prominent and relatively complete. It uses teaching video clips as the main "integration" teaching design (including teaching plans or school cases), multimedia courseware, student feedback, teacher teaching reflection, practice testing and other related resources, and then construct a real "micro-teaching resource environment."

The core of 4 "micro-courses" is "doing video". "Micro-courses" is an important part of "micro-video". Instructors should use multimedia to match specific narrative behaviors and complete teaching tasks. The multimedia teaching courseware with reasonable design specifications can often cooperate with the teachers' explanations to achieve the functions of attracting students' attention, improving the teaching atmosphere and strengthening students' memory.

A few days ago, the commonly used form of multimedia courseware was PPT because it was easy to use and easy to learn. In the design of micro-courses, we must always adhere to the concept of "taking learners as the center". Therefore, we should select and organize media based on the

characteristics of the subjects to understand the cognitive characteristics of learners. At the same time, we must also play the leading role of teachers, so that the micro-courses are short and lean, in line with the aesthetics of modern people. "Micro-courseware" shows relevant content through a knowledge point (emphasis, difficulty and doubt). Therefore, you can't be greedy, keep each page simple and clear, and it's best to describe each page as an information block. According to the teaching process and course content, the navigation menu or clear learning path is used reasonably [1].

In the "micro-course", the analysis of key and difficult problems and the way of multimedia presentation help to enhance students' understanding. For example, in the course of "Noise Pollution Control Technology", when the teacher compares the measurement time of the sound level meter through the classroom experiment, the teacher clearly explains the principle of the equivalent continuous A sound level. This abstract concept, which is difficult for students to understand, is made easy by students through live demonstrations and vivid and detailed explanations.

Classroom board is another main teaching behavior of teaching handsome classroom teaching. If the design of the board is reasonable and there is a long stay time on the video screen, the learner can leave a strong impression on the visual board. Especially in the "micro-course" with the theme of the key points of the course, in order to enable students to record the learning content, establish a clear knowledge structure, and have a deep impression, the writing of the blackboard is particularly important.

There are two forms of writing a book in the "micro-course": one is to display the knowledge structure in a structured way on the blackboard; the other is to record the keyword consciously or randomly on the blackboard according to the key points and difficulties.

Classroom interaction is a question for teachers to teach a certain knowledge point in the classroom. Effective classroom questions can stimulate students' motivation and thinking ability, develop students' divergent thinking, and improve students' ability to deal with problems and speech organizations.

It is beneficial for teachers to adjust the classroom teaching in time to obtain the goal of achieving the teaching goal. Before designing a classroom question, teachers need to fully understand the learner's knowledge structure and level. To achieve the best teaching application effect, it is necessary to specifically design the problem. For example, the difficulty and problem of the question need to be considered by the teacher.

In the classroom teaching of Noise Pollution Control Technology, teachers ask students questions and directions when they ask questions about the direction of sound wave propagation, which enhances students' understanding of sound waves, so that classroom questions can help students learn. Motivation and thinking ability.

The important carrier of the "micro-course" is video, then it involves how to improve the image form and present the teaching behavior. The filming and filming level of the video has a certain influence on the recipient's psychological feelings. The excellent course video can create a good learning situation, which can greatly stimulate the learner's interest in learning.

In order to truly reflect the teaching situation and record it completely, it should be recorded in the multimedia classroom. The three-camera shooting will connect the 3-channel camera signal source and the PPT signal source transmitted by the 1-channel network to the guide station for on-site operation. Instant editing, this is a more reasonable and optimized design. The advantage of this solution is that it can fully and truly show the original ecology of the classroom and comprehensively record the teacher's classroom teaching behavior.

The first machine is used as the host position in the center of the back end of the classroom. The position is the intercom platform, which is used to display the scene, the relationship between the teacher, the blackboard book, the projection screen and the students, usually taking the panoramic or medium scene. The second machine is on the left side of the podium, which mainly captures the panorama of teacher activities and classes.

Etc., the third machine is an active position, mainly used to capture the interactive plot of teachers and students, as well as students to attend classes, do experiments, practice, take notes,

answer questions, etc., using medium or close-up shots.

The multimedia courseware of the projection screen can make the PPT content clearly presented, and access the guide station through the classroom computer's main control computer network signal, which can receive good teaching effects.

The four-way signal source is connected to the guide station, and the broadcaster is timely edited according to the teaching content and the change of teaching behavior. Before the recording, the shooting plan should be reasonably based on the teaching plan. When recording, you should pay attention to the teaching situation. At the same time, attention should be paid to the coordination between teachers and students. In addition, on-site switching should be based on changes in teaching behavior. The selection of the signal source and the combination of the lens must be coordinated with the teaching activities of the teacher to meet the psychological expectations of the learner.

Image signals of video, audio, and electronic devices (including computers, video booths, etc.) are integrated into the step-by-step recording to generate standardized streaming media files for external broadcast, storage, post-editing, and on-demand broadcasting.

Techniques and requirements for post-production of "micro-curriculum"

An excellent complete "micro-course" includes: simple, beautiful PPT production, the name of the micro-missing name, logical course content.

The specific production technical requirements are as follows [2]:

1) When recording, the resolution of the computer is adjusted to 1024×768 and below, the resolution is not lower than 720×576, the code stream is 128kbps, the lock speed is ≥ 25fps, and the computer screen color is set to 16 bits.

The 2) view format is: Fv, Mp4, and the video size is 640480 or 320×240.

3) Audio sampling rate 44.1K, bit rate 64~320, sound step <100Ms, audio format: AAC (.aac, .m4a, .f4a), MP3, Verbis (.ogg,.oga).

4) "Micro-courses" must be correct in terms of content, text, pictures, sounds, etc. The content is concise, not general, if the content is more, you can make a series of "micro-courses."

Second, the practice summary of "micro-course"

"Micro-course" is a micro-teaching with a clear teaching theme and content. The theme content, "micro-vision", teacher's teaching behavior, and student's learning are closely related, so in the "micro-course" In the process of design and practice, these four elements and related relationships need to be taken seriously [3], as shown in Figure 2.

"Micro-course" is a small curriculum with clear teaching objectives and short content, which focuses on explaining and solving a problem. It has the distinctive features of simplicity, focus and intelligence. Its teaching theme and design of teaching content directly affect learners. The motivation of learning, therefore, in the construction of "micro-class", on the one hand, it can improve the professional development level of teachers, promote the reform of classroom teaching in colleges and universities, on the other hand, it can assist students to learn independently, stimulate students' interest in learning and improve learning efficiency.

"Micro-course" as a teaching resource suitable for "flip classroom", the teacher's teaching art directly affects the learner's learning interest and learning effect. In a non-face-to-face interaction between teachers and students, the art of teaching is even more important.

In order to better stimulate students' enthusiasm for learning and enthusiasm for learning, the teacher's teaching behavior in the "flip classroom" mode, teachers should choose the teaching theme, make full use of the media's performance means, and appropriate board and questioning behaviors to enhance the teaching. Artistic, to achieve the optimization of teaching application effects.

The "Flip Classroom" teaching activities are mainly to strengthen the internalization of knowledge through high-quality teaching activities in the classroom, to form a new knowledge structure, teachers provide guidance to students, solve their ununderstood or questionable knowledge and guide students to relevant The questions are discussed, and the questions are actively asked to make the students learn in specific circumstances, including: students complete homework; solve problems independently; explore collaborative activities. At the same time, they

will help students to learn in a relaxed way in a variety of ways, making each student's learning more personal.

The image presentation effect of "micro-course" directly affects the external attention of the learner. This sensory stimulation is very direct. The presentation of video should pay attention to the following two points: one is the organic combination of form and content, and the other is technical and artistic. Harmony. In order to stimulate the senses of the students and attract their attention, in the selection of scenes, the overall layout and color matching of the multimedia courseware should be paid attention to when combining the lenses. The interaction between the teachers and students requires an optimized design promotion.

3. Conclusion

The construction of "micro-course" is an important part of the informatization teaching of colleges and universities. It is an anchor point for promoting the reform of education and teaching in colleges and universities. In the construction, the teaching needs of teachers and students should be placed first, avoid formalism, and combine school teaching. The actual situation meets the teaching needs while embodying the characteristics of the course. On the one hand, it can meet the students' self-learning needs, on the other hand, it can also become an auxiliary platform for teachers' classroom teaching. Therefore, the design of "micro-curriculum" resources should first be based on teachers and students. This requires the design of teachers' teaching needs and students' learning needs, and the development of resources and teaching platforms to become The school's teaching resource center and network platform will further enrich the teaching methods of teachers' education, update the concept of education and teaching, and promote the reform of informationization in colleges and universities.

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