Design and Development of Micro Courses Based on the "Six Step Method"

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Abstract. Education is moving from homogenization to personalization and diversification, and the allocation of teaching resources should also follow this trend. Micro courses, as an important online learning resource in universities, play an important role in talent cultivation. Micro courses have become a popular teaching and learning method among current audiences due to their clear themes, concise content, convenient self-learning, flexibility and efficiency, and easy promotion. They have gradually been introduced into the classroom by a large number of teachers and become an auxiliary means of teaching. This article analyzes the concept and characteristics of micro courses, elaborates on the six steps of micro course production, aiming to summarize the experience of micro course production, standardize the process of micro course production, strengthen the operation and maintenance of micro courses, and provide better services for online learning of students.

Keywords: Micro courses; Teaching design; Production process.

1 Introduction

The online learning method based on information network platforms has distinct characteristics of the times. Micro Course is derived from the English version of Micro Course Online Video, abbreviated as OML, which means micro. It is led by Professor Leroy A. McGrew from the University of North Iowa in the United States and T. from Napier University in the United Kingdom P. Kee first proposed [1]. Micro courses, as a new type of teaching resource, are a trend and direction for future learning. They not only provide new ideas for teaching reform, but also an important manifestation of the information technology teaching ability of teachers. Micro courses are online courses that teach knowledge or skills in the form of a single micro video. The unique characteristics of micro courses perfectly meet the needs of students for mobile learning, ubiquitous learning, and fragmented learning, and are widely popular on online teaching platforms. Therefore, in design and development, we should focus on the needs of students, effectively stimulate their learning motivation, and improve learning outcomes.

2   The Concept and Characteristics of Micro Courses

2.1   Concept

Micro courses refer to teaching micro videos that follow the requirements of contemporary teaching, mix various teaching resources, and have the characteristics of short time, precise content, and strong purpose. It is not only a new type of course resource for students to learn, but also a new teaching tool to support teachers in teaching. Because of its interesting and visualized explanation of knowledge points, micro courses are characterized by prominent themes, short and pithy, diverse forms, vivid content and free from time and space constraints, adapt to the personalized, fragmented and rapidly updated Internet environment, and meet the needs of personalized learning [2].

2.2   Characteristics

2.2.1 Short Teaching Time.

Video teaching is the basic method and core foundation of "micro course" teaching. Generally, the duration of micro course videos is relatively short, and the key and difficult knowledge is simplified into a few minutes of short videos, directly entering the key points. According to the classroom teaching content, student learning characteristics, and learning patterns, the duration of micro course is generally 5 to 8 minutes, with a maximum of 10 minutes. Compared to traditional 40 or 45 minutes lessons, micro courses can be referred to as "lesson fragments" or "micro lesson examples"[3].

2.2.2 Teaching Content Refinement.

The teaching objectives of micro courses are relatively single, precise, and prominent. The teaching content of micro courses generally includes the key points, difficulties, and doubts in the classroom. Compared to the traditional teaching method of lengthy lectures in the classroom, micro courses will directly get to the point, demonstrate through animation, key markers, and other methods, focus on important knowledge points, highlight key and difficult points, and have intuitive, simple, and concise content. At the same time, it can also achieve pre class preview, breakthrough of key and difficult points in class, and expansion of knowledge after class.

2.2.3 Multiple Teaching Methods.

The teaching methods of micro courses are rich and diverse, and any knowledge point, difficulty, focus, or doubt in the subject can be used as the teaching content of micro courses. By simplifying video playback, the dull classroom can be made lively and interesting, stimulating students' interest in learning and improving their learning efficiency. Micro courses focus on cultivating students' independent exploration and learning abilities. Unlike traditional teaching methods, students are no longer passive learners. With the help of micro courses, students can cultivate their learning initiative, find more learning pleasure in the learning process, fundamentally improve their ability to learn independently, and thus improve the efficiency of classroom teaching.

3 Micro Course Production Process

Micro course design is the process of designing elements such as themes, scripts, and materials using a systematic approach based on corresponding design principles. The principle of micro course design is first to have clear objectives, and the entire teaching process revolves around specific teaching objectives. Secondly, the teaching content should be progressive, following the order from easy to difficult and from simple to complex. Finally, we should also pay attention to the continuity between the past and the future. "Although micro courses are small, they have all five internal organs." Knowledge points should be coordinated before and after, forming a closed loop.

Usually, micro courses need to go through six stages: determining the theme, writing scripts, collecting materials, shooting videos, modifying and improving, and launching the platform (as shown in Fig.1.), each stage is indispensable [4-8].

Fig. 1. Micro course production process diagram

3.1 Determine the Theme

The selection of micro course topics should focus on a certain knowledge point, solve key and difficult problems, and determine the type of micro course based on the knowledge point and professional characteristics. The learning objects of micro courses are usually various management personnel engaged in their respective majors. The knowledge points and difficulty level should be determined based on the educational level, professional field, and knowledge structure of the students, and the knowledge points should be targeted and learnable.

3.2   Writing Scripts

Before making micro lessons, it is necessary to carefully write scripts. The script is like the script of the news broadcast, which is the basis for the pre-production and post processing of the video. The script should be carefully written according to the key and difficult points of the course, and determined word by word. Firstly, determine the name of the micro course. Micro course development should revolve around a central knowledge point in the knowledge module, usually the key, difficult, and doubtful points. Determine a simple and eye-catching micro course name to facilitate students to accurately search and learn. Secondly, the script duration is appropriate, with a suitable 5-10 minutes micro course duration, which can scientifically, completely, simply, and interestingly showcase the knowledge points. Finally, integrating ideological and political education into the curriculum, the design of teaching content should be integrated with ideological and political education in the curriculum. In terms of content, it is necessary to ensure that the design of a certain knowledge point has a clear main line, clear hierarchy, and prominent focus, forming a good teaching organization effect. At the same time, it is also necessary to highlight the moral education function and socialist core values in the content, so as to cultivate students' correct worldview, outlook on life, and noble moral qualities[9]. Fig. 2. shows the mind map of the "Warehouse year-end Inspection" micro course.
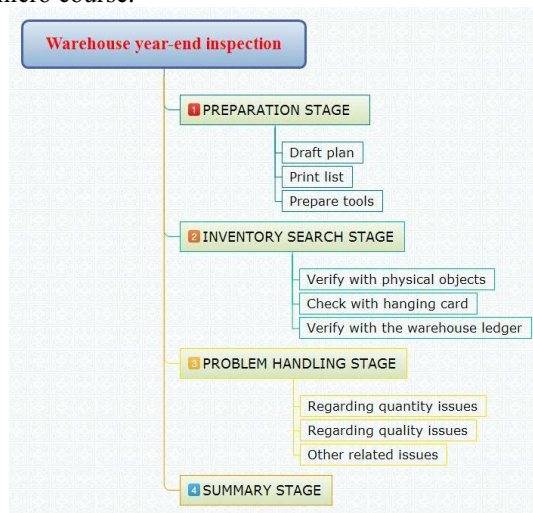

Fig. 2. Example of Micro Course Mind Map

3.3   Collecting Materials

Material materials generally include two types: textual materials and multimedia materials, such as cases, pictures, videos, or animations related to micro course preparation. The selected materials should be precise and concise, with high quality and no ambiguity, watermarks, noise, or other issues. If citing online resources, the source should be noted and intellectual property rights should be respected.

3.4   Shooting Videos

Firstly, hire industry experts to provide guidance on micro course scripts and courseware (including animation and video resources). Secondly, hire a professional technical team to beautify and modify the courseware, design scripts and recording backgrounds. Finally, complete the filming, recording, and editing of micro lessons. The instructor proofreads and corrects the micro lessons, and after further processing and improvement by technical personnel, the production is completed to ensure the clarity and fluency of the micro lessons, thereby ensuring the quality and effectiveness of the micro courses.

3.5   Modification and Improvement

In the teaching process, a scientific teaching model is designed around micro courses. Through effective feedback from students and teachers in the comment area, the clarity, knowledge content, and coverage of micro courses are further improved, and teaching reflection is carried out to improve the effectiveness of micro course teaching.

3.6   Platform launch

The online operation of micro courses refers to uploading pre made videos to the learning platform. Online operation is an extremely crucial step in achieving teaching effectiveness in micro courses. Usually, micro course creators only focus on the online process and ignore the daily operations after going live. Daily operation refers to timely conducting online Q&A after the course is launched, while also promoting the course. Through various online and offline communication, the learning effect of micro courses can be improved.

4   Conclusions

To sum up, in the context of Internet plus and artificial intelligence, micro course is a new and effective form of learning, because it is "small", widely used and easy to spread; the theme is focused, highly targeted, and easy to use; the structure is "exquisite" and has strong interactivity, which is conducive to expansion. Classroom teaching is no longer limited to traditional teacher explanations, but more often uses elements such as videos, pictures, animations, charts, music, etc. to attract students' attention, which is conducive to learners using mobile phones anytime and anywhere for convenient learning[10]. It plays an important role in enriching teaching resources, constructing course systems, constructing online courses, exploring teaching modes, assisting teachers in teaching practice, and meeting the personalized learning needs of students, which is conducive to the cultivation and improvement of students' core competency and literacy[11].

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