Online Teaching Video Construction of Engineering Drawing Courses Based on Chinese MOOC Platform-XuetangX

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Keywords: Engineering drawing courses, MOOC, Online teaching video, Shooting preparation, Shooting requirements

Abstract. With the development of MOOC Platform in recent years, Chinese higher engineering education faces challenge and opportunity to achieve the reform. Characteristics of engineering drawing courses in Chinese colleges were introduced firstly, and difference between the transitional teaching mode and MOOC teaching mode were listed. Furthermore, the advantage of online teaching video in MOOC platform superior to another two simple online video courses and the importance of online teaching videos for engineering drawing courses were introduced. Moreover, the rules for PPT preparation and duration of every video were listed, and requirements, which include outlines and scripts preparing, shooting studio and shooting equipment preparing, choosing clothes, were proposed one by one. In the end, the shooting principles of advertising video and post production were given, and the suggestions during shooting online video courses were proposed.

Introduction

Since 2012, MOOC has been a hot issue in the educational field, media, government, as a disruptive change agent of current Higher Educational System. A growing number of universities have offered MOOCs worldwide and the public and academic discourse around MOOCs has intensified. MOOCs have been endorsed as a major advancement of higher education[1,2].

There are two distinctive features of MOOCs that differentiate them from other forms of online learning: that they offer open access to Higher Education for learners irrespective of their previous qualifications or experience; and that they facilitate learning on a massive scale with thousands, or even tens of thousands, of learners signing up for each course. MOOCs, however, are qualitatively different from conventional, online courses, particularly in terms of their scale and openness. Gaining insight into self-regulated learning of individual participants in MOOCs is critical in understanding whether and how open, online courses are effective in supporting learning[3,4].

At present, the famous overseas MOOC platforms are Coursera, Udacity and edX, and the influential Chinese MOOC platforms are XuetangX and Chinese University MOOCs. The XuetangX is the online free and open MOOC (massive open online courses) platform, and it is the online education research center and application platform of the Chinese Education Ministry. It is committed to provide higher education system for the public by cooperating with Tsinghua University Online Education Research Center, and famous universities at home and abroad.
Differences between the Traditional teaching Mode between the MOOCs Teaching Mode

Online Course of MOOC realizes the breakthrough of education idea, the center of teaching process is transit from teachers to students. The traditional learning style is that Students just receive knowledge from teacher passively and rarely communicate with the teacher, but the new learning mode from MOOC gives students greater freedom and enough space and serves as a communication bridge between the students and teachers [5].

With the rapid development of online courses in recent years, many demand for recording the online courses by video has been generated. many professional talents in the video production and director rush into the MOOC online production industry, and the online video production course becomes more and more standardization, specialization and high-quality. Professional MOOC platform can provide production team and director of professional graduate professional recording, camera and lighting equipment.

Therefore, the online teaching video from professional MOOC Platform can provide high-quality online courses resources by integrating the text, voice, image, animation and PPT demonstration to make online learning easier and more convenient.

As shown in Fig.2, the most obvious difference between the traditional teaching mode and MOOC teaching mode is the contact between teachers and students and the contact between different students. there are more contact between teachers and students and between different students in MOOC teaching mode than that in traditional teaching mode. As shown in Fig.3, it is obvious that there are more learning resources for students in MOOC teaching mode than that in traditional teaching mode, and the teacher can get such sufficient status information of learning process to evaluate the learning effect that he can take an active action to intervene the learning process and improve the learning effect.
Advances of Teaching Video Based on MOOC PLATFORM

With the rapid development of online courses in recent years, many demand for recording the online courses by video has been generated. Many professional talents in the video production and director rush into the MOOC online production industry, and the online video production course becomes more and more standardization, specialization and high-quality. Professional MOOC platform can provide production team and director of professional graduate professional recording, camera and lighting equipment.

Necessity to Produce the Online Teaching Video Based on MOOC Platform

The Engineering Graphics is an important technical foundation course for students studying in colleges of science and engineering, especially for the students whose major is mechanical engineering or similar major. In traditional teaching mode, the activity of teaching and learning is main restricted to lessons in a class room. Learning resource for students are limited and there are no more choices for students to present the class and lesson carefully. Once they are absent-minded in a lesson, they will miss the important contents. In recent years, MOOCs have been endorsed as a major advancement of higher education and it provide sufficient learning resources and more learning choices for students [6,7].

In order to explore a new teaching mode for higher engineering education and promote the reform of higher education, Yanshan University Dean funded 4 main courses more than 300,000 RMB to construct online courses based on the Chinese MOOC Platform--XuetangX in June 2016. Until now, the teaching videos and advertising video for engineering drawing courses have successfully been completed.

At present there are more than 1200 students required to learn the course “Fundamentals of Engineering Drawing”, who are from 42 classes belonged to four different schools like Electrical School and Information Engineering School, Environmental Engineering School and Chemical Engineering School in Yanshan University.

Online teaching videos are playing a key role of online open courses, and it records the complete teaching process as a reappearance of every lesson in a classroom. And it will provide constant and stable learning resources for students whenever or wherever students would like to learn by seeing teaching videos after logging in MOOC Platform. In addition, students can make full use of fragmented time to complete the online preview and review by replaying the teaching videos.

Rules and Requirements for Online Teaching Video Production

Requirement for Duration of Videos and PPT

According to the practical research on the online video courses, duration of each video should be controlled within 5-15 minutes, and best duration of course video is between 6-9 minutes otherwise the students' attention will began to decline after seeing video more than 10 minutes. Generally, key texts, graphics and animations should be shown in the video directly to highlight that, and the auxiliary and transitional content can be dictated by the teacher. All the knowledge points of this course were divided into 32 single PPT demonstrations which duration is not more than 10 minutes.

In order to avoid influencing students' learning effect for changing teachers frequently, the 30 teaching videos of drawing courses has been completed by three teachers.

Shooting Outline and Shooting Scripts for Online Video Courses

After the final version of all the PPT presentations has been finished, the teachers should make a shooting outline according to the corresponding knowledge point separated from different chapters and sections, then make a shooting script according to the outline to ensure teacher’s language is logical, concise and smooth and avoid pet phrase and too colloquial as much as possible. In addition,
important knowledge points should be highlighted in the script, and secondary knowledge or the basic knowledge should not take too much time to explain.

Record Online Course Videos

The recording team is composed of one recording director, one camera man, one lighting director, and one make-up girl, and the professional equipment s include 2 cameras, 1 monitors, 84 inch high-definition touch screen, lighting equipment, teleprompter, PPT page-turner, film studio, etc.

The film studio can ensure the good effect of sound insulation and lighting requirements, and set a large background board prominent the characteristics of the course according to the characteristics of the course. the clothing should be a solid color different from the color of background board, and clothes with small grids or dots should be avoided.

Advertise Video for Drawing Courses

The advertising video of drawing courses enable students to understand the task and mission of this course. During recording the advertising video, the landmark building or historic building of the school should be selected as background. the teacher's appears on the front of this building to introduce the course to learners, then students will quickly understand the function and role of this course in a short period of time. For reflecting the school history and discipline characteristics, the building of College of mechanical engineering and campus sculpture donated by alumni were chosen as a background for recording of advertising video.

The last scene of the advertising video is still on the front of a blackboard in a classroom, and it end with the "Fundamentals of engineering graphics, bringing you into the graphic world, and exploring the mysteries of graphics."

Post Production for Teaching Video

The team of post production for teaching video will be composed of someone with professional background or working experience in television station or film Institute. They are familiar with software for post production such as After Effect, EDIUS, PR, Maya, Photoshop and other graphic tools to create high-quality online course video with high definition, nice visual felling and learning experience.

Suggestions for Shooting Online Teaching Video

According to experiences of shooting online teaching video, the teacher should take enough time be make a concise PPT which duration is not more than 10 minutes and ensure he is very familiar with the PPT, then he have to make the shooting outlines and write scripts according to the PPT demo to ensure the logic and fluency of language during shooting videos. Moreover, the teacher should control his speed of oral dictating to make sure the duration restrict of online teaching video.
Acknowledgement

This research was financially supported by the Teaching Reform Project of Yanshan University (JG2016ZX03).

References


