

Micro-Lecture Design and Practice In The Internet Plus Era

Ying Yang^{1, a}, Xiaohui Zhang², Dan Tian³

¹School of Distance and Continuing Education, Dalian University of Technology, Dalian 116011, China

²school of computer and information technology, Liaoning Normal University, Dalian 116001, China

³School of Distance and Continuing Education, Dalian University of Technology, Dalian 116011, China

^ae-mail:net15@dlut.edu.cn

Keywords: Mini lecture, Mobile learning research, distance learning.

Abstract. Micro-lecture as a new form of network learning resources developed rapidly at home and abroad, and it has become one of the hottest topics of network and mobile learning research in the form of theory, design, development and application. Video is considered as the core and the main expression of Micro-lecture. Distance education teachers' curriculum design of the video is directly related to the class teaching effect and usage. With the advent of the Internet plus Era. The primary task for distance education teachers is how to play the application of micro video performance fully. Several things should be considered in the process of micro video making, such as unity of the integrity and independence, interactive enhancement, selection of the teaching goal and theme, extraction of the teaching content, selection of the teaching method, and so on.

1. Introduction

With the rapid development of information technology in recent years, internet technology and communication technology have been related deeply with the education field. Micro-lecture has become one of the hottest topics in the development of education infomationization in our country. With the advent of the Internet plus Era, many things have been changed, such as the learning methods of the students and our cognition and understanding of learning. It needs to rethink the direction and position of learning. With the increase of network bandwidth, the popularity of wireless networks, the ascension of network speed, the construction of smart city and smart campus, the development of video compression and transmission technology, the emergence and popularity of video sharing sites, and the increase of mobile devices number, online learning of the education spread mainly by means of micro video lessons are widely used.

Meanwhile, Contemporary brand-new teaching concept is student-based teaching. It provides a suitable base for the application of micro-lecture education, together with learning concept absorbed with network technology. This learning concept contains mobile learning, ubiquitous learning, fragment learning and flipped classroom.

Micro-lecture means micro lecture with the character of little time and little content. It can learn one knowledge point, solve one problem, or master one skill by spending small moments. Micro course, also known as micro courses, means highlighting a main theme, little time, good structure, and using micro video as the carrier.

There are four features of the micro-lecture:

Firstly, the video length is short.

Secondly, the theme is small.

Thirdly, the design, the manufacture, and the explanation are all excellent.

Fourthly, the learning effect is excited and impressive.

Micro-lecture can be widely used in our society. Micro courses are not limited to school education, but also can be applied to out-school education. It can be applied to children's moral education, adult education and adult job training.

Micro video is the core content of micro-lecture with the character of short time. Compared with the traditional 45 minutes of class teaching, students are more focused in 15 minutes.

It covers a wide range of knowledge in a traditional classroom. The problem of micro-lecture gathers, and the theme is outstanding. It is more suitable for the needs of teachers. Micro-lecture aims to highlight the knowledge of a subject in classroom teaching or to reflect the teaching and learning activities of a teaching link in the classroom. So the content is more streamlined and the resource capacity is smaller.

Micro-lecture as a new form of network learning resources developed rapidly in our country. It has become one of the hottest topics of network and mobile learning research in the form of theory, design, development and application. Abroad, Leroy A. McGrew from University of Northern Iowa put forward an idea of 60-SecondCourse in chemical education in 1993. Concepts, explanations and examples were contained in the course for the popularization of Organic Chemistry. The concept of micro-lecture was put forward by David Penrose from San Juan College in 2008, by combining with the past ideas of small course design.

2. Type Style and Fonts Presentation Mode Of Micro—Lecture

2.1 Micro course of knowledge points

In general, one point of knowledge will be taught only in a micro course. Teachers can carry out the logical sequence of books, build a knowledge structure, and train the abilities of the learners through the knowledge. And it can show the students how to learn in the process of learning knowledge. Learners' ability of learning, manipulating, innovation could all be improved at the same time.

2.2 Micro course of exercises

In general, one problem will be solved only in a micro course. The exercise is used to check whether the students have mastered a certain knowledge point, so that teachers can take measures to consolidate or remedy.

2.3 Micro course of expanding

One point of knowledge is extended only in a micro course, and the extended knowledge is associated with synchronization.

2.4 Micro course of activity

Analysis of the actual situation and results of students' participation in teaching activities is carried out in the micro-course.

3. Mode of Micro-Lecture

Micro-lecture, as a new form of teaching resources and educational information has great development potential and prospect. It not only can be used as auxiliary teaching resources of formal learning, but also can be used as learning resources of informal learning. So, the research on the micro-lecture has become a new research hotspot in the field of educational information technology. Video is an important form of expression for micro-lecture. In the micro-lecture, the learning information is transmitted to the learner mainly through the video, and the video design of micro-lecture is the focus of many scholars. The presentation of the video are listed as following:

Traditional teaching has the figure of teacher leading, classroom teaching and standard teaching materials. While micro-lecture has the figure of student autonomy, autonomous learning and system development. Distance education emphasizes student-centered, autonomous learning of students as the main body.

A variety of media learning materials and other educational resources and environment are designed by the content experts and educational technology designers.

In the design of micro course video, it is necessary to fully consider the above ideas.

Firstly, it can be learned by animation. Learning content can be incorporated into the digital story through a simple micro-lecture video.

Secondly, it can be learned by handwriting. The teacher writes the teaching content directly on the writing board, and uses the microphone and the record screen software to record the teaching process, makes about 10 minutes micro-lecture video frequency, and the configuration subtitle. Teachers do not appear in the video, there is no beautiful picture.

Thirdly, it can be learned by course record. Classroom or experimental teaching processes are recorded, and recordings are made into well-designed micro-lecture videos for learners later.

4. Video Design of Micro-Lecture Teaching

Basing on presentations for the micro-lecture, teachers need to think ahead time in the process of micro-lecture video design.

4.1 To consider the content selection of micro-lecture

The main features of the micro-lecture is short, but the production is not easy, for not all courses, all the teaching content and all the knowledge points are suitable for the production of micro-lecture. Reasonable and effective teaching content design, can draw teachers and students closer, and attract more students to participate in learning. Then, what kind of teaching content is suitable for the form of micro-lecture? The teaching content should be independent, typical and common. There are many kinds of contents to be selected, such as teaching, problem-solving, question-answering, training, and so on. There should be only one knowledge point in a micro course in the course of the design of micro-lecture video. The knowledge point should be carefully chosen, and teaching methods should be designed reasonably combining with the characteristics. The difference of students' learning ability cannot determine whether the students can learn what they want to learn and how to learn, but only how much time it takes for the students to master the learning content.

American psychologist Benjamin Bloom thinks that all students can learn well. On the basis of this idea and collective teaching, supplemented by appropriate and timely teaching feedback and guidance, it provide appropriate individualized help and additional learning time for each student. Then most of the students meet the standards set by the course objectives. Therefore, the learning task is divided into many small teaching objectives in Bloom's mastery of the learning process. Then, the course is divided into a series of small learning units, and there is a tight logical relationship between learning units. Teachers use appropriate teaching methods to organize teaching, and to prepare a number of simple diagnostic tests for each learning unit. It needs to generate and evaluate the learning process of students. Bloom's teaching method is worth for all distance learning teachers.

4.2 To consider the content selection of micro-lecture

The design of teaching strategies and teaching resources is one of the most important parts in micro-lecture teaching design. According to the different types of micro courses, there may be different ways of teaching themes. While they should all be fast, accurate, novel, interesting, and attractive for learners. The teaching methods and resources used by the teachers determine the degree of attraction of the learners. Teachers need to show their teaching content through a variety of forms of teaching, so that students learn knowledge at the same time feel the fun of learning. Teachers can take a variety of resources to assist teaching in the course of teaching. Courses related photos are used to explain the knowledge points. The use of animation can effectively increase students' interest in learning and acquire knowledge directly. Meanwhile, Teachers can make teaching model for the course. The combination of video recording and PPT recording can avoid the lack of eye contact with students or visual fatigue of students on the PPT screen. At last, it can also be used to set up students' autonomous learning, group discussion, and inspiring questions.

4.3 To consider the performance of micro courses from the perspective of learners

In the design of the micro course, we should strengthen the artistic expressive force and the situational appeal of the video. We should always pay attention to the user experience, and put the learner's needs in the first place. In the production process, teachers should think about how to get the attention of the learners, and create a rich and happy learning experience. The main content of the micro course is micro video, micro video is used in distance learning for interactive learning.

Compared with the traditional teaching method, there is no direct communication between teachers and students, so it is necessary to pay special attention to the interaction between teachers and students. Small questions could occasionally be put forward for students to think in the course of teaching, and the answer will be given later. Students could fully understand their own learning in the quiz after class. More importantly, the application of multimedia technology in the teaching process, and the application of a variety of multimedia technology can play a very good teaching aid, increase student interest in learning, and improve learning efficiency.

Besides, most of the students of distance education are using their spare time to study and solve their practical problems. So the micro video needs to be simple, refined, highlighted, and easy to accept. The study of micro course is effective for students, it aims to really solve a problem in each micro-lecture, and be effective for students.

4.4 To design the Teaching Evaluation

As an education form, the teaching evaluation system is necessary for Micro-lecture, besides courses teaching. Evaluation form and assessment form in a Micro-lecture should be introduced before teaching, and then students can learn objectively. As a measuring stick of teaching achievements, the teaching evaluation is essential both in traditional teaching and information Micro-lecture.

There are many evaluation forms for Micro-lecture with the using of information technology. Evaluation subject can be various. Teachers' evaluation of the traditional teaching can be transferred to evaluation from teachers and students, or homework evaluation between students. This not only reduces the teachers' stress of homework, but also promotes the students' autonomous learning. And then competition circumstance is produced and used to increase students' learning motivation.

5. The Design and Application of Micro-Lecture Video

Road and bridge construction is one of the most important courses in bridge direction of Civil Engineering. There are a lot of explanations for the construction of bridge foundation in the course. The design and construction of bridge foundation engineering is necessary for the road and bridge design and construction personnel. Pile foundation, especially bored pile, is widely used in the bridge foundation engineering at present. Learners mostly concern about the bored pile construction technology, process, quality control and a lot of problems to be solved in their work. This paper introduces the design and application of micro-lecture video based on the micro-lecture video of construction technology of bored pile.

First of all, it will introduce the relevant knowledge points combined with the content of teaching materials in the micro-lecture video of construction technology of bored pile. The knowledge points contain shield-tube burying, slurry preparation, holes forming, aperture check and hole clearing, pile-forming, and so on. Each construction segment will be introduced in the process. With the short character of micro-lecture, only the essence part will be explained concisely. It helps learners to learn the essence of the content and remember easily. Construction site pictures are added for the learners to understand and master easily, and PPT with concise master and text is obvious for the learners.

Fig.1-Fig.4

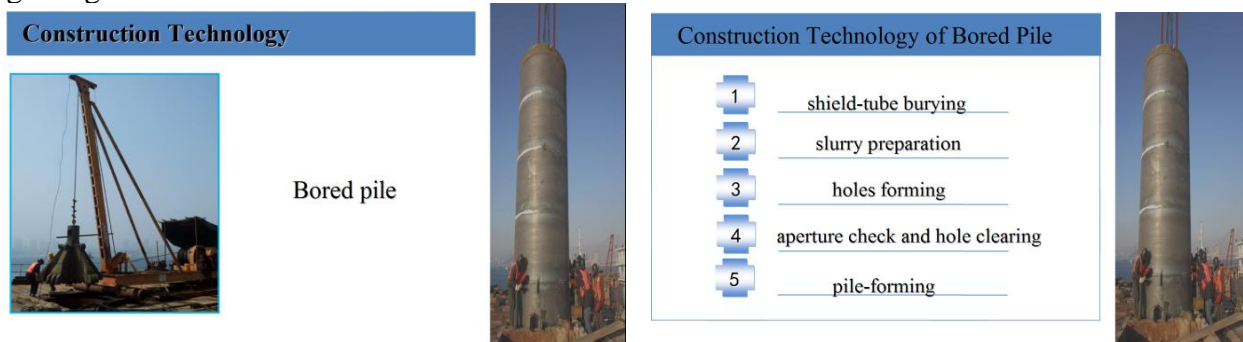


Figure 1. Construction Technology.

Figure2. Construction Technology of Bored Pile



Figure 3. Dalian Xinghai Bay Bridge

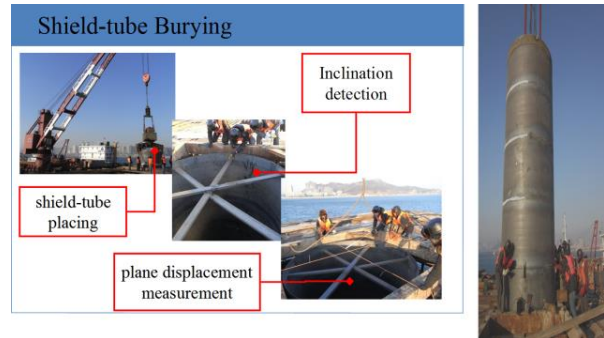


Figure 4. Shield-tube Burying

Then, video animation and vivid presentation are used for the key content. Video animation is mainly used for drilling methods. A suitable engineering case is selected to explain the construction technology of bored pile after the explanation of basic knowledge. The case shows the learners continuous video images with teacher's sound recording. The learner is equivalent to the actual construction project of a bored pile. Learners could master the content easily and impressively in the form of linking theory with practice.

6. Conclusion

After the text edit has been completed, the paper is ready for the template. Duplicate the template file by using the Save As command, and use the naming convention prescribed by your conference for the name of your paper. In this newly created file, highlight all of the contents and import your prepared text file. You are now ready to style your paper.

As a kind of new learning resources and network learning methods, micro-lecture is popular among the learners in the digital era. Learning has been beyond time and space, with the advent of the Internet plus Era. There are broad prospects for the micro-lecture. Mobile learning meets the demand for lifelong learning and ubiquitous learning, and it will be a normal living with the increasing number of micro-lecture and the increasingly perfect function of micro-lecture network platform.

Micro-lecture will play an important role in distance education in future. The design of micro-lecture by distance education teachers, especially the design of video courses determines the level of attraction for learners. And good video can provide the greatest degree of guidance and help students to learn.

Distance education teachers should design the micro-lecture videos from the learner's point of view and combine with the characters of courses. The video should be short and pithy, and meet the demands of learners. Then the problems in their life and work will be really solved. By now, there are still some shortages of Micro-lecture design. More teachers and studies are needed for using Micro-lecture to teaching better. Micro-lecture needs to be improved with the changing of learners' demands, and distance education teachers should innovate constantly by a variety of information technology. Micro-lecture design will become an important way of improving the teaching effect and teaching quality of modern distance education.

References

- [1]. Shieh, D. These Lectures Are Gone in 60 Seconds [J]. Chronicle of Higher Education, 2009, (26) :1-13.
- [2]. Kee, T. P. The One Minute Lecture [J]. Education in Chemistry, 1995, (32) :100-101.
- [3]. Myung-Suk Lee, Yoo-Ek Son. A Study on the Adoption of SNS for Smart Learning in the Creative Activity[J].International Journal of Education and Learning, 2012,(1) :1-18
- [4]. Zheng Jun, Wang Yining, Wang Kailing & Bai Yu (2012). The research of the design of micro video for learning [J]. China Educational Technology, (2): 10-13

- [5]. Zhu Zhitiug, Zhang Hao & Gu Xiaoqing (2008). Micro—learning: rhe model of informal learning [J]. China Educational nchnology, (2) : 10—13