

Research on improving the information application ability of teachers in local application-oriented undergraduate colleges based on the construction of micro-lectures

Haibo Liu ^a, Junyan Yang ^{*}, Peipei Yuan

College of Mechanical and Electrical Engineering, Zaozhuang University, Zaozhuang, China

^a 13782800@qq.com; ^{*} Corresponding Author Email: yang8865139@163.com

Abstract. As a kind of online learning, micro-lectures are getting more and more extensive research and practical application in domestic and foreign colleges and universities. According to the new requirements of higher education teaching reform, this paper focuses on the professional curriculum setting and teaching characteristics of colleges and universities, from the composition of micro-lectures, the necessity of application in micro-lectures, the precautions in the construction of micro-lectures, and the requirements for teachers' information application ability are analyzed, and finally the countermeasures to promote the construction and application of micro-lectures resources in colleges and universities are obtained, hoping to provide reference for related research.

Keywords: Micro-lectures; Information; College teachers.

1. Introduction

With the advancement of science and technology, the development of network technology and the popularization of mobile terminal electronic equipment, online learning has become a common way of learning, information technology has gradually entered classroom teaching, and information application ability has become an application-oriented, it is one of the important professional qualities that college teachers must possess [1-3]. Teachers of application-oriented undergraduate colleges with good information application ability can skillfully use various information teaching tools for teaching, and carry out various teaching activities, such as micro-lectures, mixed teaching and other teaching modes, which can greatly improve students' learning ability.

2. Composition and characteristics of micro-lectures

The core components of the micro-lecture are classroom teaching videos, as well as some relevant instructional design, material course ware, teaching reflection, Practice tests, student feedback, teacher comments and other auxiliary teaching resources, they jointly create a semi-structured and themed resource unit application small environment with certain organizational relationships and presentation methods [4]. Therefore, micro-lectures is different from the traditional single resource type Teaching case, courseware, instructional design, teaching reflection and other teaching resources are a new type of teaching resources inherited and developed on the basis of it.

Micro-lectures have the following characteristics. First, the teaching time is short, and teaching videos are the core components of micro-lectures. Micro-lectures generally do not exceed 15 minutes in length. Second, compared with the traditional classroom, the theme of the micro-lectures is prominent, generally focusing on the teaching of a certain subject knowledge point, or reflecting the teaching and learning activities of a certain teaching link and teaching theme in the classroom, so the content of the micro-lectures is more Streamlined, so it can also be called a micro classroom. Third, the capacity of micro-lectures is generally relatively low, and the video formats are all streaming media that support online playback on the Internet, which is very conducive to smooth online viewing and learning on mobile terminal devices. Fourth, the resources are easy to use. The teaching content selected for micro-lectures generally requires prominent themes, clear directions, and relatively complete.

3. Necessity of applying micro-lectures in college teaching

As mentioned above, with the rapid development of mobile internet terminal technology, micro-lectures has been quickly integrated into the teaching activities of colleges and universities, and has become a hot spot in the research and practice of higher education, and has received more and more attention[5]. In fact, it has indeed played a significant role in accelerating the process of education information, especially the improvement of teaching methods of college teachers, and the cultivation of students' independent learning ability. Through research on many colleges and universities, students generally feel that it is difficult to master and digest the knowledge taught because of the difficult theory of the courses they learn, but it is often difficult to restore the teacher's explanation of important and difficult points in class after class review. How to solve this problem? Micro-lectures are short videos that are highly condensed to a few minutes to ten minutes and are made for the most difficult points of the course. Watching, thus breaking the time and space constraints of traditional classrooms, and realizing students' complete freedom, autonomy and personalized learning. Moreover, in micro-lectures, teachers can also make videos in the form of animation, images, and sounds for abstract and obscure theories, experimental operation processes that require dynamic simulation, etc., and explain while demonstrating, turning abstraction into concrete, turning boring into vivid, it increases the diversity and vividness of the teaching form, makes the teaching content visualized and concrete, and greatly promotes students to deepen their understanding of knowledge points.

4. Matters needing attention in the construction of micro-lectures in colleges and universities

Based on its own unique advantages, micro- lectures are becoming a new teaching method and method that colleges and universities vigorously promote and use. However, the survey found that in the actual teaching application process, micro-lectures gradually showed some restrictive factors and limitations. Therefore, in the process of making micro-lectures, the following two aspects need to be paid attention to.

The topic of the micro-lecture should be the key points, difficulties, doubts and confusing points of the course content, and it is the course knowledge content that needs to be explained repeatedly. Before making a micro-lecture, it is necessary to analyze the characteristics of the students according to the teaching objectives, write a teaching design according to the teaching content, use tools such as mind maps and tables to create a micro-lecture video flow chart, and write a micro-lecture video production script. The teaching design of micro-lectures is an art, it not only requires proficiency in teaching content and accumulation of teaching experience, but also requires a kind of creation or inspiration. The production script of micro-lecture videos needs to be refined to the pictures, sounds, commentaries and subtitle. For most teachers, micro-lecture is still a relatively new concept, and their understanding of the basic cognitive situation of micro-lecture topic selection is still not thorough and comprehensive.

Although the micro class is short, it is still necessary to create a certain teaching situation to allow learners to quickly enter the learning state. Scenario design should be related to the content of knowledge and skills, which can be in the form of questions, cases, stories, activities, etc., and should be interesting and novel. If the micro-lecture situation is well created, it can play a finishing touch, allowing learners to quickly concentrate and immerse themselves in the micro-lecture learning. For example, the micro-class of "Programmable Logic Controller" creates a teaching situation with a promotional video of a modern factory.

With the continuous popularization and development of micro-lectures, it is bound to become an important auxiliary teaching method in colleges and universities. However, in the process of teaching practice, the utilization rate of micro-lecture resources is still low, and it is difficult to truly exert the value of micro-lectures. One of the most important reasons is that currently there are too few micro-lecture knowledge points developed for specific courses, and the micro-lecture resources are too

scattered to provide systematic teaching resources and cannot meet the needs of systematic learning of courses. The reason for this situation is that most of the current micro-lectures are developed around national, provincial and municipal micro-lecture competitions. Most of the developed micro-lectures cater to the selection requirements, and only do micro-lectures on a certain key or difficult point of the course. Lessons rarely make all the key and difficult points of a course into a systematic micro-course, which results in the "knowledge fragmentation" of micro-course resources and seriously affects the use of micro-courses. In addition, both teacher and student questionnaires reflect the problem that the current school-level micro-lecture platform has a single function, such as online communication, element resource sharing, and after-class evaluation. Communication and interaction are difficult to meet the requirements of after-class feedback and reflection emphasized by micro-lectures, which not only affects the improvement and progress of teachers' professional ability, but also further reduces the efficiency and effect of students' micro-class learning.

5. Countermeasures to promote the construction and application of micro-lectures resources in colleges and universities

For ordinary teachers, the threshold for making micro-lectures is still relatively high. In addition to the teaching design of knowledge and skills, it takes a lot of time and energy to familiarize themselves with software, design animations, and make videos. Teachers who are capable of making micro-lessons are mostly solo Fighting, lack of team building, low efficiency. Therefore, it is possible to try to integrate teachers with professional knowledge and the ability to produce micro-lectures in the school or region, to produce special and systematic micro-lectures, and to create personalized micro-lectures for teachers. The front-line teachers are the ones who are most familiar with the teaching content. Only the front-line teachers who have mastered the skills of making micro-lessons can design novel, interesting and effective micro-lessons. Therefore, the author believes that micro-lecture production must transition from policy guidance to independent research and development, production and application by front-line teachers or expert teams.

Micro-lecture production is an important manifestation of teachers' information technology level, which can reflect the level of teachers' use of software technology. Making micro-lectures requires teachers to learn shooting skills, screen recording software, animation software, drawing software, video editing software, format conversion software and other technologies. Teachers should improve their software operation ability through training and participating in competitions before making micro-lectures. Every practice is an improvement. For teachers with strong information technology application ability and proficiency in audio editing technology, high-level micro-lectures can be produced through practice; for teachers with relatively weak foundation, through screen recording software, PPT software, Wancai animation master software can make simple micro-lessons.

If the basic conditions are good, you can publish micro-lecture resources through electronic schoolbags and smart classrooms for testing and discussion; The knowledge and skills explained in the micro-lecture must be tested in time and given feedback and reinforcement. This will not only improve the efficiency of micro-lecture teaching, but also continuously reflect on the construction of micro-lecture resources, and then iteratively modify micro-lecture resources. You can learn from the method of gamification teaching, and use real objects or virtual items such as points and medals for feedback reinforcement.

6. Epilogue

The new teaching method of micro-lecture provides a new way of thinking for the teaching of application-oriented undergraduate colleges. The biggest advantage of micro-lecture is that students can learn on the move without being limited by time and space. First, the optionality of micro-lectures solves the problem of ignoring the individual differences of students in traditional teaching. Students can choose micro-lecture videos independently according to their interests and acceptance. Second,

micro-lecture videos focus teachers' energy on how to design teaching content and teaching process so that micro-lecture videos can not only attract students vividly and interestingly, but also impart knowledge and skills to students in a limited time. Third, the use of micro-class videos is more conducive to cultivating students' self-awareness, improving students' self-learning ability and independent thinking ability, instead of asking teachers for help when encountering problems, but learning to solve problems by themselves, so as to acquire knowledge and ability. Of course, it takes a lot of time and energy to make a complete micro-lecture video of a course, and it needs to be continuously updated and improved in combination with the students' learning situation, so as to stimulate students' enthusiasm and initiative in independent learning, so as to improve students' learning ability. Instructional goals for practical hands-on skills.

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