

# A Study on the Construction of Micro-Course System of Ceramic Technology Based on the Internet

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**Abstract**—The high-tech system represented by the Internet is increasingly entering our work and life. The Internet is both a technology and a trend, and Internet-based teaching aids are subverting traditional teaching models. Nowadays, the curriculum reform of colleges and universities in China has entered the deep-water area, and the reform of the traditional ceramic technology teaching system has entered the stage of substantive practice. How to reform the ceramics technology curriculum system and how to build a ceramic technology micro-teaching system based on the Internet is both a need for curriculum development and a requirement for reform.

**Keywords**—Internet, Ceramic Technology, Micro-course System

Ceramic Technology is one of the compulsory courses for non-ceramic materials students. The main contents of this course include the history of ceramics, the materials used in daily and architectural ceramics, and performance. This course is mainly set to let students understand what ceramics are, the use of ceramics in people's daily life, and the preparation process of ceramics.

After years of development, good education and teaching effects have been achieved in many aspects of China's ceramic technology courses. With the economic development and social progress, especially in the context of the rapid development of China's construction industry, there are rapidly increasing number of demands for professional ceramics technology talents. Higher standards have also been put forward for the quality of talents. However, the overall construction of ceramic technology clearly lags behind the pace of social development. However, while seeing the achievements of discipline construction, we cannot ignore the many existing problems.

## I. EXISTING PROBLEMS IN THE TEACHING OF CERAMICS TECHNOLOGY COURSES AT COLLEGES AND UNIVERSITIES

The problems in the teaching of Ceramics Technology course at colleges and universities can be summarized as follows:

### A. The Teaching Contents are Rigid

Ceramics Technology is a very practical course. However, at present, the teaching of this course at colleges and universities in China is mainly based on knowledge explanation. This phenomenon is mainly manifested by the instructor's lack of comprehensive understanding of the course. The Ceramics Technology course is only regarded as a simple accumulation of some knowledge points, while ignoring the artistic attributes of the ceramic technology itself and the rich connotation features of life, completely separating the knowledge from the social practical attributes of the discipline. This situation has both social and self-recognition reasons. Some teachers have a single knowledge structure and tend to focus on the relevant knowledge points when teaching. They do not serve as a bridge in imparting knowledge with a lack of teaching the practical knowledge. Therefore, many students feel that the course is uninteresting when they are learning it.

### B. The Learning Objectives are too Commercialized

Commercial thinking has its advantages, but there are also many drawbacks. At present, in the study of Ceramics Technology, many students hold too much commercial learning purposes. Since they start to learn this course, students will focus not on the course itself but on the career needs. They pay more attention to those commercialized parts but are often uninterested in some not so commercialized knowledge. This utilitarian learning mentality often leads to the one-sidedness of students' knowledge, which is harmful to the future development of students. Some other students learn this course mainly for exams. In the examination-oriented education system, students are keen to learn relevant theoretical knowledge and not participate in enough practice. For a long run, many students can achieve high scores in exams but have low practical ability.

### C. The Teaching Materials are Obsolete

The setting for Ceramics Technology textbook is currently relatively old. Many experts in ceramic technology believe that there is a lag between the development of textbooks in China and the development of disciplines for several years or even ten years. This is a serious problem, but it is often overlooked. Many schools have made bold explorations and attempts in theory and practice on how to set up course materials scientifically and reasonably. As far as the effectiveness of these studies is concerned, schools should generally proceed from the overall situation of long-term construction and development, and proceed from the goal of discipline reform and innovation, and organize the backbone of the school's teachers to prepare a textbook system suitable for the actual teaching of the school. If the school does not have such conditions, it should organize a certain amount of experts to screen and evaluate the teaching materials of the existing brothers and colleges, and finally select the

appropriate materials.

#### *D. The Construction of Professional Teaching Team Lags Behind*

Ceramics Technology is a comprehensive and practical course. How can be a good teacher for this subject? Everyone has his/her opinions about this questions. However, it is undeniable that a good ceramic technology teacher must first have a more comprehensive knowledge system, and at the same time have their own methods and insights on how to do a good job in the teaching of ceramic technology courses. As a kind of social science, ceramics technology originates from life and is higher than life. Good works must be the concise and sublimation of life. The complexity and comprehensiveness of the ceramics technology course requires teachers to have a comprehensive quality, not just the major and the subject. Another point is that many of the ceramics technology teachers in colleges and universities in China are graduates of art colleges. They are not graduates of normal colleges. Therefore, there are certain deficiencies in education and teaching. Many teachers are knowledgeable but they are unable to impart the knowledge they have mastered in teaching. Low overall literacy of the teaching staff is not only an educational issue, but also a social issue. How to improve the overall quality of teachers in the industry is an urgent problem that the whole society has to face.

## II. ANALYSIS OF THE ADVANTAGES OF THE INTERNET-BASED TEACHING SYSTEM

With the development of information technology in China, many functions of the Internet have gradually entered various fields of social life. In terms of education and teaching, the characteristics of the Internet are more fully displayed.

The current trend of global education reform is to focus on the individuality of the individual being educated, to carry out personalized education that suits individual characteristics, and to emphasize the individualized development of students. This is in common with many aspects of quality education advocated by China. At present, multimedia applications, micro-courses, etc. are widely used. These are the most basic applications of education and teaching under the conditions of information and internet. Internet-based education and teaching and traditional education and teaching complement each other and complement each other. The traditional teaching mode takes the teacher as the core and support point of education and teaching. The teacher lectures, and the students listen. Education and teaching under the Internet conditions can be separated from listening in form. Students' learning and teachers' teaching are no longer limited by time and place, and the form of education and teaching has been greatly expanded. For students, this convenience allows students to learn anywhere, anytime with tools such as the campus network and mobile phones. At the same time, the content of learning is no longer rigid and sluggish, but rich and colorful, which will definitely enhance students' interest in learning and stimulate their desire to learn.

At present, the construction of foreign Internet-based course teaching system has begun to take shape. Although China started late in this respect, it has been steadily advancing. At present, the construction of Internet-based course teaching system for many Project 211 and Project 985 colleges has fully met the needs of teachers and students in teaching and learning. However, due to factors such as financial investment and scientific research capabilities, the pace of construction of other colleges and universities in this area needs to be accelerated.

#### *A. Construction of Ceramics Technology Micro-course System based on the Internet*

In 2011, as a new education and teaching resource, micro-class appeared in our university teaching system for the first time. The concept of micro-curriculum has been developed in the foreign education community. The micro-classes have quickly set off a trend with short and fine features, friendly interface and wide application, which has aroused widespread concern at home and abroad.

What is a micro lesson? I believe this vocabulary is no longer strange to many people. The micro-curriculum is to express a certain knowledge point as the goal of education and teaching, and to express it in a relatively short multimedia form. The form of the micro-course is more flexible, and the more popular one is the combination of audio and video. To build an Internet-based micro-course system for ceramic technology, the author believes that we should focus on the following aspects:

#### *B. Dividing the Relationship between Teaching and Learning with a New Concept*

The biggest advantage of course based on the Internet is to enhance the information interactivity between teachers and students, breaking the limitations of time and space in traditional teaching. Under the Internet conditions, the traditional teacher-centered teaching method has been subverted, and students' initiative in learning has been strengthened. Many courses can even be carried out entirely based on students. Teachers only need to grasp the progress and general direction in the teaching of the course. Under the Internet conditions, students can directly ask questions to the teacher online, etc. The teacher can solve students' difficulties and doubts in the learning in a timely manner through online questions and answers. Meanwhile, under the Internet conditions, students can easily access learning materials. These materials can be obtained either from the web or from a library created by the teacher. Through the teaching mode of the Internet micro-course, the initiative of students' learning has been greatly improved. This learning method can also effectively train students' independent thinking. In the Internet and multimedia environment, the expression of subject content also shows a diversified trend. Students can understand the content of the course through multimedia, animation, audio, comics, etc., and optimize the limitations of traditional text reading.

#### *C. Production of Strict Micro-course Courseware*

The micro-course courseware is a very important part of the micro-course system construction and even directly affects the quality of micro-teaching teaching. The knowledge points described in the micro-course courseware should be as short and

streamlined as possible. The duration of the micro-course course should not exceed ten minutes. At present, the modular micro-course courseware production method is the mainstream. In the production of micro-courses, the instructors should extensively collect the course materials, carefully screen the collected materials, and submit them to the micro-course system after in-depth processing. The teacher must not blindly copy other information, but should follow the students' learning reality and keep up with the teaching progress. At present, the production standards of micro-courses in various colleges, various majors, and even teachers are very different. Frankly speaking, the quality of the production of many micro-courses is not high. This problem has aroused the attention of many experts. At present, the standard for how to standardize the courseware of micro-courses has been heatedly discussed. Micro-courses generally contain three elements: teaching content, teaching process design, and artistry. These three elements can be quantified to finally develop strict standards. All the micro-courses that meet the requirements can be admitted to the course. The constraints of this system can effectively improve the production level of micro-courses and promote the quality improvement of the micro-courses. For good micro-courses, the school should vigorously promote it, so that the teachers have a clear understanding of the standards and intuitive feelings, and the micro-course courseware production will gradually become fine, artistic and correct.

#### *D. Strive to Improve Teachers' Teaching Level*

As a modern teaching aid, the Internet-based ceramics technology micro-course system puts forward higher requirements for teachers and students. Teachers and students must have specialized knowledge to truly master these devices to give full play to the performance of these devices. Technical training for teachers is an important part of improving the quality of micro-teaching. As far as the situation around me is concerned, the teachers who teach ceramics technology basically graduate from art colleges. They have such difficulties when using computers and communication equipment, so they are obviously at a disadvantage compared with science and engineering teachers. Also, when making micro-courses, our teachers who teach ceramics technology often feel incapable. Although they have good ideas, they feel it difficult to implement their ideas. Sometimes they can only ask teachers teaching other disciplines. It is very necessary for schools to organize teachers to carry out large-scale training in micro-course course production. At the same time, the school needs a scientific and objective evaluation criteria for the evaluation of the teaching results of the micro-course. This evaluation criteria must be practical and easy to operate. The evaluation criteria have an important guiding role in the teaching of micro-courses.

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