Application of Micro-course on the Teaching of Textile Major Course-Textile Dyeing and Finishing Technology

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Abstract. "Micro-course" is a teaching reform method that can combine various resources organically and enable students and teachers to gain new experiences. It also can expand students' knowledge and make the teaching content accurate, more professional, more in line with the needs of students. Many students who major in textile are liberal arts students, so using micro-teaching can better display the knowledge points of teaching and simplify the teaching difficulties. As a result, students can easily understand the knowledge points and master relevant major skills.

Introduction

"Micro-courses" are different from traditional teaching resources. They are classroom teaching videos that include teaching design, teaching cases, teaching reflections, student exercises, and teacher reviews related to classroom teaching topics[1-3]. So they are a new type of teaching resources.

With the introduction of the concept of "micro-course", each school hold the competition, and each teacher had a familiar understanding of the "micro-course". This new teaching concept has gradually penetrated into the teaching of various courses[4-6].

Many of the students who major in textile are liberal arts students in our college. They have little knowledge of chemical knowledge, and they have never met all kinds of dyeing and finishing equipment. “Textile Dyeing and Finishing Technology” is a professional development and quality course for modern textile technology[7-9].

This course is designed to serve students with high-quality employment. With the aim of cultivating technical and innovative talents, we combined with the related textile professional knowledge, so students can be proficient in dyeing and finishing related equipment, familiar with dyeing and finishing quality inspection standards, and learn textile testing. In addition, students can master the basic knowledge and skills necessary for jobs in textile trade. The course of "Textile Dyeing and Finishing Technology" has relatively few class hours, but the micro-course allows students to understand more dyeing and finishing related knowledge in a shorter period of time.

Favorable Conditions for the Implementation of Micro-course

Rich Equipment Resources and Excellent Teachers

The Dyeing and Finishing Training Center has a variety of dyeing prototypes, pre-treatment equipment, finishing equipment and textile testing equipment for integrated teaching. The Eco-Engineering Center has relevant dyeing equipment, which provides a successful implementation of the integrated teaching of the course. Our school is also rich in hardware resources. The school-enterprise cooperation unit of Jiangsu Nanwei Yueda Fiber Co., Ltd. has a dyeing factory and a finishing workshop. Their equipment is relatively complete, and it can provide the shooting scene and the production of shooting machines.

The course team has high-quality teachers, including 3 teachers with senior professional titles and 4 teachers with intermediate professional titles. All teachers are double quality and there are 3
part-time teachers from the company. All teachers have many years of practical experience in integrated teaching and curriculum construction.

**Wireless Network Covers the Entire School**

Our school is covered by digital wireless network system, so teachers can transfer micro-course resources to each student through the course website, WeChat, QQ, online learning platform and other ways, and students can get rid of time and space constraints and achieve personalized self-learning by themselves according to their own actual needs. As a result, most of the students can master the details of related operating skills about pre-treatment, dyeing, printing, finishing.

**The Production of Micro-course Resources is Guaranteed**

The teachers of the course group work conscientiously and can make full use of the spare time to produce micro-courses. The college has a propaganda department where there are special students engaged in filming, cutting, editing, etc. It can produce micro-course resources of dyeing and finishing technology for integrated teaching, which are suitable for the students who major in textile.

**Design and Implementation of Micro-teaching Content**

The construction of the course is oriented to the high-quality employment of students. Our training objectives are mainly to cultivate practical hands-on ability and supplemented by theory. The combination of micro-teaching methods and integrated teaching methods can better realize “doing from learning”, quickly improve students’ understanding of related dyeing and finishing instruments and equipment, and master the operation skills of important equipment such as high temperature and high pressure dyeing machines.

**Cherry-pick the Teaching Content**

We are aware of the fundamental expertise and skills required of technicians by on-site research and graduate interviews (textile graduates engaged in dyeing and finishing). Therefore, the micro-courses are divided into six major modules: common instruments, common pre-processing equipment operations, common dyeing equipment operations, common printing equipment operations, common post-processing equipment operations, and related dyeing and finishing experiments. Each module contains several specific micro-units to ensure that students can better learn each operational skill.

**Integrate Integrated Teaching into Micro-courses**

The micro-course can show the standard operation method and the wrong operation method to the students when explaining the normative operation of the experiment. At the same time, it also shows the students the products produced by the wrong operation specification, so that the students can recognize the influence of the standard operation on the product quality. In the process of micro-teaching, we should focus on demonstrating the details that are prone to errors, and the theoretical knowledge should be well permeated in the experimental operation training, then we truly achieve integrated teaching.

**Implement the Teaching Method of Integrative Micro-course**

Teachers transfer micro-curriculum resources to each student the course website, WeChat, QQ, online learning platform and other ways before the class. Our college has the Dyeing and Finishing Training Center and the Ecological Engineering Center, where teachers or enterprise part-time teachers can carry out on-site demonstrations in the teaching process. It can deepen the understanding of students. Then the students perform skills exercises and the teacher guides during the tour. If students encounter difficulties, they can solve the difficulties in operational skills by learning micro-course resources timely. So the students can achieve twice the result with half the effort through on-the-spot guidance through micro-courses.
Advantages of Micro-course in the Integrated Teaching of "Textile Dyeing and Finishing Technology"

Micro-course Guide Students to Love Major

Because some students who major in textile are generally weak in chemistry, they are not interested in dyeing and finishing. Teachers can make a short video to guide these students to learn according to the teaching knowledge point and design novel and interesting questions to attract students' attention, which can pave the way for the explanation of the new lesson.

Micro-course Integrates Teaching Resources and Save Teaching Time

We first make a micro-course about dyeing and finishing equipment about 10 minutes. Students can familiarize with the relevant equipment and instruments through the micro-courses by themselves when they are preparing for class. Therefore, if students go to the dyeing training workshop for training, they can deepen their impressions. So that students can acquire more knowledge points in a shorter period of time. Good micro-course can reflect their own advantages and help teachers save time and achieve resource sharing.

Combine Micro-course with Traditional Teaching, Raise Strengths and Avoid Weaknesses

In the dyeing and finishing technology, the graduated pipettes is a precision liquid measuring instrument and the correct use of the graduated pipettes is very important. There are a lot of precautions for the graduated pipettes: (1) The requirements of graduated pipette before use. (2) The holding method of the graduated pipette. (3) The using method of rubber suction bulb. (4) Method of extracting liquid. (5) Method of releasing liquid. (6) Precautions for releasing liquid. When the teacher explains the above details in the training room, the students standing behind can't see clearly. If the details are enlarged step and combine with the teacher's on-site guidance by the micro-course. Then the students imitate the operation and can quickly grasp the relevant skills and knowledge points. In this way, the teacher does not need to demonstrate and explain the students many times, and the students can grasp these details. As a result, the teaching effect is improved.

Micro-course Guide Students to Expand Their Knowledge

Students can watch micro-courses before class, or watch micro-courses that are difficult to master after class. Teachers can also make micro-courses about the specific steps of some production equipment for students to watch. Each Micro-course is short and precise and the relevant questions raised by the teacher in the micro-courses, which make the students think and guide the students to see the next one or more micro-courses, thus expanding the knowledge of the students.

Micro-course can Solve Difficulties in the Actual Operation Process

For dyeing and finishing experiments, some experiments are only done once and the time of experimenting for students is relatively short. How can students complete the experiment and grasp the precautions of the operation? For example, when we do the desizing, scouring and bleaching experiment of cotton fabrics, the preparation of working solution, the adding order of hydrogen peroxide, caustic soda, sodium silicate and scouring agent is very important. So we record 15 minutes of micro-courses about the above precautions. The students can combine the micro-courses to think about what to do to avoid mistakes when they prepare for class. During the class, the teacher emphasized the precautions and the students can check whether they have understood the Micro-course. In this way, the students have deepened their impressions. When doing the experiment, there should be no mistakes and the experiment can be done well.

Notes on Making Micro-courses in "Textile Dyeing and Finishing Technology"

(1) To select the appropriate content to make micro-courses, the teaching content should be focused and complete. To ensure that the "Micro-course" is short but can transfer a lot of knowledge to the students.
(2) The teacher's requirements for micro-courses are quite high. Teachers should be fully prepared before class and be familiar with the content, so that they can play normally in the face of the lens.

(3) The teacher should be responsible for the entire video shooting process and post-production, they also ensure that the picture is clear and the sound should be clear, so that the "Micro-course" can be more perfect.

Conclusions

In the process of making micro-courses of "Textile Dyeing and Finishing Technology", we must ensure that the micro-courses are "micro", but the content should be refined and the time should not be too long. So that the students have time to accept the content of micro-teaching. Micro-courses have a multiplier effect in the teaching process of "Textile Dyeing and Finishing Technology".

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