The Reform and Exploration of Mixed Teaching Mode in the Course of Vocational Education

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Abstract: With the rapid development of modern information technology such as the Internet, big data and cloud computing, online and offline hybrid teaching has developed rapidly. This paper analyzes the problems existing in the traditional classroom teaching mode, expounds the advantages of the online and offline hybrid teaching mode based on SPOC, designs a "three-stage" hybrid teaching mode for mold prevention courses. First of all, a resource rich SPOC teaching platform was established through top-level planning and design. Then, based on SPOC, we carried out the teaching reform of "pre class preview - in class explanation - after class improvement", and organically integrated the ideological and political curriculum into the teaching process to achieve collaborative education. Finally, through the whole process assessment, we objectively and fairly evaluated the academic achievements. Practice has proved that this mode can effectively realize the complementary advantages of the two teaching modes, improve the relationship between teachers' teaching and students' learning, fully reflect the learning centered, promote students' independent learning, stimulate students' interest in learning, improve the teaching effect of the course, and students' quality has been comprehensively developed, and the course objectives have been effectively achieved.

1. INTRODUCTION

In recent years, with the rapid development of information technology and the combination of Internet technology and higher education, significant changes have taken place in the teaching concept and teaching mode in the new era. Among them, MOOC (Massive Open Online Courses) and SPOC (Small Private Online Courses) have become the hot spots of today's teaching reform, and further promote the development of online and offline hybrid teaching. The reform of teaching mode is a change from teacher centered to learner centered, from textbook centered to curriculum centered, and from knowledge centered to ability centered. The course of "Anti mildew Technology for Storage of Aviation Materials" provides the basic knowledge for the later students to learn about storage management. Due to the complexity of the teaching content, especially the abstract and difficult to understand teaching content in terms of the propagation method and growth law of storage mold, the theory is strong, and the knowledge about anti mildew agent is updated rapidly, which brings some pressure to the students' learning. Reforming the original traditional teaching mode and adopting the online and offline hybrid teaching mode can greatly stimulate students' enthusiasm for learning, improve their learning initiative and improve their learning efficiency. Therefore, curriculum teaching reform is imminent [1].

2. PROBLEMS IN THE EXISTING TEACHING MODEL

2.1. The Course Teaching can not Teach Students in Accordance with their Aptitude

The traditional classroom teaching mode is mainly teacher centered, classroom as the carrier, and as the main body of cognition, students are always in a passive position to accept knowledge. The students' participation is low, and the teaching effect is poor. For example, students' learning initiative can not effectively mobilized, communication between teachers and students is lacking, and the curriculum progress is unified, ignoring personalized learning, which is not conducive to teaching students in accordance with their aptitude.

2.2. The Traditional Model cannot Achieve the Ability Training

Because the traditional offline teaching process relies too much on textbooks, the knowledge of textbooks is relatively simple, the utilization rate of curriculum resources is not high, and students lack enthusiasm and ability to solve problems. In addition, it is difficult for students to effectively preview and consolidate knowledge points, and they rarely actively consult

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literature and relevant course materials. At the same time, the heavy teaching task makes it difficult for teachers to fully grasp students' learning input, process and effect, so that teachers have no time to focus on the cultivation of students' learning ability [2].

3. ADVANTAGES OF ONLINE OFFLINE HYBRID TEACHING MODE

The online and offline hybrid teaching mode based on the network teaching wisdom platform is a hybrid teaching mode that can guide students to synchronize and achieve in-depth learning in class. This teaching mode can improve the interaction efficiency between teachers and students, between students, and between the two and the platform by virtue of the rich resources and data analysis of the network teaching platform, effectively support students to complete the pre class self-study preview of knowledge points, deepen the understanding of difficult content in the class, and check and fill gaps and review and expand knowledge after the class, so as to finally cultivate students' independent thinking ability，the teaching goal of autonomous learning ability and developing ability.

The mixed teaching mode has incomparable advantages over the traditional teaching mode.

First, the course is more interesting. Network teaching resources are mostly presented in the form of video, audio, images, text, etc., which can make teaching vivid and specific. The original teacher talk and full room teaching and students' passive learning are gradually replaced by flipped classroom and active learning. The online teaching platform can support teachers and students to express their opinions and interact in real time, reduce the sense of distance, enhance the sense of intimacy, and greatly enhance the interest and attraction.

Second, the teaching pertinence has been strengthened. Students of different levels independently choose content to learn outside the classroom with the help of online teaching resources. Teachers timely adjust the classroom content and teaching design by collecting students' opinions and suggestions, so as to make teaching more targeted.

Third, students' autonomous learning ability has been improved. Teachers can arrange tasks for students beyond time and space, and students can learn anytime and anywhere with the help of online teaching resources, expanding the learning space in and out of class. Students can ask questions online or leave messages, and teachers can answer questions or focus on explanations, which can effectively cultivate students' autonomous learning ability. For example,brainstorming before class, project teaching in class, case study after class and other links can achieve the effect of guiding and inspiring students to learn actively and think positively. Therefore, whether it is the whole process of learning before, during and after class, or MOOC learning and classroom teaching, it can greatly promote students' autonomous learning ability.

Fourth, students' application ability has been improved. The online and offline teaching methods, such as collaboration, inquiry, case and project-based teaching, aiming at different teaching contents, can effectively cultivate students' team cooperation ability, innovative thinking ability and ability to analyze and solve problems.

Of course, the quality of online teaching also has certain constraints. One is the deviation of ideological understanding. A small number of students have a conflict with online teaching, believing that face-to-face communication between teachers and students is more vivid than hard human-computer communication. The second is the quality of teaching resources. High quality network teaching resources can effectively promote teaching, while some teaching resources are lack of systematicness and integrity, thus the teaching effect is greatly reduced. Third, the ability of active learning. Each student's learning ability, self-discipline ability, and learning foundation are very different. It is inevitable that some students will passively carry out learning, and it is difficult to effectively achieve the teaching objectives [3-4].

4. THE DEVELOPMENT OF MOOC RESOURCES

The design of course teaching content is the core of course construction. How to attract students and stimulate learning initiative on the platform of MOOC is the core of MOOC design. The teaching content always adheres to the organizational principle of "one center - four processes - three levels", "one center" means "learning as the center", "four processes" means "conception - design - implementation - operation", and "three levels" means "foundation - application - frontier". During the construction of MOOC, we should accurately grasp the talent training goal, deeply analyze the students' personality characteristics, systematically decompose and reorganize all knowledge points of the course, and organize them into a coherent and interwoven network of knowledge points from basic to application, from classic to frontier, from theory to practice, from simple to deep [5].

4.1. Clarify Teaching Resources According to Teaching Needs

Online curriculum resources should be rich and diverse to achieve resource redundancy, so that students can expand their learning. The online course of "Anti mildew Technology for Storage of Aviation Materials" mainly includes three modules: course teaching materials (teaching plan, MOOC video, knowledge point PPT, supporting teaching plan, etc.); teaching assessment materials (question bank, assignment bank, examination paper bank, etc.); teaching activity resources (topic discussion, classroom exercises, questionnaires, group tasks, etc.).

4.2. Combining Teaching Design to Build High-quality Resources

MOOC is mainly made in the form of short videos, and new, interesting and distinctive knowledge points are selected from the teaching content for recording. Each knowledge point script should take 5-15 minutes, which is short and concise. At the same time, we should give full play to the advantages of information technology, increase the proportion of animation, virtual simulation, pictures and other resources in the course, and improve the quality of MOOC production. Figure 1 and Figure 2 show the pictures and animations in the MOOC video respectively.

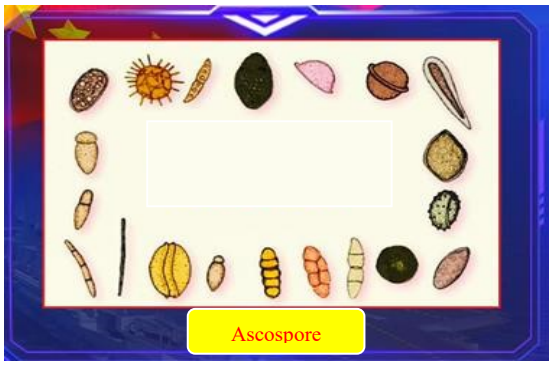

Figure 1 Picture in MOOC Video

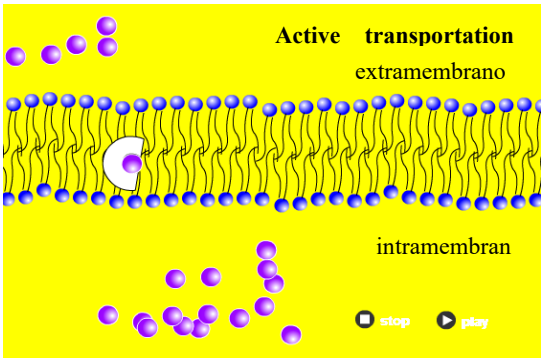

Figure 2 Animation in MOOC Video

5. THE DEVELOPMENT OF ONLINE AND OFFLINE HYBRID TEACHING MODE

The mixed teaching mode of course is a highly integrated online and offline teaching mode of online learning and classroom teaching. The mode mainly includes three stages: "self preview before class + question answering in class + consolidation and improvement after class", realizing the "online, offline and integrated" teaching mode.

5.1. Integrate into the Ideological and Political Education of the Curriculum

“Anti mildew Technology for Air Material Storage” is a course that pays equal attention to theory and practice. In the course of discipline research, development and practice, there are many events and characters with good educational value, and it is an excellent carrier of ideological and political education. In the teaching process, we will deeply tap the ideological and political resources of the curriculum, play an educational role in professional teaching, and cultivate students' professional ethics and sense of social responsibility, rigorous scientific spirit, family and country feelings, national pride and cultural self-confidence [6].

5.2. Self Preview before Class

Teachers prepare various teaching resources in the SPOC teaching platform before class, and send pre class preview tasks to students, who log in to the platform to receive work tasks. According to the learning task, students log in to the network resource library to study independently and complete the pre class test. Teachers can master the learning process of each learner in real time and improve and adjust the classroom teaching design according to the students' preview before class.

5.3. Answering Questions in Class

Follow the teaching concept of learning as the center in the classroom, adopt the teaching as a whole teaching method, carry out task oriented, group discussion, independent inquiry, display and exchange, complete online homework and other activities, solve the key and difficult knowledge in the course one by one, and summarize the knowledge thinking map of this unit. Offline classroom teaching is more conducive for students to understand and master the basic theories, knowledge and skills in the course.

5.4. Consolidation and Improvement after Class

With the help of teaching videos, courseware, teaching plans, concept library, principle library, method library, case library, picture library, exercise library and other resources, students can find and fill gaps after class and complete course assignments. This teaching mode is conducive to the students' systematic and comprehensive understanding and mastery of the knowledge of storage mold, and lays a solid foundation for the follow-up courses [7-9].

5.5. Course Teaching Evaluation

Assessment and evaluation is an important part of the course teaching process. In order to objectively and fairly evaluate the comprehensive ability of students, a diversified, information-based and whole process evaluation system has been established. The assessment and evaluation of the course is set as a process assessment, including online performance (40%) and offline performance (60%). The online performance includes attendance, classroom discussion, experiment report, regular assignment, etc. This whole process controlled learning method can stimulate the internal

motivation of students' learning to the greatest extent, truly focus on students' self-learning, make up for the shortcomings of traditional teaching, combine teaching with educating people, and achieve the refinement and personalization of talent training [10].

5.6. Analysis of Teaching Effect

The SPOC based hybrid teaching mode gives play to the advantages of online and offline teaching, stimulates students' enthusiasm for learning, reflects the learning centered teaching process, enhances students' sense of participation, strengthens the communication between teachers and students, and significantly improves teaching feedback and teaching quality [11].

6. CONCLUSIONS

The mixed teaching mode of online and offline specialized courses provides a new way to carry out curriculum teaching reform. The application of this method makes the classroom a dynamic interactive classroom, and it also meets the learning habits and requirements of modern college students. In the whole learning process, teachers play the role of designers and managers, effectively guide students to participate consciously, and students become the main body of learning. They cultivate students' awareness of active learning and the spirit of innovation and creation, and achieve the goal of training aviation materials professionals in the context of post education, so as to cultivate more new military talents with comprehensive development, both professional skills, professional quality, and social responsibility.

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