Exploration of Blended Teaching Model of Industrial Robot Technology Course Based on "Intelligent Vocational Education "

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Abstract

This paper First introduces the advantages of intelligent vocational education and blended teaching mode, and then puts forward how to use the intelligent vocational education to set up teaching resource bank.App software of cloud classroom is used to set up courses and realize the blended teaching mode combining online and offline. Taking the course of industrial robotics as an example, the application of intelligent vocational education cloud in the blended teaching of practical courses is expounded.Practice has proved that the blended teaching based on Intelligent vocational education is conducive to improving the teaching effect of industrial robotics technology course.

Keywords

Blended Teaching Model , Industrial Robot, Intelligent Vocational Education.

1. Introduction

With the continuous development of information technology and Internet access to daily teaching, the intelligent education constructed through the Internet is the future direction of education, which can cultivate students' autonomous learning ability[1,2]. Exploring intelligent education has become an important subject in the process of educational modernization."Intelligent Vocational Education" is a resource sharing platform to promote the informatization of Higher Vocational education[3]. It is not only rich in resources, but also has a "vocational education cloud" platform specially serving the classroom of Higher Vocational colleges.It provides a powerful network teaching platform for different schools.With the popularity of the Internet and smart phones, it is possible to learn abundant teaching resources independently at any time and anywhere.It is very meaningful for colleges and universities to carry out the reform of classroom and teaching mode, integrate these resources into ordinary teaching, and cultivate and improve students' autonomous learning ability and habit.

Blended teaching, which is transformed from traditional classroom teaching, advocates the combination of high-quality digital resources and traditional teaching mode[4].Blended teaching integrates various flexible teaching methods and forms complementary advantages, so as to improve the teaching effect.That is Online + offline teaching, which combines the advantages of online teaching and traditional teaching.Through the organic combination of the two teaching organizational forms, learners can learn from shallow to deep.

At present, the course of industrial robotics technology is a core course offered by most higher vocational colleges[5]. Nearly 100 people will study every semester in Wenzhou Vocational and Technical College.This paper will study the construction of intelligent vocational education cloud platform for industrial robotics technology course, and then discuss how to use this platform to explore online and offline blended teaching activities, so as to achieve the purpose of improving teaching effect.

2. Construction of Industrial Robot Course Based on Intelligent Vocational Education

The construction of Industrial Robot Course on the platform of "Intelligent Vocational Education", as shown in Figure 1, mainly includes three modules: industrial robot teaching resource bank module,

industrial robot course vocational education cloud platform and intelligent vocational education cloud classroom APP. Firstly, according to the learning situation of industrial robots, including the requirements of schools, enterprises and social learners, the teaching resource database of industrial robots is established. "Intelligent Vocational Education" can form five modules through the establishment of resource bank: autonomous learning module, vocational training module, skills competition module, robot history module and enterprise learning module.

The resource bank of industrial robots mainly includes MOOC video, PPT, exercise library, teaching module and so on. Through the establishment of the resource base, we can improve the rich resources for teaching application. Then, according to the learning requirements of industrial robotics specialty in Higher Vocational colleges, it is convenient for teachers to quickly set up the robot vocational education cloud, and introduce the standardized curriculum resources of the resource bank into the vocational education cloud to set up the personalized curriculum. Finally, teachers and students can use mobile APP to visit the cloud classroom set up by teachers in Vocational Education cloud. Through the cloud classroom, online and offline self-learning can be realized, and students' self-learning ability can be improved.

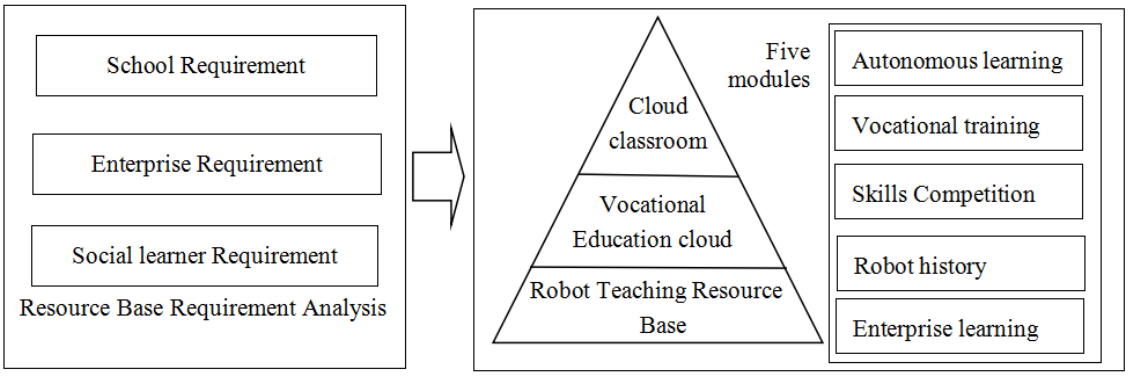

Fig. 1 Two or more references

3. Application and Practice of Blended Teaching Model

3.1 Design of Implementing Steps of Blended Teaching

The design of implementing steps of blended teaching mode mainly includes pre-class, in-class and after-class. Before class, the teacher formulates the overall design of the curriculum, and transmits the knowledge and information to the students. The students learn independently before class by MOOC on the cloud platform. In the course, teachers use cloud classroom to teach through instructional design, and reinforce knowledge learning in the classroom. At the same time, students can communicate with each other. Teachers analyze the learning situation of the whole class through the performance statistics in MOOC system. After-class students use cloud APP in vocational education to consolidate and expand their knowledge.

3.2 Practice of Blended Teaching Course

The course of Industrial Robot Technology is very suitable for online and offline hybrid teaching. Firstly, the interest of robotic students is strong, which makes early learning a necessity. Secondly, the teaching resources of industrial robots are inadequate. Through early learning, it can be better integrated into the teaching and improve the teaching efficiency. Thirdly, the rich network resources and the enhancement of platform functions provide technical support for timely inspection and tracking of learning effects.

Beginning in 2018, after two rounds of action research and comparative study of teaching modes, we explored and formulated a suitable teaching mode for Department students. Under the traditional teaching mode, teachers' teaching preparation mainly includes teaching overall design, teaching plan writing, courseware PPT and classroom exercises preparation. The courseware PPT is used for

application in class, and the classroom exercises are used for consolidation exercises in the classroom. Under the blended teaching mode, the pre-class teachers should complete the formation of cloud classroom besides the traditional preparation. It mainly includes MOOC videos, teaching knowledge points and self-learning materials in cloud classroom. Before class, we can have a full understanding of the classroom, grasp the whole in class, and apply App to consolidate exercises after class. Through the application of traditional teaching and mixed teaching, different classroom atmosphere is presented.

3.3 Blended teaching evaluation method

The evaluation of blended teaching mode uses online and offline methods to evaluate students comprehensively. The final assessment results of students mainly include the use of MOOC autonomous learning, cloud classroom APP participation, cloud classroom APP autonomous testing. It also includes classroom attendance, group practice and final test. Each part is allocated proportionally to form students' achievement. After comprehensive consideration, the final scores of the students include 10% of the cloud classroom assignments, 30% of the cloud classroom projects, 10% of the usual attendance, and 40% of the final exams.

4. Implementing Effect of Blended Teaching

Industrial Robot Technology is a course with many contents, which focuses on cultivating students' practical ability and professional accomplishment. Through two semesters of teaching mode experiment, in the second semester of the implementation of the blended teaching mode, teachers obviously feel that the class with the blended teaching mode can actively participate in teaching activities, the classroom is more orderly and better grasp the students' learning situation. For students, carrying out student-centered teaching activities effectively promotes students' learning enthusiasm, students' vocational skills have been better exercised, and the whole classroom teaching effect and atmosphere are also better. Through the summary of the activities of students and teachers, reasonable use of blended teaching mode to carry out online and offline is conducive to improving the teaching effect of industrial robotics course.

5. Conclusion

With the development of Internet + teaching, the teaching resource repository of industrial robots based on Intelligent vocational education can provide abundant teaching materials for classroom, including MOOC videos, exercises training, documentation and so on. The industrial robot vocational education cloud is established through the teaching resource database, and then the cloud classroom APP is used to organize the classroom teaching. Practice has proved that the use of intelligent vocational education blended teaching mode is a new teaching mode of industrial robotics technology exploration, so that students can better participate in the classroom, strengthen the main position of students' teaching activities, so as to achieve better teaching effect.

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