Reform of Computer Network Technology Hybrid Experiment Teaching

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Abstract: The training base is operated around the cultivation of students'professional and practical abilities. In order to better play the role of training base, this paper analyses and studies the training needs of network technology training base of modern educational technology specialty, and puts forward and implements a hybrid learning mode of "student-centered, project-oriented process".

1. Introduction

The traditional teaching of computer network technology is mainly about the principles and concepts of network system, network topology, computer network and so on. In the aspect of network application, it is only a simple explanation of Abstract.and dull theoretical knowledge such as the working principle of network, and the knowledge about specific application is less involved [1]. Many students feel very dull and boring in the learning process, which greatly reduces the enthusiasm and initiative of students. And this kind of teaching mode is difficult to achieve the organic combination of theory and practice. At the same time, with the continuous innovation of computer network technology, various new network information technologies have emerged in recent years, but many teachers do not have in-depth understanding, learning new network equipment, new knowledge, and naturally can not reflect these new technologies in the teaching content, leading to the disconnection between students and social development. Secondly, the traditional "computer network technology course" teaching still adopts the traditional teaching mode, in the classroom teachers occupy the dominant position, students are only passive recipients of knowledge, teachers rarely interact with students, teaching atmosphere is tense [2]. In the traditional teaching mode, the content of practical teaching is less, the network technology practice course is seldom arranged, and the content of experimental teaching is simple knowledge of web page making, network line making, network operating system configuration, installation, network application and so on. Students often learn by rote and have practical application ability. Poor.

2. The Characteristics of Mixed Learning

Hybrid learning is based on the diversified environment of today's educational technology and means [3]. It is a kind of training mode which is in line with the development trend of the times under the concept of student-centered teaching. Professor Ho Kekang, a domestic scholar, believes that blended learning combines the advantages of traditional learning methods with those of E-Learning. That is to say, teachers should not only play a leading role in guiding, inspiring and monitoring the teaching process, but also fully reflect students'initiative, enthusiasm and creativity as the main body of the learning process. Margaret Driscoll, a foreign scholar, believes that hybrid learning refers to four different concepts: one is to combine or mix a variety of network technologies (such as real-time virtual classroom, self-paced learning, collaborative learning, streaming media and text) to achieve educational goals; the other is to combine a variety of teaching methods (such as constructor) [4]. Justice, behaviorism and cognitivism) use or not use teaching technology to produce the best learning results; third, combine any kind of teaching technology (such as videotape, CD-ROM, networked training, film) with face-to-face teacher-directed training (ILT); fourth, mix or combine teaching technology with practical tasks to achieve better learning outcomes. Make learning and work in harmony [5].

Based on these definitions and the study of blended learning, combined with the practice in the

process of students'training, it is recognized that blended learning mode has the following characteristics [6]. First, the origin of the model is designed for Vocational training, so it has a natural fit with the vocational ability training in the training base. Secondly, the model emphasizes the main role of students in the teaching process, and flexibly adopts various teaching methods and techniques according to the needs of ability training [7]. Thirdly, the model emphasizes the combination of teaching and practical tasks, that is, project-oriented and task-driven learning. The learning process needs to follow the progress of the work. Fourthly, the assessment objective of the model focuses on the cultivation of ability, while the assessment means are carried out in the way of performance evaluation, emphasizing the role of rationalized assessment forms in promoting students'learning process [8].

3. Hybrid Teaching Reform of Network Technology Training Base

3.1. Analysis of teaching needs

Different from traditional teaching, classroom teaching is mainly used to construct a complete theoretical system of curriculum. Vocational training has more precise purpose and task. It is necessary to use various training methods to train the specific working ability of specific occupational groups. This means mainly includes real-world learning, practical operation and so on [9].

Nowadays, student-centered teaching has become the mainstream teaching mode. However, for the sake of the overall teaching effect and the convenience of teaching management, the degree of freedom of this kind of teaching is still limited. In the determination of teaching objectives and learning means, teachers are still the main body. In the training process of the training base, the aim is to train the students'individual abilities, emphasizing the relatively independent training target needs of each student, and creating more free and diversified learning ways for students in terms of learning means.

In traditional teaching, learning progress is often controlled in a more mechanical way. However, when the actual project needs are taken as the goal of ability training, it is necessary to study on the basis of ensuring the project progress, and the knowledge learned can be quickly transformed into working ability. Therefore, we can no longer control the learning process in a fixed way, but should control the learning process for the project-oriented process.

3.2. Student-centered student nuclear platform

The network technology training base of modern educational technology specialty relies on the school information center and provides network technology services to all departments in the school, including the construction of teaching website, the maintenance of information system, courseware production, etc [10]. These work requirements are handed over to students in the form of projects, as shown in Figure 1.
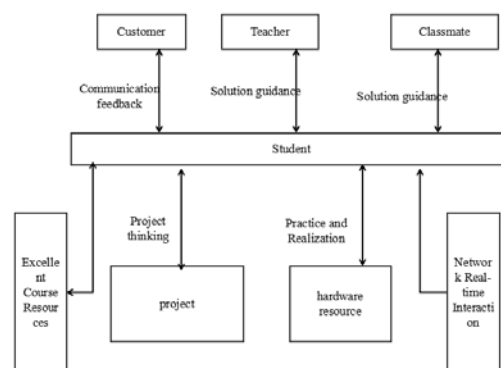

Fig.1. Schema of student's "nuclear" platform

To meet the needs of project-oriented training for students, a student-centered "core" platform has been built in the training base, which provides various objects and resources for students. On

this platform, students can fully communicate with different objects, including the project needs, that is, with the customer needs, communication and feedback, which can train students'communication skills. Students can also grasp the direction of the project and overcome difficulties under the guidance and guidance of teachers. Communication with classmates, that is, working partners, can enable students to understand the working methods of team cooperation.

On this platform, organization building and providing students with a variety of resources related to hybrid learning, students can access these resources according to their needs, and can also interact with and feedback with these resources. Before entering the training base, students have already studied the relevant courses. The network excellent course resources provided by the platform provide students with a good way to review and learn, and at the same time facilitate students to find resources. The platform provides abundant project cases for the students who take over the project. By referring to similar cases, the students can quickly establish the project framework and start the project. After each project is completed, students will be required to form a complete project document and summarize and improve project experience.

Because of the particularity of network technology service projects, some projects are hardware-related, such as network deployment, hardware configuration, equipment maintenance, etc. The platform provides these hardware resources for students. Students can practice around the implementation of the project and improve their practical ability. The platform also creates an environment for communication through instant interactive tools on the Internet, which makes the communication between students and objects more immediate and active.

3.3. Project-oriented learning model

Teaching students in accordance with their aptitude and classified training are the general trend of higher education and the focus of curriculum reform in Colleges and universities. When we design and construct the online learning course teaching platform, we fully consider the students with different foundation and different interests, design different online learning programs for them, provide different levels of classified teaching and guidance resources, students can choose different online courses and module learning according to their actual situation, and personality can be obtained. Full respect.

Project teaching is one of the hotspots of current reform. In the training base, the learning process is project-oriented. In the process of completing the project, students are trained in their abilities. In each link of the project, according to the needs of students'abilities, various learning activities are carried out., as shown in Figure 2.
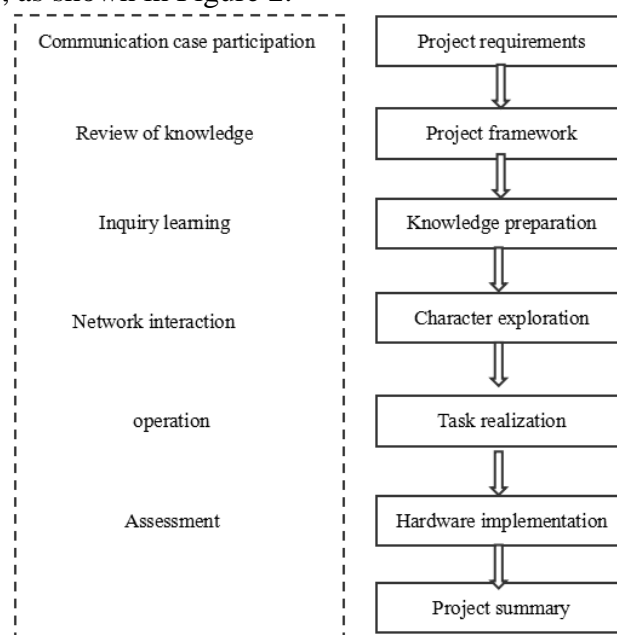
Fig.2. Hybrid learning model oriented to project process

In Link 1, students as project leaders communicate directly with customers, fully understand the needs of the project, and as the project proceeds, they must continue to communicate with customers, promote the project, and effectively exercise communication skills. In Link 2, students need to view and refer to similar project cases in the training base, so as to form the project structure, and to identify the knowledge and skills needs of the project, and to point out the direction for subsequent learning and work.

In link 3, the students review the knowledge needed by the project through the excellent network course, and also learn the knowledge lacking by themselves. This way of self-study through the network course is an important part of mixed learning, which can exercise the students'self-study ability. On the basis of sufficient preparation of required knowledge, the project can be decomposed into several sub-tasks. In Link 4, in view of students'doubts in the process of task or sub-task inquiry, students are organized to conduct classroom teaching. In the classroom, students are guided by group inquiry learning to grasp the thinking of solving problems and teach the methods of overcoming difficulties. On the basis of link 4, students complete their tasks by solving various problems. This process requires communication with teachers and classmates, and good use of various network resources. If there are still general doubts in the project, then cycle into link 4, through the alternation of link 4 and link 5, improve students'ability to analyze problems, explore learning and solve problems. When all the sub-tasks have been completed, we will enter Link 6, and implement the overall project with the actual hardware, and test it. This process will train students to practice and debug the project.

In the last part, combined with the effect of the project, according to the evaluation table, the students are evaluated effectively and the results are given. The students are required to summarize the project, form the technical documents of the project, and file it as a case. Among them, a reasonable evaluation table is designed by teachers at the beginning of the project. Through the performance points in the evaluation table, students can be effectively guided in the project-oriented learning process.

3.4. Other improvements

When students enter the university, they should first educate them to maintain their true identity with the teachers in terms of ideology. It emphasizes the equal importance of asynchronous teaching and synchronous teaching, extracurricular learning and intracurricular learning. Ideological unity is the precondition to ensure the success of autonomous learning and the precondition and motivation for the success of new educational methods. No matter what kind of teaching mode is adopted, the aim is to cultivate excellent professional and technical talents with certain innovative and critical thinking. While emphasizing autonomous learning, students should not be neglected, and appropriate mechanisms should be used to urge and mobilize their learning enthusiasm. Therefore, in addition to the traditional means of passing the performance test, what kind of evaluation and measurement indicators or quantitative indicators should be adopted.

In view of the important position of computer network course in the whole specialty and its course characteristics, we can adopt the evaluation method of combining centralized evaluation with process supervision and evaluation, paying attention to both the results and the process, and establishing a relatively sound evaluation system from a comprehensive perspective and in a more objective way. Centralized evaluation mainly includes classroom teaching evaluation and hands-on practice evaluation. Classroom teaching evaluation is conducted in the form of a roll-up examination at the end of the semester, focusing on examining students'mastery of theoretical knowledge. Practical evaluation mainly aims at the evaluation of practice links such as experiment, curriculum design, innovation project, etc. It mainly examines the debugging process, report writing process, key problems description and solutions in the process of reply, emphatically examines students'practical ability, theoretical application ability and problem solving ability. The process supervision and evaluation mainly consists of students'classroom performance evaluation and online learning evaluation. Classroom performance evaluation mainly examines students'attendance rate, classroom answers, homework completion and so on.

4. Conclusion

The mixed learning mode of "student-centered, project-oriented process" has been fully practiced in the network technology training base of the modern educational technology specialty of our school. The vocational ability of students trained under this mode has been greatly improved, and the quality of employment has been steadily improved. Through the project experience in the training base, the students with excellent abilities have opened up the road of entrepreneurship.

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