

On the Teaching of Computer Network and the Cultivation of Innovation Ability

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Abstract: with the Deepening of the Educational Innovation Idea, the Teaching Process Also Generally Integrates the Innovation Idea. as an Innovative Teaching Mode, Open Experimental Teaching Can Not Only Improve the Students' Innovation Ability, But Also Strengthen the Students' Practical Ability. in China, It Has Become a Popular Teaching Mode. This Paper Mainly Analyzes the Shortcomings of Computer Network Open Experimental Teaching, and Puts Forward the Related Teaching Methods of Open Experimental Teaching, and Discusses How to Cultivate Its Practical Ability.

1. Introduction

The Main Purpose of Computer Network Course is to Cultivate the Students' Practical Ability and Make Them Adapt to the Development of Society as Soon as Possible, So as to Meet the Needs of Social Development[1]. the Traditional Teaching System is Relatively Backward, Too Much Emphasis on Theory, Lack of Practical Operation, So That Most Students Can Not Exercise Their Practical Ability, So That It Will Take a Long Time to Adapt to the Fierce Social Competition after Graduation. through the Open Experimental Teaching of Computer Network, Students Can Fully Analyze Problems and Solve Problems by Themselves, So as to Improve Students' Innovation Ability and Practical Ability and Deepen Their Understanding of Knowledge.

2. The Deficiency of Computer Network Experiment Teaching At Present

2.1 Limited Experimental Class Hours, Backward Teaching Contents and Unsatisfied Teaching Needs

Although there are many courses of computer network education, there are few class hours, especially practical courses. In order to complete the teaching plan, the experimental content tends to be simplified, the teaching workload is guaranteed, but the comprehensive ability of students has not been improved correspondingly[2]. In the course of computer network, some colleges and universities only let students complete some relatively simple experiments, such as twisted pair, so that students lack the opportunity to transform book knowledge into practice. Especially at this stage, colleges and universities continue to expand enrollment, the number of students has increased sharply, but the experimental facilities of schools are not updated in time, and the experimental equipment is very short, which will inevitably affect the teaching effect.

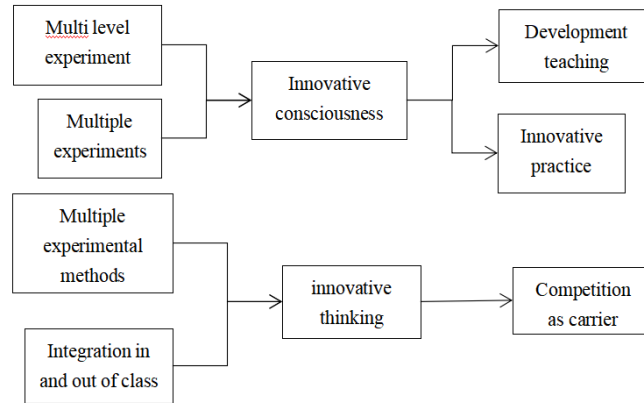


Fig.1 Teaching Ideas for the Cultivation of Innovation Ability

2.2 The Experimental Facilities Are Backward, the Number is Limited, and the Teaching Effect is Affected

Network equipment is more expensive. Therefore, there are also schools with insufficient funds, which can reduce the scale of research rooms, reduce the number of equipment or purchase low-quality equipment. The lack of experimental equipment restricts some general experimental tasks. Students can complete some simple verification experiments. It can not further improve the ability of server setting, network security and network equipment configuration, and can not obtain the application ability of network engineering. It went smoothly. Due to the limited number of test devices, some test items can only be carried out in batches[3]. For example, in a comprehensive network test, students need several hours to complete the complete network communication, while each experimental class only has 100 minutes. Therefore, most of the students have not finished the experiment. It has been seriously affected.

3. The Goal of Open Teaching of Computer Network is to Analyze Practical Ability

Solve problems and improve the ability of experiment innovation and practice. Therefore, in order to carry out the open experimental guidance in the computer network, we do not follow the previous teaching mode[4]. We need to find an open education model suitable for the development of students, suitable for computer network education. Choose a more suitable open education path, cultivate students' ability, and make them become talents who practice and contribute to the society.

3.1 Add Some High-Grade Experimental Equipment

The traditional teaching task can not be completed, resulting in a single teaching mode because of the imperfect facilities and equipment, the level of facilities is not high and so on. The improvement of practical ability and enlightening thinking is obtained through experiments. The experimental equipment is insufficient and the grade is not high, so the students can't transform the theoretical knowledge they have learned into practical ability through experiments, so the practical ability can't be improved[5]. Therefore, sufficient high-end equipment can let students transform theoretical knowledge into practical ability in the process of experiment, give students an opportunity to learn independently, let students integrate their own interests into learning, stimulate students' enthusiasm for learning, cultivate students' good habits of thinking and learning independently, so as to improve students' ability of practice, innovation and exploration.

3.2 Increase Diversified Experimental Content

Backward teaching content, more courses and less class hours are the characteristics of the past teaching mode. In order to complete the teaching plan as much as possible, some teachers use a single teaching content[6]. But different students have different levels of knowledge. If we only use the same teaching content, we can't teach students according to their aptitude better. Students with poor foundation can't keep up with the progress, and students with good foundation can't meet their

learning needs, which will lead to the situation that students' learning interests are uneven. Interest is the best tutor. Students can be more active only when they have interest in learning. In the computer network course, different levels of experimental content are added, so that students can choose the corresponding computer network experimental course according to their own interests and hobbies, so that students at each level can take into account, and their natural learning ability is also cultivated.

3.3 Innovative Experiment Project

The experimental project which has not been changed for many years is a major feature of the traditional teaching mode, which leads to the tedious and monotonous classroom, the backward experimental content, let alone the progress with the times, and naturally can not ensure that students' innovation ability and learning ability are fully cultivated. The knowledge of computer network is changing all the time. The past constant experimental projects can not meet the students' desire for knowledge, nor can they meet the changing times. Open experimental teaching puts forward higher requirements for knowledge, not only to simplify the knowledge on the basis of the original, but also to change the boring classroom teaching and topics. The content is old and backward, and so on[7]. We should build a new teaching mode which is in line with the changes of the times. A good experimental project can improve students' interest in learning to the greatest extent, and also help students to flexibly use the knowledge they have learned to seize the opportunity of the times, improve their practical ability in all aspects, so that students can grow up to adapt to the development of society and make contributions to the society in the new century.

4. The Experimental Teaching Method of Cultivating Innovative Ability

4.1 Break the Traditional Unified Teaching Mode and Carry out Independent and Open Teaching

For a long time, experimental teaching is limited by the requirements of laboratory management and fixed experimental equipment. The students basically completed the experiment under the basic requirements and the teacher led conditions. In the experiment course of cultivating innovation ability, we should break the strict unified elements, formulate the universal basic unified elements, and encapsulate the experimental contents, experimental methods and experimental evaluation management elements. As for the content of experiment, it realizes layered teaching and independent selective learning. The experiment content is divided into basic level experiment and superior level experiment. For basic level experiments, students are independent experimental procedures, and then choose independent experimental projects according to their own interests. Experiments and teachers are dominant, and students can lead the way. Teachers are to propose the direction and conditions of each experimental project, to give students independent choice of direction, independent and ask questions, independent design, and complete implementation[8]. In an open and independent environment, build the habit development of knowledge and development ability. During the experiment, for the basic level experiment. Students can carry out experiments in the laboratory, four hours an hour in the laboratory. Students can carry out experiments outside the classroom by themselves, in an independent environment. These experimental environments and equipment can be selected according to their needs, and are not limited to the equipment provided by the experimental environment and courses. The open evaluation method is used in the experiment evaluation management. Students of the basic level selected for the experiment are for the comprehensive class experiment, teachers' questions, experiment reports, and finally pass the exam to be evaluated. In order to choose students who can improve the experimental level, they use project management. The links of management and evaluation, their application, mid-term inspection and final answer 3 are opened. It is necessary for teachers to track the guide, the whole experiment process, and finally the whole experiment process and the final experiment results and write the evaluation of the experiment report.

4.2 Taking Competition as the Carrier to Cultivate Students' Innovation Ability

“National College Students' mathematical model competition rules”, the purpose of competition is to stimulate students' enthusiasm for mathematical learning, build mathematical models, improve students' comprehensive ability and practicability, and solve the problem of using and defining computer technology. At the same time, encourage students to actively participate in extracurricular scientific and technological activities, develop and cultivate knowledge of innovative spirit. In the computer network experiment education, competition is very important to the cultivation of students' innovation ability[9]. The competition requires students to systematically understand relevant knowledge and computer network principles, and master network engineering technology. The strong spirit of exploration and innovation can explore new knowledge and new methods, and create excellent results. On the one hand, competition stimulates the interest and potential of computer network technology students; on the other hand, it cultivates and cultivates students' innovation ability and practical ability.

4.3 Cultivate Students' Innovation Ability with the Help of Innovation Practice Base

The establishment of innovative practice base is very important to promote the reform of university education and professors, stimulate the enthusiasm and possibility of innovation of university students, and promote the construction of research university. Our school is an advanced practice base of computer network technology innovation. Schools and universities implement the training principle of “strengthening foundation, emphasizing practice, emphasizing quality and emphasizing innovation” and the “synthesis of narrow belief” with school characteristics. At present, master students and doctoral students have been opened up. On the “practice” platform, as a “follower” guidance and learning mode, the implementation of “doctors, masters, college students participate”. Doctoral students often have a wide range of knowledge, extensive practical experience, strong ability to innovate knowledge, as well as in-depth study of human subjects and fields. For the main force of innovation, the students in their school usually have the ability to adjust and manage the team in a specific way, the strong ability to explore and practice in guiding students to carry out scientific research, and the specific ability to conduct scientific research and innovation. They are the main force of the team to become the overall progress of scientific research and practical work, which can drive the college students to master professional knowledge. It is necessary to cultivate innovation ability in practice.

5. Conclusion

Practical teaching is an important method to cultivate innovative talents in research universities. It is an important work for practical and experimental professors to explore and study the creative ability of university teachers. This paper discusses the thinking method of cultivating students' innovation ability in the computer network experiment education. The purpose of this study is to cultivate students' innovation ability from the perspective of experimental content design and experimental teaching method. The design of hierarchical experimental content and various types of experimental design were employed, which integrated the design of experimental methods and integrated experimental classes and external experimental plans. Gradually, the students' innovative consciousness, innovative thinking and innovative skills were developed, and the goal of cultivating innovative ability was achieved. With the help of the independent recruitment of open education methods, competition and innovation practice base, it was further strengthened and strengthened. The innovation ability of students.

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