Research on the Teaching Reform of Computer Network Course in Higher Vocational Colleges under the Background of "Internet Plus"

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Keywords: Internet plus, Higher vocational computer network course, Teaching reform

Abstract: The computer course is a subject with both theoretical basis and practical skills. Owing to the innovative progress of China's scientific field, information technology is widely used in the production and operation activities of all walks of life, and the requirements and demands of the society for computer talents are gradually increasing. Colleges, as the key place for fostering application-oriented talents, should adopt measures to enhance the teaching quality in view of the problems existing in the current computer network courses. Based on this, this paper explores the teaching reform of computer network courses in colleges under Internet plus.

1. Introduction

Computer network course is a basic course for computer-related majors, and its main contents include the transmission layer, physical layer, network layer, application layer, etc. of computer network[1]. The computer network course is highly practical and theoretical. Through learning this course, students can master the basic knowledge of computer network and lay the foundation for subsequent learning of other network skills. Owing to the progress of science, the education field has gradually been combined with Internet technology, and the form of students' knowledge acquisition has changed. To enhance the quality of computer network teaching, based on Internet plus, colleges should fully use the advantages and values of Internet technology, update teaching concepts, innovate teaching models, and carry out comprehensive teaching reform.

2. Problems in Computer Teaching in Higher Vocational Colleges at Present

2.1 Teaching Content is Divorced from the Reality

According to the analysis of the current teaching situation of computer network courses in colleges, most of them take the mainstream content as the focus of teaching, and carry out teaching for students in the order of gradual progress from the shallow to the deep. The specific teaching sequence is as follows: composition of computer equipment, use and learning of different application software in computers, assembly and installation of computer hardware equipment, installation of computer software, installation of different computer systems, computer repair and maintenance, computer programming, computer security management, computer software progress, etc.[2]. Although there is a certain correlation between various teaching contents, due to the lack of practical operation items in the current teaching contents, students can not internalize after learning theoretical knowledge. This, to some degree, leads to students' inability to enhance their computer skills. Although some colleges have organized and carried out practical operation teaching after completing the basic teaching of computer network theory, there are problems such as insufficient class hours, rigid and backward content of practical projects, which further aggravate the degree of disconnection between teaching content and practice. It is difficult for graduates of colleges to adapt to the needs of computer skills in their jobs, which is not conducive to students' employment and future progress.

2.2 Rigid and Backward Teaching Methods

Most colleges still adopt the mode of theoretical explanation+case teaching when developing computer network courses. That is, the teacher first explains the relevant knowledge points to the students in the actual teaching process, and then the teacher uses multimedia to carry out practical operation[3]. Students record the operation demonstration by taking notes and practice in strict accordance with the teacher's operation process. This kind of teaching method can't achieve good teaching results, and students are in a passive learning state for a long time. Both learning and understanding of knowledge points and practical operations are completed under the guidance of teachers, which will greatly reduce students' interest in study and enthusiasm for classroom participation. In the long run, students will lose the ability to actively learn and explore knowledge, and their personal innovation ability and expression ability will also be affected. In addition, the stereotype of computer network teaching in colleges is also affected by the construction of teaching infrastructure. The network equipment of some colleges is relatively old, which is out of line with the network equipment actually applied by enterprises. There are few teaching equipment, which can't effectively meet the practical needs of students, thus reducing the teaching effect and quality.

2.3 Formalization of Teaching Evaluation

In the actual computer network teaching, the basic process of teaching evaluation is classroom, homework, practice and final examination. This traditional teaching evaluation model is too formalized, resulting in students' perfunctory attitude in both homework completion and practice [4]. It can not enhance students' learning quality and effect, and affect students' learning enthusiasm. The traditional teaching assessment and evaluation model is not conducive to teachers to master students' actual learning ability and needs, and can not effectively enhance the pertinence of teaching programs. It has no positive effect on the cultivation of students' innovative ability or the enhancement of students' computer skills. In the actual teaching evaluation process, due to the unreasonable and incomplete setting of the evaluation content, students' confidence in learning will be undermined to a certain degree, which will have immeasurable consequences.

3. Teaching Reform Path of Computer Network Course in Higher Vocational Colleges under the Background of Internet Plus

3.1 Rationally Optimize the Teaching Content of Computer Course

First of all, colleges should redesign and optimize the existing teaching resources based on the characteristics of the Internet plus era. In modern society, people live at a faster pace and have less time to spare. It is difficult for students to spend a lot of time and energy on in-depth analysis and learning of a knowledge point after class[5]. Then some simplified reading information will take about three to five minutes to learn, which is easier for students to complete. In this regard, colleges should divide the original teaching resources into parts, simplify and fragment the teaching content as much as possible, and enhance the learning quality and effect of students. Secondly, for the course with both theoretical basis and practical skills, colleges should focus on the introduction of practical teaching projects. Before carrying out this work, teachers can combine students' actual learning ability, needs and teaching objectives, disrupt and reorganize the teaching content, build a new knowledge framework, and make students clearer when retrieving knowledge. Colleges should also break the traditional mode of theoretical knowledge + teaching case explanation, put computer practical operation items in the market throughout the teaching content, and tell students the application value and progress trend of computer network in different fields of the market through Internet retrieval. Only in this way can we fundamentally stimulate students' interest in study and help students deepen their recognition of the connotation of computer network courses.

3.2 Innovate Teaching Methods

On the basis of reasonably optimizing the content of computer network courses, colleges should also innovate teaching methods based on the progress needs of the integration of Internet

technology and computer network courses. First of all, colleges can use Internet technology to build online + offline mixed teaching mode[6]. In the actual teaching process, teachers can divide online teaching into two stages. The first stage is to teach through micro-class to help students understand the teaching content of offline courses in advance, so as to enhance the efficiency and effect of offline teaching. The second stage is PPT teaching. Teachers can combine the teaching content to make PPT before class, build a perfect mind map for students, and introduce more teaching resources to enrich the teaching content. This way can break the boundaries of time and space and enhance teaching efficiency. Secondly, for some colleges that do not have a computer network teaching platform, online teaching interaction between teachers and students can be realized by using teaching software such as flipped classroom and rain classroom, and then a perfect teaching system can be built to lay a foundation for enhancing the teaching quality of computer network courses. For instance, Rain Classroom integrates multimedia slides, MOOC, and mobile WeChat, combining the advantages of online teaching resource sharing with the characteristics of offline face-to-face teaching, so as to promote effective teaching interaction between students and teachers in and after class.

3.3 Establish and Enhance the Teaching Assessment and Evaluation System

At the present stage, the teaching assessment and evaluation of computer network courses in colleges is too formal, which is mainly manifested in the fact that students' final grades are simply used as the teaching evaluation criteria. Although the evaluation of students' problems has not been conducted for teaching guidance, it has hindered the enhancement of students' computer network skills to a certain degree. Therefore, colleges should take advantage of Internet technology, update the concept of teaching evaluation, and establish and enhance the teaching assessment and evaluation system. First of all, colleges should clarify the content of teaching assessment, break the paper test assessment mode, take specific project tasks as the assessment focus, and score students' comprehensive performance while completing project tasks, so as to enhance students' ability to independently use computer network technology to solve problems. Secondly, in actual teaching evaluation, colleges should broaden the subject of teaching evaluation and enhance the objectivity of teaching evaluation through teacher evaluation and student evaluation. Teachers should also evaluate the performance and specific workload of the members of the project team in the whole process of the task, and then grade the team as a whole according to the quality and effect of the project content submitted by the final team, and distribute the scores to the team members comprehensively. Through this evaluation method, teachers can deepen their recognition of the actual learning situation of students, and then adjust the teaching plan reasonably, further enhance teaching quality[7].

4. Conclusion

To sum up, it is very crucial for colleges to develop teaching reform of computer network courses under the background of Internet plus. This is an inevitable trend to comply with the deepening reform in the field of education in China and a crucial basis and premise to effectively enhance the quality of teaching and mobilize students' interest in study. In this regard, colleges should fully recognize the progress opportunities brought by the Internet plus era for the education field, and fully analyze the problems existing in the current computer network courses. By optimizing teaching content, innovating teaching methods, and enhancing the teaching assessment and evaluation system, they can maximize the teaching quality, mobilize students' interest in study, and thus foster high-quality computer talents for the society.

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