

Research on the Computer-Assisted Instruction Model of Curriculum Oriented by Professional Ability

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Abstract: With the mushroom growth of information technology, computers have become a part of people's daily life and work. In order to effectively carry out the teaching of basic computer courses for computer majors in colleges, each college must adopt reasonable practical teaching methods and actively carry out the reform and innovation of computer courses. With the advent of the scientific era, society needs talents with innovative awareness and practical ability even more, which has become one of the main directions of talent cultivation in colleges. Develop reasonable curriculum content based on the job requirements of different professional positions, improve the basic vocational skills of computer students, and cultivate more social comprehensive computer talents. The basic computer courses in colleges undertake the important function of cultivating students' software office skills and information based thinking, which is crucial to the cultivation of students' professional abilities. Implement classroom teaching according to the development law of professional ability, actively carry out information based teaching reform aimed at improving autonomous learning ability, and pay attention to improving teachers' professional practical ability, thereby effectively improving students' comprehensive professional ability. This article analyzes the current situation of the teaching of basic computer courses, proposes a computer-assisted teaching model based on the teaching objectives, and expounds the practical methods of computer-assisted teaching.

1. Introduction

With the popularization and development of computer technology in all walks of life, computer application ability has become an important indicator to measure students' professional ability. In recent years, the talent market lacks skilled computer talents, and many enterprise recruitment units have increasingly high requirements for graduate students' practical computer skills. Taking vocational ability requirements as a guide is currently the main direction for colleges to cultivate computer talents. In order to improve students' comprehensive computer skills, An in-depth discussion is conducted on the teaching reform of computer basic courses guided by cultivating students' professional abilities[1]. By 2022, we should basically achieve the development goal of improving the application level of informatization and the information literacy of teachers and students, promote the transformation of education informatization from improving the application ability of information technology of teachers and students to comprehensively improving their information literacy, and from integrated application to innovative development, strive to construct a new model of talent training under the condition of "Internet plus", develop a new model of education service based on the Internet, and explore a new model of education governance in the information age[2].

The basic computer course is a public required course. The teaching of the basic computer course not only aims to enable students to master the basic application of computers, but also combines with professional content to cultivate students' comprehensive application abilities, so that computer skills can serve students' future career development, and enhance their core competitiveness in the job market[3]. Influenced by various factors, the basic computer courses in

colleges generally have problems such as low teaching quality, weak practicality, and repetitive curriculum content, which are not conducive to the cultivation of students' professional abilities. Combining with the planning and design workflow, and based on the teaching characteristics of the course, integrate online course education and vocational ability cultivation into teaching, and from the perspective of practical ability cultivation, construct a hybrid teaching system based on online courses and offline competency oriented processes[4].

In the “Internet plus” era, the effective integration of online education resources and traditional education has become the need of the development of the times. Online and offline hybrid learning has rapidly developed into a way of teaching and learning. The training specifications for college students consist of three aspects: quality, knowledge, and ability. Competencies include the training specifications for general abilities and professional technical skills. General abilities include the ability to solve practical problems, lifelong learning ability, information technology application ability, and information processing ability[5]. To comprehensively improve information literacy such as information technology application ability and information processing ability is an inevitable requirement for talent cultivation in colleges.

2. Problems in the Teaching of the Basic Course of Computer Application

2.1 The Level of Students is Uneven, and the Teaching Content is Disconnected from the Major

During the teaching process of computer basic courses, it was found that some students have a certain level of computer skills and application abilities, and can master some basic skills. However, some students have not been exposed to computer related content, and these students are zero foundation students. The uneven level of computer skills among students leads to gaps in the basic knowledge of computer courses. If teachers use the same teaching methods to teach and ignore this difference, some students will be unable to keep up with the teaching progress, thereby affecting the improvement of teaching quality.

In many schools, the relationship between the teaching of computer science courses and professional characteristics is not close enough, and there are no unified requirements for the development of teaching content. Teachers cannot comprehensively guide students. Due to the high requirements for computer professional knowledge and the low basic level of students, teachers should select key content and develop teaching modules suitable for students based on the differences in students' professional level during teaching to avoid students being unable to learn computer knowledge based on their own characteristics. Currently, the experimental courses in computer network textbooks mainly focus on verifying the knowledge points learned in the textbooks, and the experimental content is not systematic and comprehensive; In addition, due to the fact that most of the teachers in colleges come from fresh graduates or transfer from other majors, without actual project work experience, and the lack of communication with enterprises related to computer network technology, there is a significant gap between the practical teaching content and the actual application of enterprises, resulting in the inability of the students trained to form a complete skill system, and the inability of students to be competent in the information networking environment of enterprises after graduation[6].

2.2 Single Teaching Mode

At present, in the teaching of computer basic courses in colleges in China, too much emphasis is placed on the teaching of conceptual theoretical knowledge, while ignoring the characteristics of large differences in computer basic knowledge among students. When teachers teach courses, some students feel that the knowledge is too simple in terms of basic knowledge, while some students cannot absorb it in terms of basic knowledge. Moreover, the teachers do not provide in-depth demonstration and operational guidance, resulting in students losing interest in learning, skipping classes, and playing games in class.

In the context of the popularization and development of educational informatization, teachers

adopt more teaching methods through the production of teaching courseware and the use of multimedia forms for display. Students deepen their memory of theoretical knowledge based on the content of the courseware, and complete the transformation from theory to practice in practical classes[7]. This educational model has its theoretical advantages, but in general, students often have a vague impression of the content of the courseware in practice classes that are separated by several days, making it difficult to carry out specific practice. In addition to imparting knowledge, teachers should also understand the actual situation of students, provide reasonable guidance and assistance to students, reduce teaching difficulties, thereby improving students' learning efficiency and learning quality.

Due to the wide range of knowledge, large amount of theoretical knowledge, and fast updating of computer basic curriculum design, many teachers do not pay attention to the refinement and sloppy nature of teaching. Most of the time in a class is devoted to theoretical knowledge, shortening the time for students to operate on the computer, without focusing on the principles and methods of operating tasks, and ignoring the explanation of operating methods[8].

3. The Implementation Strategy of Vocational Ability Oriented Computer Basic Course Teaching

3.1 Carry out the Integrated Teaching Mode of “Teaching and Learning”

The essence of “teaching and learning” integration is to complete the entire process of education from theory to practical operation in the training classroom. This educational model has changed the current teaching model in which theory and practical teaching are differentiated from each other, avoiding the repetition of content in different teaching links, making the teaching of computer basic courses more flexible and capable of progressing from theory to practice in a linear teaching model, which is of great significance for cultivating students' ability to analyze and solve problems[9]. Teachers can adopt the following teaching methods (as shown in Figure 1). (1) Project based teaching. The teacher guides students to carry out a series of activities such as project design and practice. Through the integration of teaching content, a real practical environment is constructed, enabling students to introduce abstract and boring theories into practical skills operations, helping students to internalize knowledge, and completing practical skills training while mobilizing students' learning enthusiasm. (2) Task driven teaching. This teaching model requires teachers to provide exploration tasks for students, enabling them to continuously complete tasks based on their own knowledge base, and cultivating students' courage to face problems while obtaining a sense of achievement. (3) Full-truth Practice Method. The key to the teaching of computer basic courses in colleges lies in cultivating students' ability to apply computers to serve their work. In order to cultivate students' professional abilities, teachers should select practical and practical topics from the authentic practice questions in the basic computer course for intensive training. Targeted training can help students identify and correct gaps, strengthen their mastery of computer skills, and effectively improve their ability to use computers for office work[10].

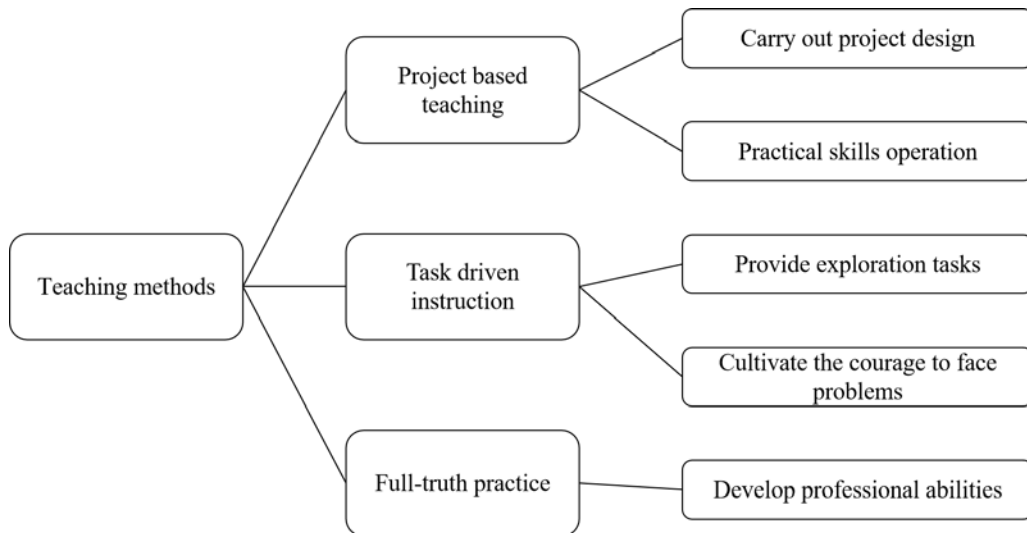


Fig.1 Teaching Methods

3.2 Strengthen the Construction of Teaching Resources in Multiple Dimensions

The construction of teaching resources for computer basic courses should start from the following two aspects (as shown in Figure 2). (1) Construction of electronic resources. The basic computer course takes up less class hours, and within a limited time, it is difficult for students to digest and master a large number of complex knowledge points. If the content of the explanation is reduced, it will lead to backward course progress. In the context of educational informatization, using fragmented time to carry out online teaching can effectively solve the problem of class hour constraints. The construction of electronic resources mainly adopts two methods: first, establish a teaching website. The main functions of the website are to share teaching resources, display student works, and conduct teaching discussions. Teaching resources include syllabus, teaching material content, video picture courseware, realistic exercise questions, previous years' National Computer Rank Examination papers, examination guide, etc. Second, record teaching videos. Students can use teaching courseware online to achieve autonomous learning, and can carry out targeted learning based on their own weaknesses. Teachers can record a series of teaching videos to provide targeted explanations on the key points, difficulties, and error prone points of computer basic courses. This teaching video can be played multiple times, and has an important auxiliary role in cultivating students' computer skills. (2) Curriculum and textbook construction. To a certain extent, the quality of teaching materials plays a decisive role in teaching quality. Computer software and hardware technologies are frequently updated, and colleges should also ensure that the content of teaching materials is regularly updated to avoid falling behind.

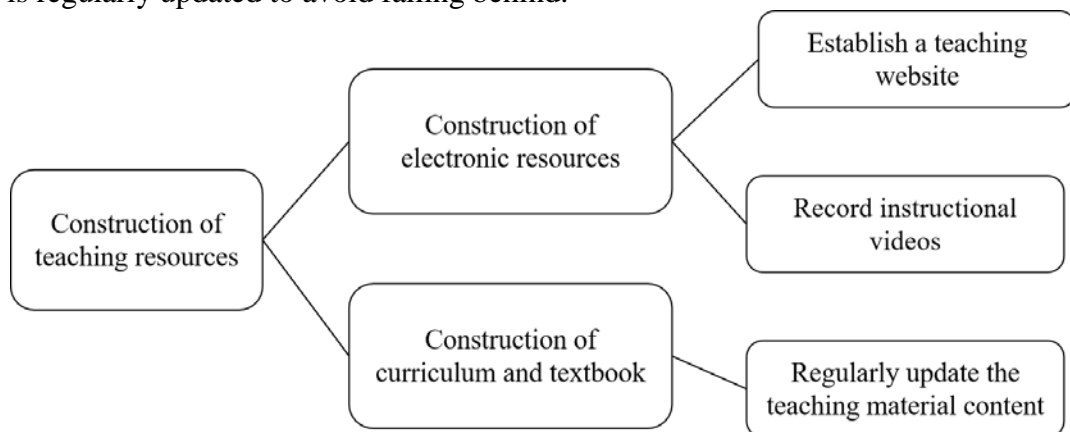


Fig.2 Construction of Teaching Resources

4. Conclusions

The current problems in the teaching of computer basic courses in colleges are mainly manifested in the uneven basic abilities of students, relatively simple teaching methods, inadequate infrastructure construction, and the difficulty of practical content to support the growth of theoretical knowledge, as well as the disconnection of teaching content from the development of the times. Curriculum design for computer majors in colleges attaches great importance to cultivating students' discipline rigor, enabling them to develop good learning habits during their study period, and laying a solid foundation for them to enter the workplace in the future. The society urgently needs computer comprehensive talents. Therefore, in the teaching practice of computer basic courses, it is necessary to strengthen the application teaching of computers in various fields of society, attach importance to teaching methods and curriculum content, keep pace with the times, constantly innovate curriculum content, stimulate students' interest in learning, cultivate students' autonomous learning ability, and promote students' comprehensive mastery of curriculum knowledge. The key to curriculum reform lies in teachers, whose professional practical abilities are the source of improving students' comprehensive professional abilities. In the process of curriculum teaching reform, which focuses on cultivating professional abilities, teaching should shift from "teaching" centered to "education" centered, and teachers must pay attention to students' individual differences and learning status. Improve the professional level of teachers' teaching and cultivate more applied talents in computer professional positions for the society. Colleges should aim at vocational ability cultivation, update teaching content in accordance with national standards, focus on the integrated teaching model of "teaching and learning", strengthen the construction of teaching resources and teaching staff, promote the development of computer basic courses in colleges, and cultivate students' employability.

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