

Exploration on Teaching Reform of College Computer Basic Course

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Abstract: With the development of science and technology, computer application ability to work is an essential skill, also is one of the standard of college students' comprehensive qualities, based on the present university computer foundation course teaching content of such problems as lagging too professional, too, is not conducive to self-study, based on students' development, with the concept of information literacy cultivation, to enterprise talent demand as the goal, to explore rapid changes to reflect the information, is good for students' lifelong learning in the university computer foundation teaching content reform, to cultivate higher professional talents in colleges and universities.

1. Introduction

The outline of the 13th five-year plan has brought Internet construction and artificial intelligence into the national strategic level. Therefore, there has been a trend in the education sector of China to focus on cultivating students' information literacy ability, especially in the university education, putting the cultivation of students' information literacy awareness in the first place. Although most colleges and universities in our country have set up information literacy training courses (basic college computer), so far, colleges and universities in our country have not established a special information literacy evaluation system, only in the document of the ministry of our country mentioned the relevant ideas. In order to ensure the effectiveness of the information literacy evaluation system, a comprehensive and standard information literacy evaluation standard must be constructed. Currently, colleges and universities are blind and lack pertinence in the cultivation of college students' information literacy, the existing objectives of the cultivation of information literacy are not consistent, and there is no scientific and unified evaluation standard for college students' relevant teaching content, methods, effects and teacher level, all of which restrict the development of the cultivation of information literacy.

2. Problems in Basic Computer Teaching in Universities

2.1 The course content is not reasonable

The content of basic computer courses is out of step with the development of The Times. Some teaching contents have lagged behind the development of computer technology and software. At the same time, the teaching content of the basic computer course is not highly related to the learning needs of students of all majors, and the key points of the basic computer course are not defined according to the characteristics of all majors, thus exacerbating the teaching situation of the disconnection between theory and practice of the basic computer course. In addition, the school usually sets the basic course of computer in the first year, and seldom involves computer technical knowledge after that, which is not conducive to cultivating students' computer literacy.

2.2 The course teaching mode is single

In the teaching mode of computer basic course, which is based on the first theoretical teaching and the second practical operation, the teacher is the subject of the course teaching, and the students

are in the passive learning state to accept the indoctrinating of theoretical knowledge, and imitate the teacher's operation to operate on the computer, which weakens the enthusiasm of the students to study independently. While some teachers use multimedia technology to carry out teaching activities, but there is still no change passive learning position of students, a severe lack of interaction between teachers and students, not plenty of autonomous learning resources for the students to make computer basic knowledge and skills of learning just confined to the classroom, and not to the class.

2.3 The teaching evaluation system is unscientific

The traditional computer basic course teaching evaluation system is based on the usual score and the final exam score. Among them, the usual performance rating according to the student attendance, classroom performance, etc., the final exam more than machine theory examination is given priority to, the teaching evaluation model is difficult to reflect the status of students' learning and operation skills, causing students are used to rote learning knowledge before the exam, is not conducive to practical application ability training of students' computer skills.

3. Exploration of Teaching Content Reform

3.1 Computational thinking concept

The basic course of university computer is an important platform for cultivating computational thinking, which plays an important role for students to gradually understand and master computational thinking from initiation. Professor Yizhen Zhou believes that "computational thinking is a series of thinking activities covering the breadth of computer science, such as problem solving, system design and human behavior understanding by applying the basic concepts of computer science". It can be seen that the purpose of computational thinking is to solve problems, design systems and understand human behavior, and the method used is based on computer technology.

3.2 To cultivate computational thinking as the core of teaching

An ancient saying goes, "it is better to teach a man to fish than to give him fish." In the process of lectures, teachers not only impart the course contents to students, but also lead to thinking points, transform knowledge into thinking methods and spread, and finally achieve the purpose of cultivating students' computational thinking.

First of all, in terms of teaching content, the basic course of university computer should be well connected with the computer course of middle school. The basic course of university computer is no longer just to teach students how to operate the computer, but to let students learn the basic theory of computer, and further strengthen the cultivation of their computational thinking ability. Aiming at cultivating students' ability of calculating thinking, the emphasis of teaching reform is put forward. In the process of teaching, on the one hand, we should pay attention to basic knowledge and theoretical explanation, so that students have a solid basic theoretical knowledge, in addition, we should strengthen the guidance of their learning thinking ability and cultivate their computational thinking ability. At the same time, in the actual teaching process, pay attention to the docking of the majors that non-computer majors learn, for example, strengthen the guidance of modeling knowledge in the process of explaining program design thinking to the mechanical majors, and strengthen the guidance of Internet of things knowledge application to the coal mine safety majors.

Secondly, in terms of teaching methods, the lecturers should quickly change their teaching concepts and turn the main emphasis of classroom teaching from the explanation of basic knowledge to the guidance of students' computational thinking consciousness. Teachers should deeply understand the teaching material, experience the teaching material calculation thinking method, in order to guide students. At the same time, we should pay attention to the design and application of cases in the teaching process. Based on the classic cases, we should integrate the cultivation of computational thinking ability into the teaching cases. The teaching process should

also pay attention to strengthen the interaction between teachers and students, more questions, more guidance, more group discussion, so as to inspire students to think more, to achieve the purpose of cultivating their computational thinking ability and comprehensive quality. Aiming at the condition of the computer class is compressed, own computer basic teaching group adopted "MOOC + SPOC + flip" classroom teaching form, make full use of modern teaching methods, organize the students through the network preparation before have to explain the content, full discussion in class and guide, mobilize enthusiasm and initiative of learning, broaden students' thinking.

Again in the experimental teaching, we should pay attention to the design of experimental cases. Experimental teaching is an important part of basic computer teaching in universities. Students should not follow the experimental textbook or the examples taught by teachers step by step to do the experiment, but should add some complex and comprehensive experiments as appropriate. For the course of computer foundation, my teaching group also uniformly changed the experiment assignment from the previous scattered knowledge exercise to the big assignment form. The design of large assignments should be combined with the relevant professional content of the students so as to arouse their learning enthusiasm. For example, when learning the knowledge of Word typesetting, I carried out design exercises based on the graduation thesis that students would write in three years. At the same time, in the process of experiment, the teacher should play a leading role actively, so that students can think positively when facing problems and try to find solutions by themselves, so as to constantly enhance their innovative consciousness and ability.

3.3 The learning mode of hierarchical teaching management

Stratified teaching is to test the computer level of freshmen and divide them into different levels according to the test results, so as to teach students according to their aptitude. On the basis of general education, it is not only necessary to teach students in accordance with their aptitude, but also an important way to improve teaching quality to provide solutions for different teaching methods [5]. It can be classified according to the following experience: the first layer is the basic teaching layer, which is mainly composed of students with poor computer skills. Students at this level should be allocated more teaching hours, so that they can master basic computer operation and basic knowledge through learning, and pay attention to the cultivation of their computer literacy. The second layer is the intensive teaching layer, which is mainly composed of students with a certain level of computer knowledge but not comprehensive enough. At the same time, we should strengthen the guidance of students' self-study ability, so that they can master the comprehensive and systematic computer knowledge and serve the professional practice. The third layer is the applied teaching layer, which is mainly composed of students who have achieved the teaching goal by computer level test. At the same time, we should strengthen the supervision and guidance of students' learning effect.

4. Concrete Measures for Reform

4.1 Results-oriented three-dimensional teaching research

"Computational Thinking is a group of Computational activities that use the basic concepts of computer science to solve problems, design systems and understand human behavior," said the professor Yizhen Zhou, a computer expert. OBE results oriented education, reverse design teaching process in computer basic teaching should be designed with the goal of cultivating students' computational thinking. Single teaching method cannot accomplish the goal of basic computer teaching in colleges and universities. Therefore, this paper discusses the three-dimensional teaching model of computer foundation, which aims at cultivating students' computational thinking and is reverse designed and forward implemented, and realizes the design of closed-loop model of teaching process of computer foundation design within, between and outside the computer foundation system.

"Internet +" online and offline education integration, to achieve a single curriculum knowledge consolidation learning. Computer basic course education takes classroom as the leading teaching

method, and introduces online teaching resources to provide students with diversified learning information. Through the combination of various forms of reality, the network can help students make up for and strengthen their complete cognition of the knowledge structure of a single course. At the same time, use the data analysis of the teaching platform, effectively solve the problems in learning, and make reasonable learning progress. The combination of online and offline education of "Internet +" is conducive to students' in-depth understanding of the course content and overall grasp of the course framework.

Multi-teacher cross-curriculum teaching, the realization of computer basic education system curriculum integration. In colleges and universities, the basic course of computer is not one course teaching, it is by two or more courses to undertake the basic teaching of computer work. Multiple courses undertake the same teaching task, so the unified arrangement of multiple courses is very necessary. The content integration between courses and the parallel teaching method with multiple teachers across the courses can provide students with the teaching environment of application scenarios and hands-on implementation scenarios, and reduce the delay in the implementation of teaching cases, and increase students' curiosity and hands-on participation in the realization of computer functions. For example, the word count function is implemented in the word chapter. The operation method of students is reviewed ->, proofread -> word count. In this process, students cannot understand how the computer is implemented. However, if the programming idea is introduced, the students will be promoted from the operational level to the thinking level. Cross-course teachers can be responsible for explaining the specific implementation process of this function and implement it with pseudo-code. This not only helps students understand the internal mechanism of the computer operation process, but also enables each course to complement and promote each other. Computer basic courses provide a good application scenario for computer teaching, and cross-course teachers quickly make professional responses in response to this application scenario, which provides strong support for students to understand and learn computers.

Teaching practice and social practice are combined to realize the cultivation of students' comprehensive quality outside the curriculum. Computer basic courses have a large number of experimental periods, to help students consolidate knowledge points, knowledge module teaching content. However, students' use of computers is only limited to the processing of a single task, and they lack the ability to plan and decompose complex things. Therefore, go out of the classroom to participate in social practice, enhance the ability of students to face complex problems, let students in practice more brain, more mouth, more hands, go out, encourage students to practice, bold innovation, in social practice to cultivate students' scientific and technological innovation ability, cultivate students' comprehensive ability. The application teaching of computer foundation aims at cultivating students' computational thinking. Starting from social research, the social practice process of discovering, analyzing and solving problems not only increases students' confidence in solving practical problems, but also improves their comprehensive ability.

4.2 The reform of flipped classroom

With the help of flipped classroom, and innovative teaching methods. In the process of using flipped classroom, teachers majoring in computer science in vocational colleges should, on the one hand, organize students to preview the content of the class before class, and on the other hand, ensure that they do a good job in preparing for the class, innovate teaching methods, and carry out computer science courses in various forms. Teachers can present relevant theoretical knowledge in class in the form of video, or send the video to the network platform to help students preview the learning content comprehensively, so as to facilitate students' targeted analysis and exploration in class and improve students' computer knowledge structure. In addition, teachers can use the network platform to guide students to use their spare time to consolidate learning knowledge, strengthen students' understanding of computer knowledge, and improve students' computer operation skills. It should be noted that teachers should grasp students' learning situation as a whole in advance, optimize and integrate the teaching links appropriately, so as to better stimulate students' interest in learning and ensure their learning efficiency

With the help of flipped classroom, the dominant position of students is highlighted. Computer teachers in higher vocational colleges need to fully recognize the role they play in the classroom, and determine their auxiliary and guiding functions while ensuring the students' learning subjectivity. Especially for flipped classroom, teachers in vocational colleges need to guide students to actively participate in pre-class preview learning activities, promote students to master the basic knowledge of computer, and gradually cultivate students' autonomous learning ability. In addition, teachers can organize students to discuss the teaching content in groups, strengthen students' teamwork spirit and aggressive learning attitude, so that students can better adapt to the employment environment.

5. Conclusion

With flip classroom can promote the reform of computer basic course, teachers need to improve the links of teaching evaluation in higher vocational colleges, in the meantime, teachers can use special teaching method, including the game teaching method or grouping cooperation means, prompting students overall mastered the basic computer teaching contents, to encourage students to evaluate the teaching content, extend students' vision. In addition, teachers should always understand students' problems in the learning process, give students targeted guidance and guidance, increase students' computer knowledge reserves, stimulate students' learning potential, and comprehensively improve students' comprehensive quality.

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