Research on Computer Teaching in Colleges and Universities Based on CDIO Education Concept[1]

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Abstract: As an important part of college education, computer teaching itself affects the development of students. It is of great significance to improve the quality of college students and promote their employment. However, there are also some problems in teaching, such as the lack of combination of teaching courses and majors, ideological misunderstandings and so on. This paper introduces the concept of CDIO education, changes teaching ideas, optimizes curriculum design, and improves the efficiency of computer teaching in colleges and universities.

Keywords: CDIO Education Concept; Computer Teaching in Colleges and Universities; Reform in Education

1. Introduction

Computers are more and more widely used in today's society. Students need to master the basic use of computers, which plays an important role in improving students' employment. However, in the actual teaching process, the curriculum pays more attention to the learning of basic knowledge and ignores the differences between students and majors. At the same time, teachers' teaching enthusiasm is not high due to the influence of assessment methods, which affect the effect of computer teaching.

2. Overview of CDIO education philosophy

CDIO education concept is to conceive, design, develop and operate, pay more attention to students' development initiative, development, integrity and practicality, and run through the process of students' knowledge from learning to realization. It inherits and develops the original teaching concept and applies it to the reform of new educational concept. Professional education can be carried out across disciplines, and educational design can run through all stages of educating students, so as to realize the integration and systematization of education. Reflected in teaching, we should integrate all stages of education, make full use of the knowledge learned in other subjects, and combine a variety of subjects to help students integrate knowledge and apply it to practice. In computer teaching, we should combine what students learn, think and need to improve students' ability to use computer tools.

3. Analysis of computer education in colleges and universities

3.1 From the perspective of teaching philosophy

In college teaching, computer teaching is mostly positioned as a basic course, and the school focuses on the study of basic computer knowledge in teaching; Some colleges and universities also believe that the current popularity of computers and computer networks is relatively high, and it is not necessary to set up special basic computer courses for students. Therefore, some colleges and universities have cancelled computer courses such as basic computer courses. In setting up computer basic courses, the teaching content of computer basic courses is universal, which is specifically divided into theoretical courses and practical courses. In the overall curriculum design, we pay more attention to the theoretical learning of the basic part, and there are fewer practical courses, which deviates from the fundamental purpose of computer teaching. At the same time, from the perspective of class hours, as a basic course, there are few class hours, which is not valued in the actual teaching arrangement,

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and the importance of computer course is not clear. In addition, from the assessment of teachers, we pay attention to teachers' scientific research ability, and the reference of teaching level and teaching ability is not high, which also makes teachers focus more on the improvement of scientific research ability. For teaching, it is not conducive to the improvement of teaching efficiency and the upgrading of reform. From the perspective of students, the teaching concept will shift the focus, short class hours, short practice time, single investigation method, students' own attention is not high, lack of interest, and many students' views are qualified, and lack of internal motivation to learn computer. On the whole, the importance of computer teaching is insufficient and the teaching efficiency is not high.

3.2 From the perspective of student subject

The source of students is more complex. Most students have used computers, but in fact, most of them only use keyboard, mouse, such simple tools or simple application software. The use of computers remains on the surface. At the same time, it is also affected by exam oriented education, and its computer course learning lacks sufficient support. Schools also have different views on computer courses, which makes students' computer use ability different. In the basic computer course design of college students, the differences of computer use ability among different students are ignored, and students can easily not keep up with the computer course, which also makes the teaching efficiency not high and the teaching effect not good. In addition, in the actual teaching process, one-sided emphasis on the use of computers, more emphasis on utilitarianism and "completion" education in teaching, and more regard the computer course as task orientation, rather than the exploration in the process and the improvement of students' computer use ability. It also makes students' use of computers more reflected in the use of basic application tools, rather than the more in-depth use of computers.

4. Application of CDIO education concept in computer teaching in colleges and universities

4.1 Starting with curriculum design

According to the arrangement of students' class hours, we should increase the proportion of computer courses in elective courses every semester, and even increase special basic computer courses, so as to lay a foundation for students to further improve their computer use ability. Starting from the course itself, we should give full play to the role of teaching concept, from the conception, design, realization and operation of computer content. Starting from the four stages of this idea, the course is systematically designed, and the course contents complement each other, so as to improve the integrity of teaching, enable students to understand the overall process in the process of computer learning, fully mobilize students' autonomous learning ability and enhance students' interest in learning. In the specific design, refer to 12 standards gradually improve the efficiency in many aspects. Firstly, combined with the teaching characteristics and needs of various majors, multiple teachers can jointly design and explain the courses, create excellent courses, and jointly explore the use of computers in multiple subjects. At the same time, we can make full use of the advantages of informatization, understand the current hot spots, and carry out targeted curriculum design, to promote students' employment. Secondly, curriculum design should balance professionalism and universality, as well as theoretical courses and practical courses. Taking the PPT teaching in the computer basic course of college students and the network basic teaching as an example, the PPT learning is relatively simple. It can weaken theoretical learning, increase practical learning opportunities, and let students complete the transformation from theory to practice independently. In teaching, we can set teaching objectives based on this as the starting point to lay the foundation for students' autonomous learning, then, carry out the overall design of the course, and enlarge the parts that students need to learn actively, in order to let students explore the use of various Internet tools such as live broadcast and short video, and make a slide with rich elements and short video according to what they have learned, and formulate the theme by themselves. In this way, the basic computer courses are combined with the current popular and popular Internet applications to stimulate students' interest in learning. At the same time, in the process of autonomous learning, we should promote the communication between students and build an online and offline student communication platform. Students can explore their own problems and solutions to improve their autonomous learning process in the learning process. It can realize the conception, design, implementation and operation in CDIO teaching, and lay the ideological foundation of students with the realization of CDIO. In addition, the design of assessment methods in curriculum design is essential. This is a way to effectively improve efficiency and give good teaching feedback, and promote the diversification of assessment methods and assessment standards. It can strengthen the significance of practice in the examination and enable students to transform theoretical knowledge into works formed by using computers. The ratio is limited to writing.

4.2 Introducing mixed teaching mode

With the development of new technology and the continuous improvement of online teaching, it is more possible for computer education in colleges and universities. Through the combination of online and offline, we can strengthen the communication with students, optimize online teaching resources, and continuously improve through feedback, so that students can dominate the classroom and improve their knowledge and ability in autonomous learning. It can solve the differences between students in teaching, give more appropriate teaching schemes for the majors, and improve the effect of computer teaching. The choice of mixed teaching mode is the combination of classroom and online, the strengthening of classroom teaching and the upgrading of teaching. Different courses can be given according to different learning effects of students. After classroom teaching, online courses can be used for testing. According to the students' answer results, the basic courses more suitable for the students' learning can be selected, and targeted supplementary courses can be added to the outgoing line according to the students' test scores, so as to play the role of online courses. In addition, online teaching refers not only to the teaching platform, but also to communicate and answer students' questions through the online platform. The mixed teaching method gives students and teachers more communication opportunities, deepens students' understanding of teachers to a certain extent, can better adapt to teachers' teaching methods, and can also reflect their own problems and improve each other through communication. Online teaching gives students and teachers more independent thinking time, which is a kind of resource sharing. Using this opportunity can expand their own vision, enrich their own knowledge and improve the teaching effect of higher education.

5. Conclusion

The proposal of CDIO education concept solves the problem of poor relevance in the process of students' knowledge learning, and helps students integrate their learned knowledge and carry out effective practice. In view of the original teaching concept, the insufficient combination of students' individual differences and professionalism in teaching, the teaching effect is comprehensively improved by optimizing the curriculum design, using the mixed teaching mode and combining the CDIO teaching concept.

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