Research on the Innovation of Computer Professional Teaching Mode in the Big Data Age

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Abstract: The bringing of the big data era has changed people's way of life and work in modern society, affected all aspects of social development, and had a direct impact on the development of computer major teaching mode in colleges and universities. It has promoted the reform and innovation of computer major teaching mode in colleges and universities. This paper briefly expounds the difficulties and problems of the construction of computer professional teaching mode in the big data era, analyzes the influence of the big data era on the computer professional teaching mode, and probes into the innovative path of the computer professional teaching mode in the big data era.

1. Difficulties and Problems in the Construction of Computer Teaching Mode in Big Data Era

Computer major is an important component in the teaching system of colleges and universities in modern society. With the rapid development of computer technology in modern society, big data technology enters people's work and life, and puts forward new requirements for the teaching of computer major courses in colleges and universities. Nowadays, there are some problems in the teaching of computer major in colleges and universities, which can not meet the needs of professional skills in the era of big data. Based on this, colleges and universities should adjust their own educational concept in time, keep pace with the times, carry out the innovation of computer professional teaching mode in an all-round way, optimize the curriculum system, and cultivate computer professionals who are more in line with the needs of social development.

1.1. Difficulties in Building a Teaching Model for Computer Majors in The Big Data Era

With the rapid development of big data technology, the development speed of computer science is increasing day by day, and more and more students tend to major in computer science when choosing major. However, because of the influence of traditional computer major teaching, the scope of professional knowledge is more extensive, and students need to have communication knowledge, physics knowledge, mathematics knowledge and other aspects of knowledge reserve, not only lead to a relatively large computer professional subject system, but also increase the difficulty of students' learning and weaken the students' learning effect. In addition, big data technology, cloud computing (as shown in figure 1) technology and other advanced technologies are gradually popularized, and the society is desperate for talents in big data technology, artificial intelligence technology and so on. These conditions have brought more difficulties to the construction of the teaching mode of computer major. Some college computer majors are constantly integrating new technology and adding new curriculum contents, but the teaching methods still follow the more traditional classroom teaching methods, and the students are miserable[1].

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Figure 1 Cloud computing

1.2. Problems in the Construction of Computer Professional Teaching Model in the Big Data Age

In the era of big data, if we want to build the teaching mode of computer specialty, we can not only pay attention to the original computer professional knowledge system, but also pay close attention to the development and application of frontier technology, enrich the curriculum system and adjust the teaching content constantly. Nowadays, there are still two problems in the curriculum mode of computer major in colleges and universities:

Lack of clear professional training goals. In different regions of our country, there are some differences in the setting of training goals for computer professionals in different colleges and universities, but in general, they pay more attention to the "comprehensive development of students, all-round development ", lack of professional recognition, and the slow renewal of talent training goals, and lack of the characteristics of education and teaching of computer majors[2].

The curriculum is unscientific. Combining with the curriculum structure and curriculum of computer specialty in each university, it can be found that the number of computer specialty courses in most colleges and universities is large and miscellaneous, and there is no clear and complete curriculum structure.

2. The Influence of Big Data on the Teaching Mode of Computer Majors

2.1. The Impact of Big Data on Professional Teaching

Big data technology is an important branch of computer science, it is an important content of computer teachers and students, and it is an advanced technology based on computer professional knowledge. In the era of big data, the way people process data has changed a lot, compared with the traditional data processing means, it is more visual processing, need to collect data information, store data, have data analysis and mining technology, can draw corresponding conclusions through data processing. Therefore, in the university computer major, the teacher carries out the big data technology explanation, not only needs to explain the computer basic knowledge to the student, but also needs to explain "distributed parallel processing technology "," algorithm design and analysis "," data mining "," intelligent calculation "," database principle and application" and so on, further expanded the computer professional curriculum system. In the course of practical teaching, teachers should not only master and teach the concept, principle and characteristics of big data, but also explain the application and development trend, stimulate students' interest in big data technology, and cultivate students' ability to apply big data technology. It can be said that the big data era has injected more fresh blood into the computer majors of colleges and universities, and has succeeded in the traditional professional curriculum system, that is, expanded the scope of professional knowledge and deepened the depth of professional knowledge[3].

2.2. Impact of Big Data on Professional Development And Development

First of all, the arrival of the big data era to promote the construction of computer professional system changes. Students' career planning is the core goal of professional education in colleges and universities. With the development of society, the demands of students' career planning are different in different periods. Influenced by the background of big data era, the society's demand for computer professionals has changed greatly, which directly affects the construction of computer professional curriculum system in colleges and universities.

Secondly, in the era of big data, people are able to extract social needs through big data technology (figure 2). In the past, the demand for all kinds of talents in colleges and universities mainly depends on the enterprise employment survey and graduate employment feedback. By relying on big data technology, we can make use of the data resources on the Internet, collate and analyze the data, and get the latest information of social needs, which will help colleges and universities to formulate and adjust the teaching structure of computer specialty and train professional talents.

Figure 2 Big data

Finally, in the era of big data, colleges and universities can directly extract the development of computer students. In the traditional social demand information acquisition, colleges and universities can only rely on the information provided by graduates to judge the graduation development of their students, which has a strong subjectivity, and can not objectively, truthfully and abundantly reflect the actual needs of the society for computer professionals. In the era of big data, colleges and universities can collect a large number of data information of students and graduates, and process these data centrally, such as: attendance data of students in school, completion data of practical activities, graduation colleges and universities of professional talents, etc.[4].

3. The Innovation Path of Computer Professional Teaching Model in Big Data Age

3.1. Optimizing the Curriculum System to Meet the Needs of the Big Data Era

In the era of big data, if colleges and universities want to innovate the teaching mode of computer specialty, they should recognize the shortcomings of the current professional curriculum system, optimize the curriculum architecture, comb the curriculum context, form a clear and clear curriculum structure, and integrate more professional technical courses that meet the needs of the times. Colleges and universities should integrate into various data technology courses according to the information of social needs, the information of students' graduation development and the application of enterprise technology, and formulate different training goals for talents, and set up courses according to the goal of talent training. Colleges and universities can set up more courses during the freshman and sophomore years, and set up more elective courses in the junior and senior years to guide students to gradually focus on a certain aspect, so as to improve students' professional ability and lay the foundation for their future development.

3.2. To Innovate Teaching Methods and Carry Out Teaching at Different Levels

In the era of big data, if colleges and universities want to innovate the teaching mode of computer major, they should realize that the students' learning needs and development needs are different in different periods. Nowadays, computer science teaching pays more attention to students' professional skills, and the traditional methods of teaching theoretical knowledge can no longer meet the needs of current students. Therefore, we should actively innovate classroom teaching methods, such as: using case law to explain Java application skills, so as to show professional knowledge and application methods to students more intuitively, so as to promote students to master this kind of knowledge better. Secondly, it is necessary to properly guide students' interest in learning and encourage students to take the initiative to communicate with teachers, which is conducive to students' memory and understanding of knowledge[5].

3.3. Changing Teaching Thinking and Integrating Practice and Theoretical Knowledge

In the era of big data, if colleges and universities want to innovate the teaching mode of computer specialty, they should actively change the thinking of classroom teaching. In the traditional computer major teaching, the teacher will explain the theoretical knowledge first, then let the students carry on the time, finally set up the homework to let the students develop the software independently, and finally complete the course teaching. However, in the era of big data, computer application technology is becoming more and more complex, if the first explanation of theoretical knowledge, it will be difficult for some students to understand. Therefore, teachers should change their teaching thinking and use the method of combining theory and practice to teach, so that students can "do in learning and do in learning "(Fig .3), and further exercise students' professional skills.

In addition, the computer major in colleges and universities should have a deep understanding of students' needs. Nowadays, the system of computer science is becoming bigger and bigger, and students are facing more and more courses and knowledge. If they study all-roundly, it will not only harm the cultivation of professional talents, but also affect the students' cognition of "computer science ". Colleges and universities can provide several development directions for students in the later stage of study according to the survey results of social needs, and carry out "classified courses" to meet the different development needs of different students[6].

Figure 3 Teaching scenario of "combining learning and doing" for computer majors in colleges and universities

4. Conclusion

To sum up, the arrival of the big data era not only promotes people's life more convenient, but also greatly affects the construction and development of computer professional education system in colleges and universities. Nowadays, there are still some shortcomings in the teaching mode of computer major in some colleges and universities, such as lack of clear target orientation, unscientific curriculum and so on. In view of these problems, colleges and universities should recognize the influence of the big data era on the development of computer professional education, adjust the professional teaching structure, introduce more advanced computer technology, and provide students with professional skills and theoretical knowledge teaching that can meet the needs

of their career development. In addition, colleges and universities should innovate classroom teaching methods, integrate theoretical education and practical teaching, strengthen professional teaching, and cultivate professional talents who can better meet their needs for the society.

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