The Research on the Specialty Setting and Teaching Method of Computer Science and Technology in Colleges and Universities

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Abstract. Computer technology is changing with each passing day, but the enrollment and employment situation of computer science and technology major in Colleges and universities is worrying. This paper analyzes the major existing problems of the professional curriculum, training methods, teaching methods and teaching staff construction are discussed.

Introduction
At the end of twentieth Century, with the rapid development of computer and network technology, computer science and technology professional graduates is very hot, hot, a time almost every college, ordinary colleges and universities set up the professional, training a large number of computer professionals for the society. It has made a great contribution to China's information construction. But in recent years, the professional graduates’ employment pressure is relatively large, the employment rate showed a downward trend year by year, but the employment imbalance is becoming more and more serious. The famous university, College of computer science and technology professional graduate employment is still in short supply, and the employment of college graduates many deserted, resulting in some of the colleges and universities of professional college enrollment gather decreased, even stopped recruiting.

The Current Problems in Computer Science and Technology Specialty
The Professional Curriculum was Unreasonable
At present, the computer application already towards diversification, industry development, computer technology is more like the cloud change rapidly, and the block chain, the wisdom of the earth and other emerging hot research and application fields, and part of our college of computer science and technology specialty setting and curriculum content still stays in the simple level of a few years ago computer science and technology, and The development and social needs of the professional personnel not to adapt, and the gap gradually increased, resulting in the gap between the education and the development of science and technology and social needs. The graduates have no obvious advantage, that there is a big gap between the knowledge and the social demand to the society, resulting in many graduates employment competitiveness is not strong, cannot use the professional knowledge of employment. Such a vicious spiral down, led to the current enrollment in science and technology professional college computer difficult.

The Delayed Development of Teaching Staff
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Inadequate Investment in Teaching Facilities

Many colleges and universities in the teaching infrastructure, either computer is not enough, or outdated equipment cannot adapt to the current teaching, and even some colleges and universities due to the lack of dedicated computer rooms cannot be normal practice teaching. Students' practice opportunities are seriously inadequate, it is difficult to apply the theoretical knowledge to practice, they cannot understand and master the knowledge well, and lack of systematic training in computer operation practice, which results in students losing interest in learning. Due to the lack of teaching facilities, some necessary courses cannot be offered or students can not practice, which seriously restricts the development of computer science and technology specialty.

In view of the above reasons, the educational prospects of computer science and technology major in Colleges and universities are worrying. Therefore, according to the actual situation of the specialty, this paper puts forward some views and ideas on the curriculum and teaching methods of the specialty.

Analysis of Professional Course Setting

The curricula of computer science and Technology Specialty in Colleges and universities should adapt to the direction of computer development and the needs of enterprises for computer application-oriented talents. The course of computer basic knowledge, professional knowledge and application software required by this major should be chosen or rejected. It should pay attention to social effect, students' practical operation and application ability, and set up practical application software courses. Besides the necessary basic computer theory knowledge and computer operation and application ability, theoretical courses without practical application value should be reduced, and some of them will be eliminated and eliminated. Setting up the theory and software courses, selecting and teaching the frontier and practical application software and technology related to this major. For example, machine learning and pattern recognition, MATLAB modeling and simulation, introduction to artificial intelligence, mobile terminal APP development, Android network application development and other courses.

This major is mainly for software development, front-end development, database development, Web development, Android mobile operating system, Android platform mobile application development and testing, and network information system planning, design, network hardware and software installation and debugging, operation and maintenance and management and other application technology fields. Employment orientation of this major includes application software development engineer, software testing engineer, database management and design engineer, software architecture designer, operation and maintenance support engineer, IT integration engineer, website construction engineer, pre-sale technical support engineer, etc., including Java engineer, Android engineer and network engineer with strong demand for employment, high salary, etc.

According to the above analysis, the curriculum of this major can be divided into the two directions: development and detection direction of 3g software and software service outsourcing direction. In the first two years of university, the basic knowledge of the major can be learned. Its main courses are: computer composition principle, compiling principle, operating system, data structure, computer network technology, Java language programming, embedding. Entry system and application; Grade three began to study in different directions, and strengthen the intensity of professional experiments. According to the different interests of students, there are many professional directions, curriculum and concentrated practical teaching content according to different professional directions.

In addition to the above two directions, we can also carry out the school-enterprise joint mode of running schools and create "characteristic classes". Cooperate with IT enterprises extensively, train professional talents according to the specific requirements of enterprises, and work out the plan of
talent training and talent transmission together, so that college students' training and enterprise training can be organically combined, students' graduation practice can be arranged directly in the corresponding enterprises, and students can go to work directly without training after graduation. Our school cooperates with ZTE Communications Co., Ltd. and China Coal Aeronautical Survey and Remote Sensing Group in running specialties, building experimental teaching centers, cultivating, employing and developing cooperatively.

**The Diversification of Training Modes**

This specialty meets the needs of industries and posts, combines professional characteristics and reality, pays attention to application and practical ability training in the training process and system, focuses on creating the employment ability of core posts, and trains the applied technical talents of computer specialty needed by industries and posts, so diversified ways are adopted in training approaches.

1. Condense the core competencies of school-enterprise joint operation and co-cultivation, and construct the education and teaching system, curriculum system and knowledge structure system oriented by industry needs.

2. The training process follows the CDIO engineering education mode, implements "learning by doing" and "learning by doing", combines work with study, integrates knowledge with practice, and applies knowledge to practice, so as to improve students' professional quality and application ability in an all-round way.

3. We should strengthen the training of students' practical and applied abilities by strengthening the practical teaching links. Use the platform of the second classroom to organize and guide students to participate in science and technology competitions inside and outside the school and innovative entrepreneurship projects for college students, guide and train students to participate in various competency certification training, and obtain vocational qualification certificates.

4. Establish a three-in-one employment guidance platform for vocational quality teachers, employment guidance teachers and counselors, and provide vocational quality counseling and employment guidance, so as to effectively link up students' training and employment.

**Research on Teaching Method**

The teaching of computer science and technology specialty is a combination of knowledge and skill. The basic task is to improve students' computer knowledge level and practical operation skills. Therefore, while strengthening students' basic theory learning, we should also increase the content and quality of experimental classes, and adopt the target teaching method which can give full play to students' subjectivity and innovative spirit.

**Strengthen the Practice Links of Students by Speaking More Intensively and Practicing More**

Breaking the traditional teaching mode of "blackboard writing and explanation" and the new teaching method of "demonstration and operation and explanation" pays attention to the cultivation of students' practical and innovative abilities. Using multimedia classroom, teachers use carefully prepared examples and courseware to demonstrate the operation, so that students can perceive the new content sensibly, and then let students operate their own practice verification, and finally revise the operation by teachers and guide and expand it. Teachers mainly adopt guidance, less intensive lecture, more hands-on operation and more thinking, cultivate students' ability to analyze and solve problems, and enhance students' autonomous learning ability and innovative spirit.

**Task-driven Method**

The traditional teacher-centered teaching method has seriously affected the enthusiasm and innovation of students' autonomous learning. The teacher-led and student-centered teaching method can cultivate students' learning initiative. Flexible use of task-driven method can improve students' ability to analyze and solve problems. Teachers materialize teaching objectives into specific tasks
and assign them to students to complete. In the process of completing tasks, teachers guide them to help students complete their tasks independently and drive learning by tasks. In this way, students can change "I want to learn" to "I want to learn", participate in the whole learning process; give full play to the initiative of students, teaching objectives can be effectively achieved.

**Target Incentive Method**

In teaching, we should use future jobs to motivate students and cultivate students' employment awareness, so as to improve students' enthusiasm for learning. For example, students in "characteristic classes", schools and enterprises sign agreements, students whose grades and practical operations have reached a certain level, can directly enter the enterprise after graduation. Or when teaching a certain course, we often insert some introductions about the requirements and rewards of the corresponding social work posts, and the development opportunities that the job posts may face, so that students can understand that only by studying hard and training hard, can they find satisfactory and good jobs for themselves. For College students, this kind of career goal incentive method is also an effective way to improve the quality of teaching.

**Strengthening the Construction of Teachers' Team and Teaching Investment**

As the computer technology renewal cycle is getting shorter and shorter, the social demand for computer science and technology students' skills is also changing, which requires teachers to constantly learn and constantly update the knowledge system. For schools, teachers should be strengthened. Firstly, teachers' teaching reserve should be carried out. Arrange young backbone teachers to learn the latest computer knowledge and technology, improve teachers' ability and quality, and prepare for the opening of new professional courses. Secondly, schools should regularly organize professional teachers to conduct professional training, and run schools jointly with universities with scientific research and development capabilities. Teachers with practical abilities should be invited to carry out transmission, help and lead. Teachers should participate in more practical projects to improve teachers' practical scientific research capabilities.

**Conclusion**

The curriculum design of computer science and Technology Specialty in Colleges and universities needs to keep pace with the times and the development of science and technology, to meet the needs of industries and posts, to adopt diversified training methods, and to constantly improve and innovative teaching methods. Schools should strengthen the construction of teaching staff and teaching input so that students can actively explore the knowledge and content they have learned, and in the process of practical operation. Continuously improve computer professional skills, and strive to train every student to become a comprehensive talent with professional computer skills, laying a solid foundation for future employment of students.

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