The reform of computer professional practice in colleges and universities

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Abstract: Combined with the main characteristics and needs of the current development of higher education, this paper analyzes the importance of college computer professional practice teaching reform, and discusses the existing problems. Comprehensive college computer professional talent cultivation related content, college computer practical teaching innovation reform to explore, help to improve the effectiveness of computer professional classroom teaching, to achieve computer professional innovation and development.

Key words: universities; Computer major; Practical teaching

At present, in order to effectively improve students' innovative and practical ability, many colleges and universities, in accordance with the requirements of relevant departments of the state, strengthen the innovation and reform of personnel training mode in teaching content, curriculum system, practical teaching and other links. With the advancement of teaching reform, the practical teaching courses of computer major in colleges and universities have gradually improved, but how to cultivate computer talents to meet the needs of social development has become an urgent problem for teachers to solve.

I. Analysis of the importance of innovation and reform in practical teaching of computer major

1. Conform to the needs of the development trend of The Times

With the passage of time, a new round of scientific and technological revolution and industrial transformation is rising rapidly, and traditional engineering has gradually evolved into "new engineering". "New engineering" includes artificial intelligence, intelligent manufacturing, big data, AI and other contents. As an important component of the new engineering, the characteristics and development needs of the computer major are very clear. The practical teaching of the computer major is also the key to the development of the computer major in colleges and universities, aiming at cultivating students' comprehensive literacy level and innovation ability, which can not be replaced by other disciplines. In order to meet the needs of the development of The Times, it is urgent to innovate and reform the practical teaching of computer major in colleges and universities.

2. To serve the inevitable needs of society

On the whole, the construction of computer major should meet the actual needs of social development and work around students

As the goal, it focuses on what professional talents the industry needs and how to optimize and innovate technological development. At present, the Internet economy has gradually become a pillar industry in China, and the Internet has a profound impact on People's Daily production and life. Based on the above background, the practical teaching of computer major in colleges and universities is particularly key. In view of the fact that the current content and mode of practical teaching of computer major in colleges and universities can not meet the needs of the society for talent cultivation, only by strengthening the optimization and reform of practical teaching of computer major can we cultivate professional talents suitable for the needs of social development.

II. Problems existing in the practice teaching of computer major in colleges and universities

1.The practical teaching content and teaching concept are relatively outdated

At present, in many college computer majors, the practical teaching concept is relatively outdated and lacks the corresponding innovation degree. To some extent, the concept of practical teaching should be coordinated and unified with the goal of cultivating application-oriented talents, and closely combined with the current situation of information field and regional economic development in practical teaching. As far as the current situation is concerned, some practical teaching courses pay more attention to theoretical teaching and neglect practical teaching, and can not cultivate students' practical ability and innovation ability from the overall level. The teaching content of computer courses has not been effectively connected with the talents needed in the field of information technology, which can not improve students' professional knowledge reserve. It is obvious that the practical teaching curriculum of colleges and universities pays more attention to the verification of theoretical knowledge and deviates from the information field. The practice teaching of computer major lacks the cultivation of practical ability and innovation ability, and many practical teaching contents in the university stay in the books, and there are few designed and innovative courses in the computer information industry. As a result, the students' knowledge system can not meet the actual development of the industry, and the practical teaching system is not perfect.

2. Lack of cohesion between courses

At the level of curriculum setting, computer-related majors belong to a complete education of mutual cohesion and interaction

In view of the lack of effective cross-integration between computer courses in colleges and universities at this stage, practical teaching is often conducted in the professional practice training, and there is less cross-integration practice within the discipline. However, in practice, a specific practice project often involves the integration of many course knowledge points, which also leads teachers to comprehensively consider the comprehensiveness and systematism of practice teaching and cross-training between different courses in the teaching stage.

3. The relative insufficiency of practical teaching resources

The construction of practice base is the fundamental guarantee of practical teaching in colleges and universities, and it is also the "golden vegetable field" for students to practice skills. At present, due to various factors such as shortage of funds in some local colleges and universities, the construction of practice and training base (center) is still in the preliminary planning stage or in the state of construction. The hardware facilities required for the practical teaching of computer majors can not fully adapt to the current teaching needs. In addition, off-campus practice and training bases are still very scarce. Even if off-campus practice and training bases have been established, they only focus on watching and visiting to a certain extent, and it is difficult for students to get a more extensive and in-depth experience.

4. There are few basic practical courses, which is not conducive to enhancing students' enthusiasm

At present, most of the practical exercises provided are confirmatory exercises rather than creative attempts, which greatly weakens students' enthusiasm for participation. Therefore, for the professional practical education of computer science, the core goal should be to stimulate students' interest, and use this as a cornerstone of relevant subject knowledge, while maintaining some basic verification operations necessary to promote innovative exploration activities, and supporting cooperation among students to realize their professional project plans. Under the guidance of the college and the teaching and research department, the faculty has set up a professional computer society. These clubs regularly hold various forms of activities with rich content, with the aim of promoting students' enthusiasm and increasing their participation. At the same time, they carry out the traditional practical training stage, and open the doors to the laboratory of various majors. They not only ensure the teaching responsibility of the regular course experiment, project design and graduation design, but also plan some open experimental topics by each professional teacher every academic year as a supplement to the regular professional experimental projects. In order to meet students' demand for diversified and creative practical activities, and encourage those students with excellent academic performance and high professional skills to actively apply for teachers' scientific research projects, innovative experimental activities and open experiment design work.

III. College computer professional practice teaching reform path

1. Develop professional practical training bases and strengthen professional practical teaching

Teachers should establish a high-quality and stable working environment for learning and use, and every year to screen out unqualified learning sites and eliminate or update them. Secondly, in order to enhance the communication frequency between the school and the company, teachers will invite the company's technical staff to participate in the teaching work when designing practical lessons. Specific implementation steps include soliciting multiple suggestions and conducting thoughtful research activities, focusing on the quality evaluation process of field visits, continuously improving the level of cooperative relationships, and achieving mutual benefits based on the direction and characteristics of the computer technology profession; Integrating students' pre-professional skills into their field practice sessions so that they can meet the needs of employers and get off to a successful start in their first jobs; The cultivation of professional and technical personnel should be closely related to the requirements of economic development and social development, but also closely cooperate with the changing situation of job seekers, further optimize the strategies and methods of classroom management, strengthen the analysis of the social position matching degree of fresh graduates, and deepen the relationship between the utilization rate of educational facilities inside the campus and the effective combination of the external society

2. Improve the goal of talent training and update the concept of talent education

College talent training plan is the overall blueprint for realizing its educational goals and basic requirements, and also the basis for organizing educational activities. At the same time, it is also the criterion to evaluate the effect of school education activities, and is an important step of school education accumulation. As an important part of the talent training program, the goal of talent training plays an extremely important role in the implementation of teaching process. Under the background of new engineering talents training objectives, colleges and universities need to cultivate a group of high-quality, compound technical talents with strong practice, innovation and practical ability. How to train a group of talents required by social development requires educational administrators to update the concept of talent education, change the development thinking, and change the mode of thinking in practical teaching. Therefore, under the current situation, the computer technology major of applied colleges and universities should start from the talent training program and formulate feasible talent training goals. At the same time, in the course setting, practice teaching needs to change from teaching as the center to promoting the coordinated development of students' theoretical level and practical ability, and completely change the traditional phenomenon of valuing theory over practice.

3. Reform the curriculum teaching system and build a virtual experiment platform

College computer majors should take the development trend of information industry and the expansion and improvement of practical ability as the direction, update the practical teaching content, and design a relatively comprehensive curriculum system according to the actual characteristics of computer majors, so as to combine theory with practice and study with application. Explore the three characteristics of "pertinence" of teaching objectives, "reconfigurability" of teaching content and "diversity" of teaching method expression, and realize the synthesis and optimization of original courses. Break the boundaries of professional courses, adjust the teaching content, implement modular teaching, so that each module has a corresponding ability training goal. Through the cross promotion and mutual support between modules, the practical teaching of computer majors has realized the transformation from the traditional "knowledge" talent training to "ability based" talent training. The core curriculum of the major can be divided into basic course cluster, hardware course cluster and software course cluster. By setting up a system course cluster to coordinate and integrate the teaching content, plan the development trend of computer

courses, and integrate the improvement of students' comprehensive technical quality into a course cluster completely. At present, under the situation of tight funds in local colleges and universities, it is wise to build virtual experiment platform, which can effectively reduce the education cost. The virtual simulation experiment can break through the limitation of time and space, and students can learn at any time and anywhere. The virtual simulation experiment platform can effectively solve the online teaching requirements of practical teaching. According to the characteristics of computer majors, the virtual experiment simulation platform system can be built by referring to Figure 1.

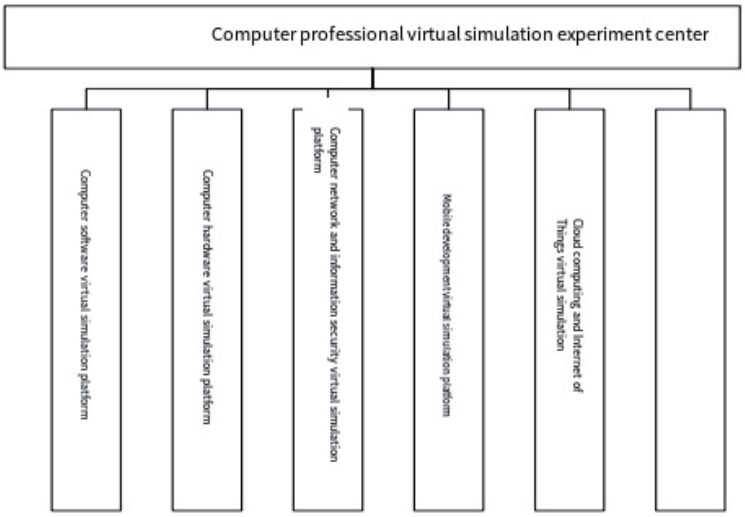

Figure 1 Virtual experiment simulation platform system of computer major

4. Improve the assessment method and pay attention to strengthening the process assessment

Improve assessment methods, from knowledge to ability assessment, from end-of-term summative assessment to whole-process assessment. According to the characteristics of computer professional practice teaching, diversified assessment methods can be adopted. In the assessment process, focus on the process and ability assessment, through group discussion, social investigation, project practice and other forms, a comprehensive assessment of students' practical skills, to understand their thinking and analysis process of problems, according to which a comprehensive evaluation of them. For comprehensive practical projects, we should pay attention to the development of the project process, score students from the aspects of data collection, organization and coordination, design ideas, project documents, standardization, innovation and completion, and respectively evaluate the students with outstanding organizational ability, design ability and document compilation ability. In the link of graduation design, it is necessary to fully reflect the combination of theory and practice, and the topic selection of graduation design fully reflects the practical application. The guiding teachers can set up both internal and external guidance, so as to further improve the practical ability of students and achieve the effective connection between graduation comprehensive training and the actual industry in the future.

IV. The conclusion

Colleges and universities should mainly focus on providing support for local economic development, and determine educational priorities according to the specific conditions of their localities, emphasizing the importance of understanding basic principles, improving the learning of practical operation skills, and attaching importance to cultivating students' engineering application ability and mastering basic strategies of computer science. This will ensure that they receive primary computer training during their studies, have the ability to identify and evaluate the development trend of new technologies, and can formulate effective and practical and efficient information technology teaching programs in response to needs, and have the initial research, design, development and implementation of professional knowledge in the computer field. In fact, it is through practice that we can verify whether the graduates of the university meet the requirements, which is also the best way to test the professional practice education of the university. In order to alleviate the employment difficulties of college students, colleges and universities need to train skilled, applied and multi-functional specialized talents, and continue to improve and innovate in the process of practical education, which is the key path to solve the problem.

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