Exploration of Talent-training Integration Mode Based on School-enterprise Cooperation in Terms of IT Majors

Xianping Yu[*] , Shanxiong Chen, Sheng Wu

College of Computer and Information Science, Southwest University, Chongqing, China

Abstract

In view of the reform of undergraduate training mode in IT majors, the integration training mode of school-enterprise cooperation that runs throughout the whole process of IT talent training has been explored in this paper. It is proposed that the integrated professional curriculum system which takes the curriculum group as the center should be built. At the same time, it is also necessary to construct the teaching team where some corporate senior engineers are involved and build the multi-level practice teaching mode to strengthen the training of practical skills. The purpose is to improve the theoretical knowledge and the practical skills of students in IT majors. Then, the high-quality employment will be achieved.

Keywords: school-enterprise cooperation; integration; curriculum group; comprehensive quality

1. Background of talent training in IT majors

1.1. Current situations of domestic talent training in IT majors

Use The IT majors are basically set up in domestic colleges and universities and some senior talents who are engaged in IT technology have been cultivated and distributed in various industries. However, the development of domestic IT technology always lags behind the one of developed countries. The reason is that the IT talents cultivated in the domestic colleges and universities have some disadvantages, for example, the practical skill is poor, the sense of innovation is weak and the obtained ability is difficult to meet the requirements of IT companies for the jobs. The innovation is just a fantastic talk. How to effectively train the theoretical knowledge of IT students and integrate the new technology and the new skills in the training links of undergraduate students has become a problem that should be solved in the process of IT talent training. It is hoped that the connotation cultivation of students' knowledge is improved, the new skills as well as the new technologies can be applied in practice and the sense of innovation can be cultivated. Some colleges and universities

have conducted various professional and effective training reform attempts, but the problems are not effectively solved [1].

1.2. The talent reserve strategies of well-known international and domestic IT companies

The talent is the key to the development of enterprises. The enterprises cannot find the required high-qualified young talent and many graduates are difficult to meet the requirement of enterprises for the talent. For this embarrassing contradiction between the talent training and the talent demand, a lot of well-known multinational IT companies are eager to integrate into the whole process of talent training so as to bring about the win-win benefits of school-enterprise cooperation. The result of implementing the talent-training measures of various well-known IT enterprises such as the certification system of Cisco, Huawei and Huasan, the database certification system of oracle and the global university alliances of EMC is to train the talents who are only engaged in the relevant technology services of their own companies. All of them are the lag and one-sided talent-training strategies. The capacity is limited in certain technical areas, which is difficult to meet the skill needs of enterprises for the comprehensive high-qualified talents [2,3]. Considering the disadvantages of this training, many well-known IT enterprises expect or are exploring to participate in the whole education process of talent training.

1.3. The demands of the new IT talent-training mode of school-enterprise cooperation

According to the full understand of the practical characteristics of IT majors and the growth of many excellent IT students, it is found that the practical education of IT majors is very important. The education of IT majors should not only pay attention to the solid foundation of professional theory, but also emphasize the cul-

tivation of the ability of system design and application development [4].

The development of enterprise is closely followed by the technical development and it is also followed by the demands of society for the technical development. The demands of enterprise represent the weathervane of technical development for the talent demands [5]. The new strategic cooperation mode of IT talent training is explored in this education reform, namely the demands of enterprises for the high-qualified talents run throughout the whole process of undergraduate training. The training demands of enterprises for the practical ability run throughout the whole integration mechanism of four years teaching process.

2. The basic guiding ideology and objectives of integration mode

2.1. Guiding ideologies

According to the professional reform thinking which features "skilled and innovative" talent training, it is required to optimize the curriculum system, reconstruct the teaching content, highlight the practice teaching and use the project driving to conduct the teaching methods. At the same time, it is necessary to strengthen the professional connotation construction, inspire the learning vitality of students and strive to cultivate the senior personnel with strong skills, high comprehensive quality and sustainable development ability as well as innovative ability.

2.2. Exploration objective

The purpose of IT majors is to cultivate the research and engineering talents. It is required to regard the cultivation of engineering talents as the leading role. According to the demands of adapting the enterprise skilled personnel for IT majors, it is required to deepen the school-enterprise cooperation and construct the

solid school-enterprise cooperation platform through signing the cooperation agreement with Oracle Company, Huawei, EMC and other internationally renowned enterprises. At the same time, the latest IT technology should be integrated into the teaching system and it is demanded to explore the method to cultivate the IT talents who systematically grasp the professional theory and have the ability to analyze and solve problems in the basic professional field. What's more, these IT talents should have the potential of innovative thinking and they should be the "industrial and innovative" talents. the employment quality of graduate students and the employment rate have the obvious advantages.

3. Implementation of the integration training mode

3.1. The integration construction of curriculum system which takes the course groups as the organization for IT majors

It is required to explore the professional curriculum system construction and accurately position the corresponding technical development of majors as well as the demands of society for the advanced technologies through cooperating with IT enterprises. At the same time, it is also necessary to learn from the achievements of curriculum reform at home and abroad, optimize the curriculum setting, build the professional core curriculum groups and integrate the skill teaching contents that are required by enterprises and society into the core curriculum groups. According to the requirements, it is demanded to synchronously update and improve the teaching contents, strengthen the cooperation with enterprises, promote the opening and sharing and construct the high-quality teaching resources which are compatible with the talent training objective and the innovative talent-training mode [6].

The basic principle of the curriculum system reform is: based on the existing traditional curriculum system that emphasizes the training of theoretical knowledge, it is required to progressively integrate the practical courses such as the professional practice and the project training demanded by the hardware and software technology of well-known enterprises and society.

The courses are divided into three levels: the basic courses, the main courses and the advanced courses. The basic courses are used to lay the foundation for the professional basis. The main courses cover most of the core knowledge units in the knowledge system, in which some elective contents for exercising the practical skills are embedded. The advanced courses emphasize on the professional knowledge applied in enterprise and society. For example, the basic courses include the math lessons, the program design, the data structure and the electronic courses, etc. The main courses include the computer organization, the operating system, the computer networks, etc. The advanced courses can set up some practical courses to cultivate the students' practical ability and project training according to the requirements of enterprises and technical development, such as the mobile computing, the switching and routing technologies and the network security, etc.

At present, as the IT technical standards rely on the authoritative international manufacturers, there will be the delay when the corresponding teaching contents are updated to some courses of IT curriculum system and it is difficult to sync with the demands of market. Therefore, some attempts should be provided in the aspect of updating and improving the teaching contents: it is required to consult with the enterprises, track the demands of enterprises for IT talents, revise the cur-

riculum system in a timely manner and adjust the teaching content. In the four years teaching planning, the basis, the skills, the training and the industry training should be combined together, which is shown in Figure 1:
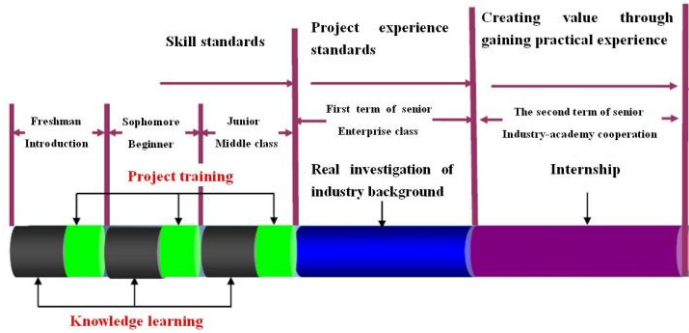

Figure 1. The integration model that the skills, the training and the industry training are integrated into the curriculum system

The knowledge learning should be stressed in the first three years. The immersion personalized learning solutions should be provided in the method of project training. At the same time, it is required to rely on the senior engineers with strong practical skills or the teachers who have the technical certification to manage the implementation of project training so as to achieve the basic skill standards; in the first term of senior, the training of the industry background should be conducted. The senior engineers should be responsible for the implementation and the teachers should supervise and guide the students so as to achieve the project experience standards; in the second term of senior, the internship of industry-school cooperation should be performed in the cooperative enterprises so as to create value and realize the win-win situation. The technical personnel of enterprises should be responsible for the implementation and they have to help the students accumulate the development experience of enterprise projects and the use experience of enterprise environments.

3.2. Construction of the practice mode for the purpose of strengthening the skills

In the education of IT disciplines, firstly, it is required to strengthen the education of basic theory, strengthen the cultivation of "computational thinking ability" of students and teach the discipline methodology in the process of solving the basic problems. As the skilled engineering major, it is required to cultivate the development, the application and other practical skills for the students in IT majors. In the background of higher education and national conditions, the IT talents cultivated in mostly domestic colleges and universities always stress the theoretical teaching and the practice teaching is insufficient, which causes that the abstract theoretical knowledge of students is not enough. Therefore, it is demanded to strengthen the reform of the innovation construction of practice mode.

"School-enterprise cooperation and work-study combination" are the only ways for IT education in China. "Base+project" refers that the core of the school-enterprise cooperation is base and the core of the work-study combination is project. It is necessary to implement the project teaching and focus on the effect

evaluation. The core curriculum construction should make its best quality and the construction of the advanced courses should be projectized. It is necessary to explore the IT talent-training mode of "base+project+course" school-enterprise cooperation of work-study combination, school-enterprise interaction, sharing resources and win-win development, which is shown in Figure 2.

The project methodology: selecting the actual project and organizing the students to learn skills and engage in the design and implementation. For this method, the students can combine the learning with the application. And the theory can be also combined with the practice. The professional skills of students will be improved in practice.
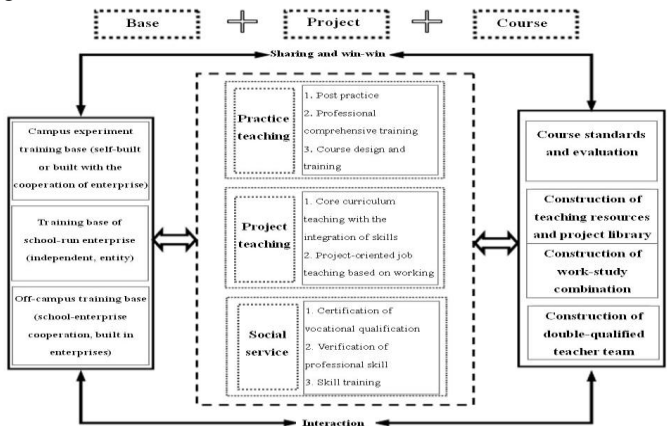

Figure 2. IT talent-training mode of "base+project+course" school-enterprise cooperation

4. Conclusion

In this paper, it is proposed that it is required to construct the professional curriculum system which takes the course group of IT majors as the core, construct the teaching team with the senior engineers, build the multi-faceted practice teaching mode and effectively cultivate the comprehensive quality of students who have the theory skill and the practice skill in IT majors. Then, the high-quality employment will be realized. The school-enterprise cooperation has run throughout the integration mode of four-year undergraduate training. The comprehensive quality of students has been greatly improved and the innovation consciousness has been also improved. At the same time, the ratio of students who are employed by the world-renowned IT enterprises has

been also improved. The potential of self-improvement in working is relatively strong.

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