The Development of Computer Science & Technology Constructed For Undergraduates from Secondary Technical School Based On Regional Economy

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Abstract: The students from secondary technical schools (STS) are a group of special students. Their foundation is relatively weak compared with ordinary undergraduates. How to make them adapt to college life well and group up to qualified high-tech talents serving for regional economy after university learning. It is an urgent problem to be solved in colleges and universities. In this paper, it has done a full investigation about characteristics of the STS of computer major and needs of enterprises and institutions in Liaoning. While some research are done through the STS of computer major in our school. This paper also proposes some suggestions about the setting of training program for the STS of computer major, such as the reform of the curriculum system, classroom teaching and examination methods, and so on. And then the suggestions approved here may be helpful to set training program for the STS of some other majors.

Introduction

In 2012, according to the spirit of the documents on the development of secondary and higher vocational education issued by the department of education of Liaoning Province, examination for upgrading from technical secondary school to undergraduate is set [1]. Liaoning province is a pilot province, and some majors in parts of colleges and universities begin to recruit students from STS [2]. Our college has officially started to enroll STS of computer science and technology, in 2013. STS are different from undergraduate students with unified enrollmen and higher vocational students. Because of STS from local provinces, so many of them will go to word in their provinces after graduation. Under the guidance of the national strategy of "information driven industrialization", the process of informatization has penetrated into all fields of this country. Liaoning Province as northeast heavy industry base, the development of information industry is in full swing. While the construction and implementation of information industry need a large number of computer technology application talents. According to the survey, Liaoning province lacks a large number of highly skilled computer talents, and the gap is growing[3]. Training high skilled and applied talents has become the goal of the STS of computer major training in our school, by making full use of the advantages of STS. Therefore, it is an urgent problem for us to solve that how to make the STS of computer major better adapt to university education and master high professional skills to serve the regional economy better. This paper puts forward some suggestions for the cultivation of the upgraded students of the STS of computer major, based on the investigation of their character and their employing unit. And then it is hoped to cultivate more excellent talents for the development of regional economic. The research idea of training scheme for the STS of computer major is shown in the figure below.

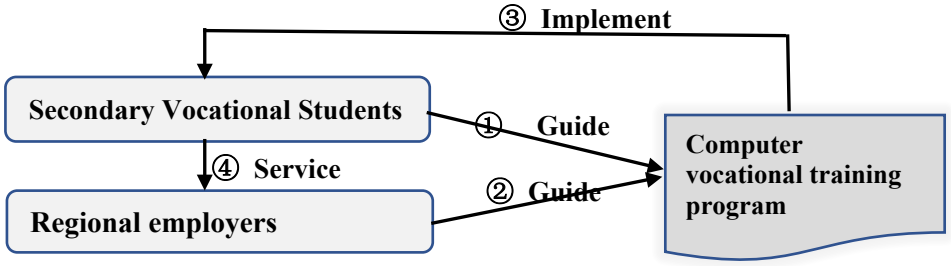

Figure 1. The Research Ideas of the Promotion Training Plan of the STS of Computer Major

Analysis of the Characteristics of the STS

(1) The STS come from this province, and serve for this province

At present, the STS are only admitted from the province, and nearly 90% of students stay in the province and return to work in their hometown after graduation. It is important to make the training plan for the STS combined with local economy, so they can serve the local economy better.

(2) The basic knowledge of the STS is weak, but practical ability is very good

The theoretical basis of the STS is relatively weaker relative to the traditional undergraduates, while the STS's practical ability is better. The STS of computer major have learned parts of computer courses in technical secondary school, so they have a good professional foundation and some of them have strong programming ability. In addition, most of the STS like to partake activities in social more than listen to the theoretical course sitting in the classroom[4]. They prefer to solve practical problems by hand, and then they can acquire knowledge from practice.

(3) The STS are more eager to be noticed and recognized

The STS are more eager to be noticed and recognized than the undergraduate enrollments. The scores of STS are always at the last of their class, and some of them have bad habits such as smoking, drinking, fighting, etc. So they are bad students and bad children in teachers' eyes. Once the STS are recognized specially when they are affirmed in class and in front of others, they will like their teachers and want to accept the course knowledge。

(4) The STS have their own characteristics and advantages

Traditional teaching methods and course assessment methods are not suitable for the ST, because they have their own characteristics and advantages. It is necessary to use various teaching methods and assessment methods for the STS.

Investigation and Analysis of the Employers in Liaoning Province

Most of the STS of our school will go to work for enterprises and institutions of Liaoning Province. So it is very necessary to consider the needs of regional employers when setting the training programs of STS. The author investigates nearly 100 enterprises and institutions in Liaoning Province, and wants to know the needs of the employers about the STS of computer major who will work for them. And then three points are got from the investigation and analysis about the career needs of the STS of computer major.

(1) Needs of professional quality

Professional quality mainly refers to graduates' work attitude, sense of responsibility, hard work and team spirit. This is the basic professional element of qualified employees.

(2) Demand for professional theoretical basis

The teaching of the basic theoretical knowledge of the STS of computer major can't be ignored. Professional theoretical basis is the basis for students to develop professional skills, and also the basis for students to further improve themselves after work. The school will educate the STS to cultivate the habit of learning all the time and lay a solid theoretical foundation for students.

(3) Need for professional skills

The main reason of the employing units willing to recruit the STS of computer major is that they have good professional operation ability. And it is best if the STS don't need training to work

directly for the employing units. For this reason, we consider setting up a large number of practice links and school enterprise cooperation opportunities in the process of training the STS of computer major. So sufficient professional skills training opportunities are provided to students.

Thoughts and Suggestions on the Design of This Training Plan for the STS of Computer Major

This paper puts forward some reform suggestions based on the training of the STS of computer major, and it aims to cultivate a group of qualified high skilled applied talents serving the regional economy, considering the characteristics of students and the needs of regional employers in Liaoning Province.

(1) Curriculum system reform: strengthen practice

The STS are more willing to acquire knowledge in practice relative to learn theoretical knowledge. In the same way, in the process of applying for the STS of computer major, employers value their ability of work in their posts, while the theoretical research requirements are weaker. Therefore, in terms of curriculum system, it prefers to set up more practical operation courses and less theories. The basic technology widely used in the field of computer is fully considered during setting the course system. Finally, three main lines of program design, database design and multimedia design are selected. As shown in Figure 2.

(2) Classroom teaching reform: constructing ecological classroom

Ecological classroom will be Constructed in this paper according to the characteristics of STS of computer major, and that will break the traditional teaching concept. Ecological classroom emphasizes students' subjectivity in class more, and which promotes the interaction between teachers and students, students and human-computer interaction. So all students will be d mobilized to actively participate in the learning and discussion of classroom knowledge [5]. In this process, teachers should actively participate in the classroom teaching reform and improve their teaching ability and guide students to actively participate in the classroom interaction, so that students can learn happily and efficiently.

(3) Reform of assessment methods: Multi way integration

Traditional teaching methods and course assessment methods are not suitable for students, because the STS have their own characteristics. In terms of course assessment, it is suggested to break with convention of single assessment method and carry out bold reform. And the main assessment methods proposed in this paper include the following directions:

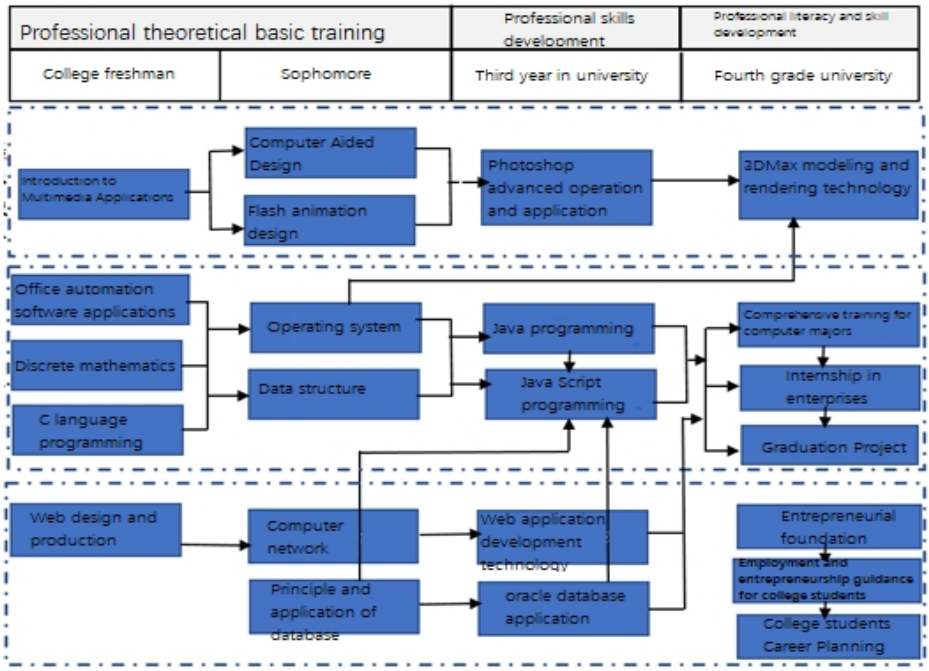

Figure 2. The Framework of the Training Program for the STS of Computer Major

(1) Comprehensive inspection

Students' performance in class, in practice and in relevant competitions can be included in the final examination[6]. Students are encouraged to actively participate in professional competitions and qualification examinations such as innovation and entrepreneurship through the reform of course assessment, and then students' spirit of professional exploration and innovation can be improved.

(2) Distributed survey

The assessment method of some courses can be changed from the final volume to the multi-stage test, according to the characteristics of students and courses. Therefore, it can enhance students' knowledge and improve their learning awareness.

(3) Reply assessment of works

According to the nature of the course, students can submit their works and take part in reply for assessment of some course. This way can not only examine the knowledge level of students, but also can improve their comprehensive abilities of oral expression, knowledge summary, writing and innovation.

Summary

This paper gives some suggestions on the setting of training program for the STS of computer major, considering the characteristics of the STS and the surveys on the demand of employers for high skilled computer talents in the province. The proposal of the training program is to provide more qualified high skilled talents for enterprises and institutions in Liaoning Province. In addition, it is order to provide a reference for the establishment of the training program of t other major STS through the discussion in this paper.

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