Research on Talent Training Model of Computer Application Technology Major Based on Demand Analysis

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Abstract: This paper first analyzed the problems in the curriculum reform which higher vocational colleges has conducted to avoid "homogeneity" in major setting. Then it takes Hunan Vocational College of Modern Logistics as an example, showing the way in which colleges can set up a leading and perfect personnel training plan with its own characteristics based on refined post requirements through the analysis of market demand and learners needs. Based on this plan, a supporting set of flexible course system is established to train each student according to their professional requirements, as a result of which all of them can reach their potential. It is hoped that it can provide experience reference and feasible suggestions for the development of the same level vocational colleges.

1. Introduction

Computer application technology is a universal major with a long history, which has been offered by many colleges.[1] However, the "homogenization" of major setting in most higher vocational colleges leads to the lack of characteristics in talent training, which has a certain adverse impact on enrollment and employment.[2] According to the employment situation in previous years, students majoring in computer science and technology, computer application technology, computer network technology and other related areas face unpromising future, and their employments rank in the bottom in many provinces.[3] After a long time of market research, we believe that the main reasons for this situation are that computer application technology major is not distinctive, that the students' specialty is not outstanding, and that the students' self-learning ability is not strong. This paper intends to analyze the problems existing in the construction of this major, and provide insights into developing computer application technology major in higher vocational colleges.[4] Starting from the needs of the market and learners, this paper has made a beneficial exploration on the classified cultivation of learners based on the distinctive direction of the selected major and its vocational needs.

2. Problems in the Construction of Computer Application Technology Major in Higher Vocational Colleges

Computer application technology is characterized by fast update of technical knowledge, strong practicality, and close connection with social needs. [5] In order to support the new round of teaching reform in our college, the author conducted a survey in two aspects. First of all, a questionnaire survey was conducted among 13th, 14th, and 15th graduates (180 in total) majoring in computer application technology in our college about the job requirements, aiming to summarize the problems in the construction of this major in our college. Secondly, the author conducted field visits and online surveys, and consulted 50 national key vocational colleges and 27 vocational colleges in our province about their professional direction and curriculum setting to learn from them. Eighty-six percent of the surveyed universities have refined their majors in computer application technology and introduced its distinctive directions. However, there are still four problems in general:

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First, they want to highlight the distinctiveness of the computer application technology, but refuse to give up its wide coverage of fields.

It is a necessary trend for colleges to launch their own characteristic specialty in order to survive and thrive. However, an analysis of the curriculum system of each college shows that more than half of them cover as many fields computer technology can involve as possible, such as advanced office automation, graphics processing, multimedia technology, software development, website development, database technology, and electronic technology. Theoretically, the wide range of fields has broad appeal and employment direction. Actually, however, such broad training goal has caused multifarious curriculum setting. In addition, higher vocational institutions like our college are short in its educational length, and students start their internship in junior year. Although they have stepped into every field during two-year school days, they are versed in none of them and have no skills to survive in society.

The Second is the change in form but not in content. They still apply the previous curriculum system in spite of the publicized distinctive major.

Higher vocational colleges still adopt subject type mode that excessively pursues the systemic and integrated subject knowledge. In our web design direction, for example, main specialized courses include computer application base, graphic design, web design and production, the production of Flash animation, C++ program design, microcomputer principle and interface technology, data structure, operating system, database principle and application, ASP.Net programming, JSP programming, PHP program design, the three-dimensional animation design and production, computer aided design, etc. The content of each course is independent, and there is no unified goal.

Third, the curriculum construction is more oriented to the needs of the market and less oriented to the needs of learners.

According to the characteristics of higher vocational education, they aim to meet the needs of local economic and social development, and set curriculum based on the principle of "professional serving the market, curriculum serving the profession". That is, they emphasize the "market demand" and "social need", but consider less from perspective of the learners. As a result, they fail to provide every student with an appropriate education that may train hundreds of millions of high-quality workers, tens of millions of specialized personnel, and a large number of top innovative personnel.

3. The New Starting Point of the Reform of Computer Application Technology Major in Higher Vocational Colleges: Facing the Needs, Highlighting the characteristics, and Classifying Training

Computer application technology, as a traditional and versatile major, needs to develop its leading position and characteristics in order to maintain its vigorous vitality. The author starts from the following four aspects:

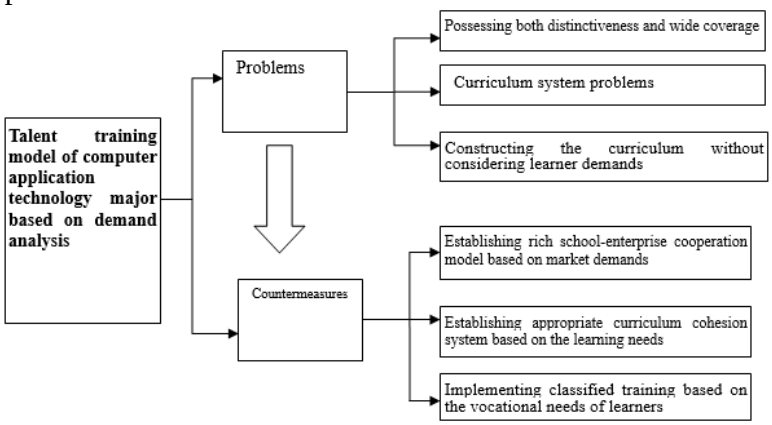

Figure 1. Talent training model of computer application technology major based on demand analysis

3.1 Establishing Rich School-Enterprise Cooperation Model Based on Market Demands

In order to ensure the frontier computer professional knowledge, our college implement the policy of "going out, coming in". In other words, in cooperation with Tedu.cn, we send professional teachers into the industry for off-job training and learning on the one hand, and invite its education experts to make patrol speeches in our college on the other hand. In addition, we also make flexible learning through the network of O2O. These endeavors have avoided that school-enterprise cooperation model becomes a mere formality since we have positively explored and implement such modes as “research and development as the driving force”, “integration between colleges and enterprises”, “intelligence cooperation”, “taking orders”, and “borrowing the boat out to sea”, which have continuously strengthened the practice of university-enterprise cooperation pattern and improved the level of students' practical skills. In order to cultivate the skilled talents with "zero distance" from the enterprises, our college has reformed the practical teaching mode of computer application technology major. Take the fourth semester study of 17th students majoring in computer application technology as an example. The fifth computer room (software development training room) is arranged as an enterprise environment in which everything is operated according to the management regulations of the company. For example, students need to clock in and out, and must wear uniforms. Actual projects are taken as the course content to implement the progressive teaching mode of "learning by doing". Education commissioner, teachers, students and staff members are fully engaged in the whole process. Students play the role of staff members of a company so that they can know about the operation mode of the company in advance, which helps to realize “zero distance” between students and enterprises.

3.2 Establishing Appropriate Curriculum Cohesion System Based on the Learning Needs

It is an important task for the reform and development of vocational education to establish an appropriate curriculum cohesion system, which is the core of the sustainable development of vocational education.

3.2.1 Curriculum is the core

In the cohesion system in higher vocational colleges, curriculum cohesion is "fundamental" and system cohesion is "symbolic". Without the "fundamental" cohesion, the "symbolic" cohesion must become a mere formality. In order to link up higher vocational courses, we should first carefully analyze the market demand of the industry, and set the professional ability standard with hierarchy according to job classification and professional standard, such as primary computer operator, intermediate computer operator, advanced computer operator, based on which higher vocational course content is established.

3.2.2 Institutional arrangement is key

Institutional arrangement is the system that guarantees the integrated development of higher vocational education. It is advised to take distinctive specialty as the breach of higher vocational cohesion in the aim of integrating curriculum setting, teacher arrangement, and training base construction, which cohesively links vocational education with industry requirements, teaching material content with professional standards, and major setting with working position. Only in this way can an integrated development of higher vocational personnel training mode and operating mechanism be formed.

3.2.3 Student growth is the driving force

The ultimate goal of the integrated development of higher vocational education is to realize the development and growth of students and cultivate high-skilled talents for the national economic development. Higher vocational colleges can use an appropriate credit system. That is, students are not limited by time, and they can learn through examination or evaluation, which to a large extent meets their individual needs while saving educational resources and improving teaching efficiency. The implementation of the credit system training model has a certain role in promoting the

connotative link of higher vocational education.

3.3 Implementing Classified Training Based on the Vocational Needs of Learners

Different students have different interests, professional backgrounds, and self-development needs, so there are significant differences in ability composition. Classified training is to determine appropriate training objectives according to the individual differences, so that each individual can achieve their goals through efforts, achieve the best incentive effect, and realize the desire to become a talent. According to the survey and interview of the 17th students majoring in computer application technology in our college about career goals, 41.80% of them want to be the Web front-end development of, 24.60% a program developer, about 30.1% the website operator, and 5% of them want to continue their study. According to students' vocational needs and the technical types of the website, the website development learning is divided into three directions, based on which classified training is implemented for students.

First is the Web front-end development direction. In this direction, students are required to design UI under the environment of the website quartet (i.e., Photoshop + Dreamwaver + Flash + FireWorks). They need the ability to design home page static diagram, static graph on page time, Banner figure, the sales figure, and to enhance the client's experience using DIV + CSS layout, Flash, JavaScript and so on, according to the Web front-end development division (webpage fine-artists) job requirements,

Second is Web programmer direction. Students should select development language Net, and design dynamic Web pages in the Visual Studio environment. According to the Web background development division (programmers, testers) job requirements, they should learn all kinds of control in the VS and associate them with the database, rationally utilize the third party controls so as to realize the dynamic display of data, all kinds of query, sorting, and other functions in the foreground and to realize humanized addition, deletion, changing, and check in the background.

Third is the site operation and maintenance direction. In the website foreground, students should be able to analyze the classic site layout, interface design, dialysis site structure; In website technology, they need to learn about the three commonly used Internet platforms (i.e., Windows, Linux, UNIX) and their application, to know about structural advantages and applications of three largest codes, i.e., ASP.Net, PHP, JSP, to understand the features and structure of three database, i.e., Access, SqlServer, Mysql; In operations, they should be proficient in using Excel to make product table, cost table and sales comparison table, Word to make plans, resumes and plans, and PPT to make product introduction and report.

4. Conclusion

This paper has refined the capacity requirements of post groups through demand analysis, comprehensively considered the functional composition of computer application technology major, and studied the selection of talent training methods and approaches to establish a sound curriculum system. The direct beneficiaries are students, and the indirect beneficiaries are our school. Through the reform and innovation of the talent training model in our college, we have comprehensively promoted the educational teaching reform of the computer application technology major in higher vocational colleges, standardized the teaching management, and improved the teaching quality and the overall level of education.

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