Research on the Application of Computer Technology in Software Technology Talents Training System in Higher Vocational Colleges

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Abstract. With the advent of the information age, the demand for computer professionals such as network maintenance engineers, security engineers, development and operation engineers has gradually increased, and computer software has become one of the hottest industries at present and in the future. As an important part of the education system, higher vocational colleges are constantly training and transporting computer software technology professionals needed by the society, and exploring the application of efficient talent training mode has become one of the key tasks of higher vocational colleges in the future. While enterprises generally reflect that college graduates can't meet their own needs, colleges and universities are suffering from being unable to know the real needs of enterprises, and lack of specific training templates and inspection standards, resulting in the disconnection between software talent training and demand. In this paper, the analytic hierarchy process (AHP) is used to analyze the established evaluation index system of software technology specialty in higher vocational colleges, and to explore the effective strategies to strengthen the application of efficient talent training mode of software technology specialty in higher vocational colleges.

Keywords: Talent Training, Software Technology, Higher Vocational Colleges, Computer

1. Introduction

With the rapid development and progress of science and technology, computer applications have been deeply radiated to various fields, industries and families. What follows is that the demand for professional and technical personnel in the computer industry has greatly increased. With the advent

of the information age, the demand for computer professionals such as network maintenance engineers, security engineers, development and operation engineers has gradually increased, and computer software technology has become one of the hottest industries at present and in the future [1]. Higher vocational education occupies half of China's higher education, and the problems in personnel training quality are particularly prominent. The Ministry of Education and local governments put forward special requirements, measures and methods for the quality of personnel training in higher vocational education [2]. Software industry is becoming a new economic growth point for the development of information industry and national economy, and its status will affect the speed of economic development. Although most higher vocational colleges have carried out teaching reform on the basis of combining the characteristics of the times with social needs, there are still some problems in the application of high-efficiency talent training mode in software technology specialty of higher vocational colleges [3]. At present, although there are more than 300,000 students majoring in computer and software in Chinese universities every year, there are still insufficient software talents in domestic software enterprises, especially the basic technical talents with development experience.

With the emergence of various new technologies, the whole industry has higher and higher requirements for computer professionals. Traditional college computer education has a long cycle, slow curriculum update and little practice. The training of software talents, especially software blue collar, is relatively out of touch with the needs of enterprises, and the lag of education has seriously affected the rapid development of the software industry [4]. After years of reform, higher vocational colleges have made breakthroughs in professional basic courses and professional technical courses, and the direction of talent training is more suitable for students' future employment problems. The application of talent training mode in higher vocational colleges has become an indispensable and important part of education and teaching work [5]. While enterprises generally reflect that college graduates can't meet their own needs, colleges and universities suffer from the inability to know the real needs of enterprises, and lack of specific training templates and inspection standards, resulting in the disconnection between software talent training and demand [6]. At present, there is a shortage of software professionals in China, and the structure of software professionals is unreasonable. This puts a severe test on the training of software talents in higher vocational colleges, and also provides a rare opportunity for the development of higher vocational education [7]. In this paper, the analytic hierarchy process is used to analyze the established evaluation index system of software technology talents training in higher vocational colleges, and the effective strategies to strengthen the application of high-efficiency talents training mode of software technology majors in higher vocational colleges are deeply explored.

2. Software technology professional training mode operation foundation

The reform of talent training mode is the basis of professional teaching reform. In running a school, we make full use of the advantages of professional technology, equipment and talents, take the open and order-based school-running road of school-enterprise cooperation, and train practical talents that society really needs. Constructing the quality system of professional personnel training is the basis of the whole quality evaluation of professional personnel training, and whether the evaluation indexes are reasonable and effective is directly related to the analysis of the evaluation results on the current situation of personnel training [8]. In the whole teaching process, special attention should be paid to the formulation of teaching plans. On the basis of extensive social investigation and soliciting the

opinions of the professional steering committee, the professional professional ability structure chart is compiled, and the teaching plan of higher vocational colleges is developed on this basis. The teaching plan pays attention to the combination of knowledge, ability and quality, so that students can be trained in all directions.

3. Problems existing in the training mode of software technology professionals

3.1. There is no close combination between theory and practice

The educational thoughts of software technology teachers in some higher vocational colleges have not been updated in time, and most of the personnel training work is carried out in theoretical classroom teaching. Teachers have not realized the importance of combining theory with practice, nor have they adjusted theoretical courses and practical training courses more scientifically and reasonably. The total social demand of computer application technology talents ranks high in the computer industry, and the annual demand increases by about one million people. Teachers in higher vocational colleges lack rational thinking and pertinence on the overall teaching reform. Some higher vocational colleges have invested relatively little manpower, material resources and financial resources in training, students' training conditions can not be improved, computer room facilities can only meet the basic needs of majors, and higher-standard training can not be carried out, and personnel training is hindered to a certain extent. Conflicting personnel training methods cannot solve various problems in the actual education process. Therefore, according to the current situation, the supply of computer application talents is far from meeting the current social demand for computer professionals.

3.2. The teaching course and method are too single

The courses of computer software technology offered by most higher vocational colleges are too single. The theoretical courses focusing on network equipment configuration, network maintenance and server configuration have gradually decreased in importance with the changes of the times, and practical experience has gradually become an important condition for students to enter the society and make a good connection with the society. When students learn programming content, with the deepening of professional difficulty, it is easy for students to have the psychology of distress, fear of hands-on, and even give up on themselves in serious cases. Higher vocational colleges pay little attention to students' employment guidance and innovative employment, and students are vague about their own quality, ability and orientation, but they have not independently thought about their own employment direction and career choice as the curriculum keeps moving forward, and it is easy to be confused after graduation. At present, the assessment and evaluation mechanism of most higher vocational colleges is still not perfect, and there is no systematic system and standards to be based on [9]. Professional teachers in some schools have begun to show an aging trend, and their teaching ideas and methods can not meet the needs of students in the new era, nor can they better carry out personnel training. The other part of teachers are too young and lack of teaching and practical experience, so it is easy for teaching to deviate from the direction of personnel training. Although new talents are recruited openly every year, new teachers need further training and need time to adapt [10]. Some higher vocational colleges have not properly adjusted the direction of education and teaching according to the students' future development and the society's demand for professional talents, and still focus on training equipment configuration and network maintenance talents. However, in fact, the

society's demand for maintenance talents is declining, and some innovative professionals are replacing them.

4. Strategy of strengthening the application of software technology professional training mode

4.1. Planning talent training objectives

The clear goal of talent training is to help the high-efficiency talent training mode to have a better application foundation in the computer software technology major of higher vocational colleges, and it is also the ideological guidance of the teaching curriculum design of professional teachers in higher vocational colleges. Enterprises are the carriers of high and new technology, so it is necessary to reform the curriculum structure and update the teaching content with the technical progress of enterprises, the requirements of enterprises for talents and the development of high and new technology applications. The basic goal of talent training should be to enrich students' related knowledge, cultivate students' comprehensive ability and pay attention to quality training. Enriching students' related knowledge should mean that students broaden their horizons and expand their knowledge range in basic courses, professional courses and elective courses, and cultivate students' comprehensive ability. The demand of computer industry is increasing, and the requirements are becoming more and more strict. For the training mode of talents in higher vocational colleges, it is also necessary to improve the corresponding training objectives. The establishment of talent training objectives should focus on students' future development and social needs, design and improve teachers' teaching contents and methods from the perspective of students, and realize talent training through interaction between activities and environment, integration of competition and cooperation, etc. The training goal of software technology specialty is information and communication engineering technicians and software and information technology service personnel in computer industry. They should have firm ideals and beliefs, a certain scientific and cultural level, professional ethics and innovative consciousness, and strong employment ability and sustainable development ability [11]. Higher vocational colleges can appropriately raise the standards of teacher recruitment to select teachers with advanced teaching concepts and professional basic knowledge for students, carry out regular teacher training work, help in-service teachers master the application methods of efficient talent training mode, and urge teachers to continuously increase their professional accumulation and improve their teaching ability.

4.2. Deepening the reform of professional courses

Professional courses in higher vocational colleges should be oriented towards students' employment. The products of the new era, such as big data and cloud computing, make society provide more new positions for computer software technology professionals. According to the guiding ideology of promoting quality education in an all-round way and the training goal of higher vocational education, it is the key to cultivate students' comprehensive professional quality to establish the curriculum goal, curriculum model and evaluation method of practical teaching with higher vocational characteristics. Under the relatively perfect curriculum design, the core expectation is to make students systematically study professional courses more suitable, acquire corresponding professional knowledge more quickly and understand professional knowledge more easily. Higher vocational colleges should enrich the contents of professional courses to cover more fields. After reform, they should include basic quality education courses, professional core courses and extended courses. For example, related courses such

as cloud computing technology, introduction to big data and unstructured data processing can be offered to systematically educate students in the form of professional compulsory or elective courses.

Grasping and using information correctly is the main content of scientific decision-making. Let the fuzzy number x represent an interval here, and each fuzzy number x can be represented by three definite numbers (a1, a2, a3), and its membership function is:

$$\mu_A \begin{cases} 0 & \\ \dfrac{x-a}{a_2-a_1} & x < a_1 \\ a_1 \le x < a_2 & \\ a_2 \le x \le a_3 & \\ \dfrac{a_3-x}{a_3-a_2} & x > a_3 \end{cases} \tag{1}$$

The steps of the fuzzy analytic hierarchy process are summarized as follows: (1) Construct an analytic hierarchy model; (2) Use fuzzy numbers 1, 3, 5, 7, and 9 to identify the element values in the judgment matrix; (3) Use each of the judgment matrix A The element is multiplied by the relative weight Wi of each criterion. This results in a new matrix:

$$A \begin{cases} W_1 \cdot x_{10} & W_2 \cdot x_{11} & \cdots & W_n \cdot x_n \\ W_1 \cdot x_{20} & W_2 \cdot x_{21} & \cdots & W_n \cdot x_{2n} \\ \cdots & \cdots & & \cdots \\ W_1 \cdot x_{n0} & W_2 \cdot x_{2n} & \cdots & W_n \cdot x_{nn} \end{cases} \tag{2}$$

The student's learning activity information is fed back to the personalized data analysis module, which is reprocessed by the personalized data analysis module to update the student information database. Calculating information gain is the most common method. In the formula for calculating information gain, the degree of information gain:

$$P = P(Y = 1) = F(\beta_i X_i) \tag{3}$$

In addition to mastering the necessary theoretical knowledge, students must cultivate their comprehensive professional ability through a systematic practical teaching system that closely meets the demands of the front line. When evaluating students' learning achievements, teachers should take students' final grades and periodic test scores as reference standards. For students with internship tasks, they should incorporate internship into students' assessment. Teachers should help students make clear which vocational qualification certificates or grade certificates they should have and give corresponding examination guidance. In the curriculum, jobs will be set directly, students and teachers' resources will be allocated reasonably, and students will be taught in accordance with their aptitude, so that students can learn the corresponding professional skills more directly, thus obtaining employment faster and simpler. Examination is not a passive test of students' learning quality and effect in various skills and practical projects, but plays a potential guiding and feedback role in teachers' teaching and students' learning [12]. In the practice assessment, the emphasis should be placed on the assessment of

students' professional ability, the whole process quality monitoring system of practice teaching should be established, and the process assessment should be emphasized to ensure the quality of practice teaching. Teachers should carry out public opinion collection activities regularly so that they can correctly understand their strengths and weaknesses from the results of other evaluations, and adjust their teaching design on the basis of students' interests and actual needs, so as to provide strong institutional support for the application of efficient personnel training mode.

4.3. Deepening the practice of school enterprise cooperation

Higher vocational colleges should deepen school-enterprise cooperation so as to arrange internship opportunities for students. For example, different positions such as network design, debugging, management, operation and development can help students to know their future employment direction and post tendency, quickly adapt to the change of identity in practice, and train students' ability to adapt to environmental changes quickly and to think independently and innovate independently. In terms of the time and technical continuity of the teaching process, in order to ensure that the teaching can adapt to the synchronous development of technology, the changes of core curriculum standards and teaching contents of software major are jointly researched and customized by professional teachers and cooperative enterprises, and the embedded teaching method of software project platform of cooperative enterprises is adopted. The characteristic of higher vocational education is that students are required to complete the job ability training during their school years, and try to shorten the adaptation period. Therefore, it is particularly important to establish a stable off-campus experiment and training base. Compared with the traditional subject-based curriculum system of software specialty, the improved teaching focuses on practical skill courses and aims at cultivating the engineering ability of software technical talents, which further reflects the knowledge, skill and practicality of the subject specialty. Only by combining theory with practice can the connection between school life and social life be successfully completed. Therefore, attaching importance to students' practical training and deepening the practice of school-enterprise cooperation are the core links of developing an efficient talent training mode for computer software technology majors in higher vocational colleges.

5. Conclusion

Mankind has entered the information age in an all-round way, and the emergence of various science and technology has promoted the rapid development of education. As a talent education base, higher vocational colleges also have new development opportunities in their education and teaching work. To evaluate the quality of professional personnel training, we should not only evaluate the quality of personnel training of each major, but also comprehensively rank each major, make clear the advantages and disadvantages of each major, and determine the direction of future efforts in the construction of each major. Teachers should carry out public opinion collection activities regularly so that they can correctly understand their strengths and weaknesses from the results of other evaluations, and adjust their teaching design on the basis of students' interests and actual needs, so as to provide strong institutional support for the application of efficient personnel training mode. Only by combining theory with practice can the connection between school life and social life be successfully completed. Therefore, attaching importance to students' practical training and deepening the practice of school-enterprise cooperation are the core links of developing an efficient talent training mode for

computer software technology majors in higher vocational colleges. The training of software technology talents in higher vocational colleges should keep up with the development of the times and technological progress, take the actual needs of enterprises as the goal, clarify the job standards of software talents, and make timely adjustments to the talent training mode according to their own situation.

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