

Training path of vocational quality for secondary vocational school students in electronic and electrical engineering

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Abstract: Professional accomplishment is a set of professional internal norms and requirements which can reflect and reflect the comprehensive quality of modern professional in the process of professional behavior. With the help of the teaching of electronics and electrician specialty in secondary vocational school, the author accumulates the strong motive force of vocational students'career development, effectively promotes their core competitiveness in employment, and eventually exports high-skilled and high-quality products to enterprises through the cultivation of vocational quality in classroom teaching, training in skills competition and assimilation in school-enterprise cooperation. The compound talents.

Keywords: Secondary vocational school; electronic electrician; professional teaching; professional quality; training path

1. Putting forward questions

1.1 Lack of literacy has become a bottleneck restricting students' employment

Secondary vocational schools tend to emphasize skills and employment as the orientation in running schools. They think that vocational skills are the decisive factor to find jobs and competent positions. However, they neglect the cultivation and promotion of professional quality in the training plan, lack a systematic vocational quality education system, and do not really reflect the teaching content of enterprise employment standards, such as enterprises. Professional management, corporate culture, professional norms and so on, resulting in the shaping of professional literacy is "marginalized", lack of a practical foothold, can not meet the comprehensive requirements of enterprises for talent. However, professional quality is precisely the comprehensive quality that a professional should have when he enters a post. Its level not only affects the employment quality of secondary vocational students, but also affects the social recognition of vocational schools and the development prospects of all walks of life.

Excellent managers of modern enterprises believe that although different positions have different requirements for professionals, their working skills can be rapidly improved in the actual operation of enterprises and early education and training; and professional awareness, professional psychology, professional ethics, etc. are the most concerned about the enterprise, the composition of which is professional quality. The necessary conditions for self-improvement and continuous transcendence. There is a consistent demand for professional quality in all industries. In order to cultivate the employment competitiveness of secondary vocational students, schools should focus on cultivating students'unique abilities in the process of choosing a career, which are in line with the needs of society and enterprises, and which can be developed and promoted in their posts.

1.2 The rational role of social role requires comprehensive quality

After entering the society, secondary vocational students are faced with the problem of changing and positioning

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their roles. Vocational accomplishment plays a key role in the process of transforming secondary vocational students into professionals. Nowadays, some secondary vocational students are critical of working conditions; some are lack of professionalism, hardworking spirit, lack of career pursuit and the spirit of ownership in the orientation of progress; some lack the ability to think independently and carry out work; moreover, vocational sensitivity is low. The essence of social competition is the competition of professional people.

The competition of professional quality and professional accomplishment are the internal driving force for the development and growth of enterprises. Professional roles require students to have both the concept of service, professionalism, dedication quality, rule consciousness, etc., which is a necessary ability as a professional. Social roles require secondary vocational students to integrate into society as soon as possible, to meet the needs of social development, to help enterprises save investment, improve output and efficiency, and to inject considerable vitality into learning to do things, learning to behave well, and loving work. Effective cultivation of vocational accomplishment is helpful for secondary vocational students to rationally orientate their social roles and realize their value in life. At the same time, it can improve the quality and core competitiveness of schools.

1.3 The development of electronic information industry needs comprehensive quality

With the rapid development of modern electronic information industry, enterprises have put forward brand-new demands for the professional ability of electronic and electrical professionals. Although teachers of electronics and electricians are aware of the important value of students'career planning, professional ethics, professional habits and innovative entrepreneurial ability in the process of employment, they still focus on the teaching and training of professional operating skills in practical teaching, rarely involving the cultivation of professional quality. There are still many problems worth discussing in the training of professional qualities in the teaching of professional courses, which is the key link in the training process of electronics and electricians. Secondary vocational schools can truly keep pace with the development of electronic information industry only by deeply understanding the development trend of electronic information industry, the knowledge and skills needs of enterprises for professional talents, starting to cultivate students'professional quality, and actively carrying out the reform of curriculum structure, teaching content and training mode.

2. The connotation of professionalism

Professionalism is a multi-level concept. It is a set of professional internal norms and requirements in the process of professional behavior can reflect and reflect the comprehensive quality of modern professionals, it can be a good measure of whether professionals can adapt to, competent for the post. Vocational accomplishment is the key to the success of students'career and the guarantee of their career development. It determines the ability, emotional status and work quality of students' professional activities.

With the help of the American scholar Spencer's "iceberg theory", professional knowledge, professional behavior, professional skills, professional image just like the part of the iceberg exposed to the surface of the water, is the premise of work - dominant professional accomplishment; and icebergs hidden in the water, usually imperceptible, covering professional awareness, moral integrity, and so on. Occupational style, attitude and potential for career development are important indicators to stimulate the work potential and enhance the competitiveness of the work platform - recessive professional quality, which is also an important indicator to identify the performance of professional.

3. Classroom teaching to create professionalism

"Professionalism can only be manifested in a specific workplace world. The cultivation of adaptability should turn to the change of contact mode, not to the study of systematic theoretical knowledge which is divorced from the task. In classroom teaching, we should incorporate the practice of vocational post into the teaching content, establish a simulated scene of the workplace, construct job-related tasks, run real professional norms, let students experience the future career, and then train the basic skills and comprehensive skills of the professional post group, and shape the operational ability that enterprises urgently need. Career adaptability. The author takes the installation and debugging of audio

power amplifier circuit as an example to illustrate the shaping of professional quality in the classroom teaching.

Project knowledge requirements: audio power amplifier circuit installation, commissioning, require students to complete the audio power amplifier circuit schematic design, commissioning success, and write a project process report and use instructions.

Technical requirements: select components, welding and debugging according to the design diagram of audio power amplifier.

Project attitude requirements: meticulous, patient and professional attitude required for installation and commissioning.

Project environment creation: According to the production characteristics of modern electronic enterprises, the environment is divided into two areas: circuit development and design, circuit installation and debugging.

Participants in the project: Advanced students in the project, they have learned the audio amplifier circuit in the early study of each single circuit, the design difficulty lies in the integration of each single circuit and device selection, so as to take into account the economy and stability, and complete the technical specifications.

Project process construction: Teachers create job-related production tasks according to the workplace situation of electronic enterprises. An electronics factory has obtained a production contract for a multimedia computer supporting small active speakers. Please design and put into production according to the following specific technical requirements: double channel, the maximum output power per channel is not less than 3W; with tone control function; output power (volume) continuously adjustable; nonlinear distortion is less than 10%; input impedance is not less than 10k; frequency response is 60HZ-15kHz. In the circuit design process, teachers group the students into different groups and provide them with reference books and network resources. After the design of each group is completed, the teacher organizes the students to demonstrate the scheme, that is, each group elaborates the display scheme separately, and other groups discuss the feasibility of the scheme with the teacher. If the scheme is obviously wrong, the design will be redesigned. After completion of the design process, the students need to fill out the requisition list and pick up materials from the material warehouse. In this process, teachers can provide more than 120% of the component materials for students to choose freely. Each group will design and fabricate PCB circuit according to the design schematic diagram of this group, and conscientiously complete the welding process, and finally debug and record the relevant data, write the project process report and use instructions. After the completion of the project tasks, the groups are shown and compared again, and finally the optimal scheme is mass production.

Analysis: In the process of this project, the teaching environment will be set as a simulation of electronic enterprise environment, divided into different work areas, derived from the secondary vocational school personnel training objectives. Reasonable arrangement of training places in schools and good "professional environment" will help students integrate into enterprises faster and better. Students receive skills training and nurturing education in simulated school training places. Through personal experience and correct positioning, students can complete their career choices, enhance their sense of recognition of the profession, and promote their career orientation, professional awareness and career planning to "grow from nothing, from low to high" and gradually possess the necessary qualities of a "quasi-professional". Raise. In the process of project design, students have mastered the composition of active speaker system, and mastered the application of integrated voltage regulator skillfully, have a deeper understanding of the power supply circuit of electronic circuit, and further familiar with the characteristics of integrated op amp, op amp circuit application; in the operation link, students have mastered the Protel software. The method of part drawing circuit masters a series of requirements of PCB design, such as substrate material and component selection, PCB design, manufacturability design, reliability design and so on. At the same time, the specific wiring, pad, test points, conductors and through holes, electromagnetic interference and other related skills were strengthened and consolidated. One of the important characteristics of modern enterprises is the use of teamwork to complete the related work of enterprises. This feature forces secondary vocational schools to pay more attention to the cultivation of students' teamwork ability in daily teaching. Team building, focusing on guiding students to play a good role in the group, unity, as far as possible to make the group circuit design better than other groups. In the electronics industry, there are so many kinds of components that if you choose the wrong components, the whole circuit may fail and the efforts of the whole team will be wasted. In the

process of receiving materials, teachers provide more component materials for the purpose of penetrating careful workplace attitude training in the workplace production situation. The design of project procedural reports and instructions will help students understand that formal products have been demonstrated, tried and compared with various schemes before they are put into production, which will help to cultivate students'patience and careful professional accomplishment.

4. Skills competition to temper professionalism

In vocational education, skill competition has become increasingly prominent in its important position, becoming the core competitiveness of schools. But behind the competition, we often neglect the training of students'professional qualities, which is precisely the purpose and real value of the skills competition. By participating in many levels and types of skills competitions, students'practical operation ability has undoubtedly increased greatly, and their professional ethics has also been strengthened imperceptibly. At the same time, safety awareness, competition awareness, teamwork awareness, psychological quality are all in place, and students'comprehensive professional quality can be said to be improved in an all-round way. Here, the author takes the robot technology application training of the vocational group in the National Vocational College Skills Competition in 2014 as an example to illustrate the penetration of professional quality in the skill competition.

Competition index: assembly technology, assembly programming, function realization, occupation and safety awareness, etc.

Guidance process construction: Robot technology application contest includes three aspects: 1. Robot assembly programming; 2. Robot trial run; 3. Robot task run. The 3 task has the order of sequence. If we do not complete the first step, there is no way to achieve the next 2 steps. The assembly process includes two parts: mechanical assembly and electrical assembly. The main tasks of electrical assembly are: 1. motor wire routing; 2. sensor installation and routing; 3. circuit board routing; 4. wire terminal, wire number; 5. wiring; 6. cable tow chain installation. In the training of motor wire routing and sensor wire routing, teachers try different device positions, let students carry out different directions of the training. In the training of pressing terminal and threading number, it is mainly through repeated practice to reach the level of proficiency, but it is not easy to do a good job of threading and handling threads. In the process of tutoring, the teacher asked the students to practice repeatedly, so that the length of the thread stripped with stripping clamp is almost the same, after completing the line connection, use the multimeter to check the connection one by one, confirm the connection position, and achieve zero error. During the training, students should master the use of wire clamp, stripping clamp, electric soldering iron, multimeter and other measuring tools. At the same time, special emphasis is placed on occupational and safety awareness in the assessment indicators, which mainly covers the completion of all tasks in accordance with safety operating procedures; tool placement, packaging, wire head processing, in line with the requirements of professional posts and related industry standards; compliance with field discipline, respect for staffs in the venue, We must cherish the equipment and equipment of the athletic field and keep the workplaces tidy. In order to let the students remember the safety operation rules, the teachers arrange the training ground in the form of enterprise assembly and commissioning workshop, and put up the safety operation rules, correct operation steps, 7S requirements on the wall around to remind the students to remember; and in daily training, students are required to wear work clothes, insulation shoes. Wear safety helmet and so on, and the enterprise production request as far as possible consistent, takes the student to enter the enterprise, visits the enterprise, feels the enterprise culture.

Analysis: robot technology is becoming more and more common in our daily life, such as sweeping the floor, cleaning windows and so on. These robots often go through many processes in the production process, and many enterprises are increasingly using refined production to improve production efficiency. The equipment used in the robot technology application contest is ZKRT-300 automatic stacking carrier robot, which is mainly composed of mechanical mechanism and single-chip microcomputer control system. It is difficult for secondary vocational students. Through the training and accumulation of competitions, students have mastered the working principle and application of single-chip microcomputer, can carry out the programming, simulation and application of single-chip microcomputer, understand the types of sensors in life, and master the application of line patrol sensors and proximity sensors used in ZKRT-300,

and can skillfully transfer the knowledge of sensor application. It can control the direction of the robot by using the direction signal. This undoubtedly plays a great role in promoting the vocational quality of secondary vocational students, so that students have the ability to engage in the design, development and production of related products. At the same time, students have also reached a higher level of skills in the field of robotics technology application, in line with the needs of high-quality personnel for enterprise fine production, and provide a guarantee for employment. In the school to create a simulated enterprise environment, standardization requirements in the process of work, the formation of good professional behavior habits, help secondary vocational school students from "prospective employees" to "professional" smooth transition.

5. School enterprise cooperation assimilating professional accomplishment

School enterprise cooperation is a strong driving force for the development of vocational education. For vocational schools, the important value of school-enterprise cooperation is to timely understand the various needs of enterprises, such as job settings, entry requirements, professional norms, etc., so as to provide an effective basis for their own personnel training.

5.1 Success literacy infection

The school invites industry experts, outstanding entrepreneurs, successful entrepreneurs, alumni and enterprise experts from the region to give a series of lectures on professional literacy, to talk freely about the training objectives of enterprises, so as to further enrich the forms and contents of professional literacy training, broaden students' horizons, and promote students with real employment cases. Understanding level.

5.2 Infiltration of internships

The school actively seeks to cooperate closely with well-known electronic enterprises, such as Haining Tiantong Holding Co., Ltd., Zhejiang Shangcheng Technology Co., Ltd., Jinbao Electric (Zhejiang) Co., Ltd. These enterprises are advanced in technology, performance and word-of-mouth in the industry is obvious to all, and the school has established a stable off-campus practice and development base. During the internship and post practice in these enterprises, students will further infiltrate the enterprise culture and professional environment, learn the basic skills related to the professional knowledge of electronics and electricians, so as to clarify the specific requirements of the future career for professional quality, and provide a reliable guarantee for the smooth employment. Professional teachers often go deep into the enterprise, communicate with the person in charge of the enterprise, acquire students' professional qualities, so as to integrate the school's training management system with the needs of the enterprise, so that students in organizational discipline, behavior, dress standards and other aspects of strict requirements.

5.3 Penetration of innovative ideas

According to the intention of deep integration between school and enterprise, the school establishes a special base for innovation and entrepreneurship, and introduces entrepreneurs with innovation and entrepreneurship into practical teaching. Use the real environment of entrepreneurship, fully stimulate students' innovative thinking and entrepreneurial awareness, and enhance the ability to transform knowledge skills.

6. The cultivation value of professional quality

6.1 Follow up the training concept and create a compound talent

Secondary vocational schools urgently need to be in line with the regional economic development in the training mode, in order to cultivate middle and advanced applied talents for the purpose of running schools, which urgently needs to optimize the training framework of students' professional quality, so that students of electronic and electrical engineering not only have professional knowledge and operational skills, but also master some product performance, process and other aspects. Basic knowledge, so as to truly build a training mode of compound talents.

6.2 Promoting professional accomplishment and accumulating the strong motive force of career development,

secondary vocational students have the outstanding advantage of professional skills, which can be based on society

But we also see that there are still some obvious advantages in their innovative ability, teamwork and humanistic and moral accomplishment.

The shortage. The infiltration of vocational literacy education in secondary vocational schools can enable students to show more advantages in the employment market competition and fully realize the expected value of life.

6.3 Improve the ability of inauguration and enhance the core competitiveness of schools

The integration of vocational literacy education in vocational school professional teaching is helpful to enhance the vocational students' professional ability and comprehensive quality, achieve the training objectives, and then improve the employment rate. The great improvement of students' employment rate and development potential will surely win a good reputation for the school, establish a good social image, enhance the core competitiveness of the school, and truly achieve sustainable development.

6.4 Meet the needs of enterprises and export high skilled and sophisticated talents

At present, some graduates in society can not better meet the needs of social development, on the one hand, may be due to professional knowledge, skills are not firmly grasped; more importantly, many graduates do not have the enterprise needs of professional awareness, professional spirit. Career literacy education in secondary vocational education can enable students to have the ability to adapt to society, so as to successfully export high-skilled, quality talents, and promote the rapid development of enterprises.

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