The Realistic Choice of Modern Apprentice System Implementation in China--In The Case of Software Professionals Training

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Abstract : The implementation of the modern apprenticeship system is an important way to promote the teaching reform of vocational education and training (VET) in China. Due to differences of national conditions, how to carry out modern apprenticeship system in China's VET step by step is an important research subject worthy of study. In this paper, the subject is discussed, taking the software talent training as an example.

Keywords: modern apprenticeship system; vocational education and training (VET); school-enterprise cooperation

1. Modern apprenticeship traceability

1.1. From the traditional apprenticeship to the modern apprenticeship

Traditional apprenticeship is an ancient form of in which the masters train apprentices some professional skills. From a historical perspective, in order to make an industry to continue to develop, apprenticeship exists in most of the industry of the world. Apprenticeship was once an important manner of training our skills talents, but from 1980's to the early 1990's later, it was gradually replaced by the VET school [1].

Carrying out vocational education in the apprenticeship forms is more conducive to meet the needs of the labor market, to provide enterprises particular specific skills, to help the young people (especially the low achievement of learning) involved into education and work, to promote social integration, so in throughout Europe and the United States, the apprentice system obtained the fast development as a new vocational education and training types. Different countries form a different particular mode of implementation of apprenticeship according to their own national background. Apprenticeship becomes a formal VET form. Developing the modern apprenticeship system has become an important strategy in many countries [2].

1.2. The implementation and reform of modern apprenticeship in western countries

At present, most EU countries, Australia, Canada and other countries have established or are exploring the establishment of national modern apprenticeship system suitable for the need of economic development in the new era [3]. The apprenticeship system plays a very important role in the VET in contemporary Germany and Australia. It's a powerful supplement to the school VET in Canada, France, Ireland and England, etc.

With the rapid progress of the society, the Western apprenticeship is facing many challenges, such as the rapid change of economy and labor market, the impact of Higher Education Popularization, globalization and the talent flow and so on. In order to cope with the changing situation, the western countries make the continuous reform to modern apprenticeship at present, the common trends as follows: 1) the trainees in the apprenticeship system is expanded to include all staffs which have finished the compulsory education. 2) The occupation area is expanded from the traditional industries to new industries. 3) It makes the apprenticeship project hierarchical and modular, different ladders corresponding to different levels, different modules corresponding to different learning unit. 4) It pays attention to the cultivation of basic theory and general skills in order to guarantee the sustainable development of the trainees. 5) The emergence of third party training / intermediary structures replaces part of the role of the enterprises.

2. The implementation of the modern apprenticeship in China

2.1. The necessity of implementing the modern apprenticeship in China

At present, China's VET has made considerable development, regardless of secondary or higher VET owning nearly the same scale to the ordinary high school and higher education. However, China's VET still has many problems to be solved, such as: school-enterprise cooperation, work-study combination being not deep

enough, the students' learning enthusiasm being not high, the low rate of effective employment of students, new graduates unable to apply for a suitable job while enterprises unable to recruit suitable talent, a large number of migrant workers lack of proficiency in a particular line and the lack of a sense of belonging to the enterprise and so on. From the experience of western countries, the implementation of the modern apprenticeship system is an important way to deepen the reform of the VET. The following is the concrete analysis from the four aspects of enterprise, school students and government.

For schools, the implementation of the modern apprenticeship is the need to deepen the cooperation between school and enterprise, combination of working and studying. It is the need to expand enrollment scale, to improve the social benefit of schools running. It is the need to improve teaching quality and school running level.

To the enterprise, it is the needs to solve personnel structural shortage, to shorten the on-the-job training time and improve the training efficiency. It is the need to improve staff quality and the competitiveness of enterprises and undertake the social responsibility.

For students, the implementation of the modern apprenticeship is the need to improve their skills and solve the employment. It is the need to have an on-the-job learning and improve their comprehensive quality and the ability to sustainable development. It is the need to avoid blind study, improve the learning effectiveness and pertinence.

For the government, it is the need to improve people's livelihood, enhance the competitiveness of enterprises, to improve the quality of education, to form the development of the local economy and society in the virtuous circle. The introduction of active, effective and incentive modern apprenticeship development policies can provide more employment opportunities for the community, reserve more qualified technical talents for the enterprises, promote better development of local economy and society and improve the VET quality and benefit.

The following is to take the industry application software talents cultivation as an example to explain it in detail [4]. The application software industry is the expression, enhance and extend of knowledge and business in a particular industry, which requires software vendors to understand the nature of the industry and the operation rules, even more to provide the users with management knowledge and the information program at the same time. The enterprises of our country belong to different industry. The application of software in each industry has professional solution in specific field and owns the contents of system integration and technical support. The huge special needs makes industry application software in China and leads to high industry barriers to entry meanwhile.

The industry application talents trained in modern apprenticeship system can integrated the tech of one industry into the routine teaching and learning deeply and

early, promote the reform of talent training model and curriculum in software technology specialty, avoid setting the sameness of the course and improve the quality of graduation design. It promotes the graduates and employers "seamless" one step forward and improves the professional counterpart rate, thus improving the software technology professional employment quality, meanwhile promoting the teachers' team construction of Combination of full-time and part-time teachers in software profession.

For the software enterprise, the modern apprenticeship integrates the enterprise project into the curriculum and dispatch company engineers involved in specialized course teaching to ensure talent reserve more targeted, in which the enterprises can not only know the level of the students mastering the professional skills but also understand students' professional spirit and values, and enjoy priority privileges for recruiting outstanding students to reduce the expenditure on education and training costs. For students, it shortens the transition time from students to professional men. Therefore, school enterprise cooperation train application software industry talents through the modern apprenticeship mode, which is benefit for the three parts of schools, enterprises and students.

2.2. Starting point for the analysis of China's implementation of the modern apprenticeship

1) The difference between western countries and China.

The western modern apprenticeship does not disappear with the development of Vocational Education in school, but has introduced a series of force measure to improve and strengthen the implementation of the modern apprenticeship with the continuous development of economy and society. At the present stage, the government in China has not issued practical force measures to improve the initiative enthusiasm of enterprises to participate in school vocational education in the process of implementation of the modern apprenticeship, which results in the security deficiency of the school-enterprise cooperation. In addition, the western countries also pay attention to the technical talents and research talents equally, but in China, the long-term traditional concept of thinking highly of diploma and despising technical skills affects the development of Vocational education. These factors make the implementation of modern apprenticeship to be a gradual process at present. As the occupation colleges, the key research is how to integrate apprenticeship and formal education and promote the cooperation between school and enterprise.

2) The mode of the implementation of modern apprenticeship.

The mode of Qingyuan VET SCHOOL is divided into pre modern apprenticeship, close modern apprenticeship and standard modern apprentice system [5]. Pre modern apprenticeship is that the school recruits high school

graduates and culture them in a period of 3 years. In the first and second year, the students are mainly trained in VET school. The school teachers teach them the general theory of knowledge and skills, the teachers from the enterprises introduce enterprise culture and give some lectures. In the third year, the students are trained mainly in the workplace of the enterprise and each student has a master worker as their guider to train their work skills. The school teachers teach them the necessary theory as supplement at night and on weekends. Student can enjoy the treatment of employees of enterprises and be employed in the enterprises after graduation. Close modern apprenticeship is that the VET schools recruit students (apprentices) from the new employees in the enterprises, then the school and the enterprise cooperate to develop the talent training scheme. The students (apprentices) are mainly trained in the enterprise post, which don't leave their workplace with working and learning alternation. Student enrollment as enterprise employees can stay there to work after graduation. The common type of modern apprenticeship is that the VET school recruit fresh graduates of vocational high school, train them in a cycle of 2 years. Students can enjoy the treatment of employees after enrollment. In the first year students study general theories and skills in the school, then get specialized learning and training for the work skills in the enterprise in the second year. We can carry out the pilot and promote modern apprenticeship on the basis of Qingyuan VET SCHOOL.

3) Recruitment and selection of apprenticeship.

To enhance both parts confidence of school enterprise cooperation, the both parts of school and enterprise can recruit and select the most excellent student/staff and recommend to the other part at the beginning of implementation of modern apprenticeship. The more better basic and habit the students have, the more easier it's for the schools and enterprises to cultivate them successfully to complete their studies and be qualified staffs. On this basis, both parts of cooperation can select more and train more apprentices according to enterprises needs. The modern apprenticeship is especial attractive for the majority of the new generation of migrant workers [6].

4) Division of apprentice training. Based on full communication of school and enterprises both sides, a complete talent training scheme is made. The school is responsible for teaching the general theory of knowledge and skill, the enterprise is responsible for training the specific job skills and comprehensive and high-end skills. If the enterprise does not have the ability to direct students, it can ask the training institutions or other competent enterprises to train instead of it. Training costs can be further consulted.

The classic Java development technology in the software industry, which is studied by all school students, is a

technology of JavaEE architecture. But the updated JQuery architecture technology have been used in some small and medium-sized software enterprises. A student can select to study JavaEE in the school and study JQuery in the enterprise, as a result of apprenticeship.

2.3. Operation and supervision of the implementation of the modern apprenticeship in China

In order to make the modern apprenticeship to be operated in order, the both sides of the school and enterprise need set up specialized agencies with specialized personnel and formulate the relevant rules and regulations.

The VET school should make qualification recognition to companies or training institutions and trainers. The enterprises should actively participate in the formulation and implementation of the school of professional talent training scheme. Both sides should determine their respective division of labor in the teaching through the consultation.

3. CONCLUSIONS

This series of Vocational Education Conference and the vocational education reform documents issued will promote Chinese vocational education development better and faster. Modern apprentice system is received more and more attention and developed better in the occupation education system of western countries. Along with our country attaching great importance to occupation education, in the process of solving the problems with the occupation education development, the use of modern apprenticeship will gradually spread from small scale pilot to big scale implementation. The government will take some measures and issue some practical and operational policies to encourage students, schools and enterprises to actively participate in the implementation of the modern apprenticeship.

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References

- [1] Zhao Zhiqun, and Chen Junlan, China's occupation education apprenticeship, history, current situation and Prospect[J]. China occupation technology education, 2013 (18). (in Chinese)
- [2] Li Yujin, Implementation of school enterprise cooperation mode: the interaction and inspiration, apprenticeship development experience of foreign[J]. occupation and technology education, 2011(18). (in Chinese)
- [3] Guan Jing, and Shi Weiping, Features of western modern apprenticeship and enlightenment[J]. occupation technology education, 2011 (31). (in Chinese)
- [4] Gao Jiaqin, Develop software industry related professionals[J]. Heilongjiang higher education research, 2012(12). (in Chinese)
- [5] Zhao Pengfei, Exploration and practice of the modern apprenticeship[J]. China occupation technology education, 2013(10). (in Chinese)
- [6] Guan Jing, and Shi Weiping, modern, Apprenticeship and training of migrant workers[J]. The development of education research, 2013(11). (in Chinese)