The Construction of Teaching Quality Evaluation System of Modern Apprenticeship Based on Big Data

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Abstract. The apprenticeship system with teachers and apprentices has a long history in China, and has made great contributions to China's economic development, the inheritance of advanced technology and the progress of human society. Essentially, modern apprenticeship and traditional apprenticeships is consistent, namely have teacher, student and teacher to student's education and instruction, emphasize "in high school, learn to do", but its formation and the basis of the meaning and value is different from that of traditional apprenticeship, the main body of apprenticeships, forms, as well as the relationship between teachers and students, are changed.

Keywords: Big Data, Modern Apprenticeships, Teaching Quality, Evaluation System

1. Introduction

Modern apprenticeships are mainly embodied in the "modern", relative to the "traditional" is introduced, with the advent of industrialized mass production, there has been a fundamental shift production way, handicraft workshops, replaced the traditional enterprise large-scale production, the traditional apprenticeship in promoting people's all-round development, education training efficiency and challenged to the standardization of education. Therefore, the school vocational education model began to dominate, but there was also a drawback of disconnection between theory and practice, in order to solve this problem, "modern apprenticeship" came into being. "Apprenticeship" is a kind of skill teaching method which is mainly based on teaching by words and deeds in the actual production process.

2. Objectives of modern apprenticeships

Automobile application and maintenance major is mainly oriented to automobile maintenance major, cultivating good professional quality, mastering necessary scientific and cultural knowledge, and engaging in automobile maintenance, assembly and service work in the first line of production service
and management. Must be able to bear hardships and stand hard work, and have entrepreneurial spirit and strong ability to adapt to the application of technician talent.

2.1. Knowledge objectives

To master the basic knowledge of culture and computer application, map reading and drawing, mechanical foundation, electrical and electronic technology, automobile construction performance and maintenance, repair and testing, technical management, traffic safety and other basic theoretical knowledge required by enterprises beyond language and number.

2.2. Capability structure and requirements

Capable of reading drawings, drawing simple part drawings, testing basic performance of automobiles, analyzing and solving technical problems; Learn a foreign language, with the help of a reference book can read car instructions and maintenance manuals and other general foreign language materials. Have the ability of preliminary calculation and operation, self-study and acquisition of information, have the skill of automobile maintenance, automobile driving, and pass the examination of automobile maintenance worker grade.

2.3. Implementation process

The construction of the school's auto repair major is based on school-enterprise cooperation. Figure 1 below shows the training trend of craftsman talents under the modern apprenticeship system:

![Figure 1. Training trend of artisans under modern apprenticeship](image)

According to the sequence of time development shown in figure 1, China is currently in the historical transition period from a medium-sized country with economic development to an economic powerhouse[1-4]. As the leader of the construction of our school's automobile repair major and the implementation of modern apprenticeship, he has guided and established a professional teaching staff to promote the rapid development of our school's automotive Inspection and Maintenance. Achieved to recruit students that is to recruit workers, classes that is on the job, graduation is employment of the
teaching program. There are two steps to implement the modern apprenticeship system for students majoring in auto repair:

2.3.1. Is the theory of in-school teaching The theory of in-school teaching is to train students' basic cultural quality in the traditional classroom, and to teach the basic structure, principle and operation methods of modern automobile major. Set up the work curriculum and teaching objectives of the modern apprenticeship pilot program.

1. Students acquire professional theoretical knowledge and professional quality through the study of professional courses, laying a foundation for them to obtain high-quality employment and lifelong development.

2. Highlight the professionalism, practicality and development of the course. The combination of experiment and practice allows students to get standardized training in line with their professional characteristics.

3. Taking the project as the starting point and aiming at solving professional problems to strengthen the integration of courses, I will acquire the comprehensive ability to solve problems and improve my professional skills through the study of professional courses.

4. Students can get the edification of professional ethics through learning and cultivate the enterprise spirit of discipline, cooperation, innovation and competition.

2.3.2. Off-campus practice Off-campus practice courses are corresponding to the maintenance enterprises, because the first session of auto repair students less, the school training room construction is not mature. At this stage, we signed a cooperation agreement between colleges and enterprises, has been clear about the school and enterprise alternating training forms, students with two thirds of the time in the enterprise training, the rest of the time in school learning theory knowledge, the enterprise appointed teacher guide and supervise students in enterprise production skills training, students enjoy the apprentice wages during the training.

Enterprises and schools jointly formulate training content and training contracts. At the end of the training, let the students pass the national recognition of the vocational qualification certificate.

3. Daily management of modern apprenticeship pilot work.

3.1. Evaluation of teaching quality of modern apprenticeship based on big data

The school and the enterprise jointly formulate the training program, determine the corresponding content and cooperation mode, reform the teaching quality evaluation standard and the student assessment method, and include the student's work performance and the teacher's evaluation into the student evaluation standard. Under the guidance of the talent training objectives, the curriculum is set up according to the requirements and qualifications of enterprises, schools, teachers and teachers, with the participation of enterprises and schools, and a professional curriculum system suitable for modern apprenticeship is established with the main features of public curriculum + core professional curriculum + teaching projects. The core professional courses can be appropriately increase or decrease according to business demand, teaching program is completely on the demand of the
enterprise in the enterprise technical backbone professional development under the joint efforts of teachers and school courses which could fit for enterprises development, and Shared by the enterprise technical backbone and professional teachers teaching tasks, especially the professional practical teaching tasks. To construct the "diversified education program" as shown in Figure 2 below, it is necessary to deepen the cultivation to improve students' professional quality and ability:

![Figure 2. "Diversified education scheme" under modern apprenticeship](image-url)

During the students' apprenticeship, the enterprise will follow the whole process and closely cooperate with the teachers to pay attention to the students' study and life. Meanwhile, various scholarships will be set up, and skills competitions and contests will be held on campus or in the enterprise, so as to encourage students to learn professional knowledge and skills with bonuses. The enterprise participates in the class teaching in the whole process, sends the technical backbone to serve as the part-time technical teacher, and sends the master to serve as the student tutor. The school teacher often discusses with the master, and sets up the school-based curriculum which conforms to the student's theoretical study and enterprise practice. Students are under the dual management of the school and the enterprise during their study[5].

### 3.2. Implementation characteristics of modern apprenticeship

It fully embodies the principle of teaching students in accordance with their aptitude, and is a face-to-face education method between teachers and students, teachers and apprentices. Teachers and apprentices can fully understand each other, and students' technical ability and tendency can be trained, guided and educated. Face-to-face instruction can find out students' strong and weak points and be able to correct and guide them in the first place. It is conducive to the cultivation of students' professional ethics and the substantial improvement of their technical skills. This "elastic enhancement" is mainly formed through the frame structure shown in Figure 3 below:
As shown in figure 3, the structure transforms a naughty child who is tired of learning and classes into a good apprentice and student who is interested in his major. Since the master and his apprentices have been on the production line and have repaired many defective cars normally, the apprentices and students feel a sense of achievement and can solve problems together. Under such a common situation, such communication and feedback promote students' learning, students' learning questions are solved in time, students' learning interest is rapidly improved, and students' learning effect is obvious[6].

With the help of teachers, students are transformed into apprentices. With the help of teachers, students are no longer the passive recipients of technology and knowledge, but become the accomplices and activators of actual production tasks. Students are completely immersed in the operation, hands-on situation, can maximize the idea of concentrated participation in the learning process, so that the effect of learning and the will to learn to achieve the maximum.

4. Conclusion

The production of students under the guidance of teachers in enterprises improves students' social adaptability and experiences the similarities and differences between enterprise culture and school culture, thus making learning more directional and social and laying a foundation for lifelong learning. At the same time, it is also an opportunity for students to take part in practical work and examine their own abilities. Students can receive vocational guidance and receive vocational training on the site of enterprises. Through the training mode of mentoring students in enterprises, students can make their employment prospects brighter. There are also some students who are attracted by enterprises and sign employment contracts when they are waiting for jobs. Students undergo practical work training, greatly improve the sense of responsibility and self-cognition ability, become more mature, truly transformed into technical workers, has been praised by the enterprise.

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