

Research on the application of automobile application and maintenance specialty in vocational education teaching

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Abstract: *At present, automobile is one of the hot fields selected by many vocational students. In the teaching activities of automobile application and maintenance specialty, students should be explained the comprehensive knowledge of the professional field in combination with the development characteristics of the times and the development trend of the industry. Starting from the whole teaching process, this paper discusses the teaching process, understands the teaching application of automobile application and maintenance specialty in vocational education, and understands the teaching optimization strategy and direction of the specialty. Teachers should also make appropriate changes in teaching content and teaching methods in combination with the teaching characteristics of the specialty, so that students can understand the advantages of self-learning and help students develop a perfect learning plan, reflecting the development and application of vocational education.*

Keywords: *Automobile Application and Maintenance; Vocational Education; Teaching Application*

1. Introduction

The automobile application and maintenance specialty is one of the hot majors in the current vocational education. The specialty requires students to have a deeper understanding of the current comprehensive knowledge of automobile maintenance, which also meets the development needs of the current automobile field. With the gradual expansion of the automobile market, more professional technical and maintenance personnel are needed to meet the requirements of automobile maintenance. Therefore, market changes have brought new challenges and difficulties to the teaching of this major, as well as new teaching methods. For example, the project teaching method often used in vocational education needs to combine the educational problems and current situation of automobile application and maintenance specialty in vocational education, create corresponding projects, carry out teaching reform from the whole teaching process, and reflect the important application characteristics of automobile application and maintenance specialty in vocational education.

2. Status of professional and technical personnel in automobile maintenance

According to the data of relevant departments, there are more than 180000 automobile maintenance enterprises in China, and they are still growing. There are about four million employees who have undertaken the maintenance of more than 13 million vehicles. The proportion of technicians in the total number is low, and the proportion of senior engineers and senior technicians is low, and the number is small. After China's entry into the WTO, a large number of high-end cars and advanced technologies have been imported. China's auto industry has developed rapidly. The auto repair industry is facing more and more high-tech products, such as electronic fuel injection system, automatic transmission, brake anti-lock system, airbag system, variable valve, clutch automatic control system, drive anti-slide system, anti-theft system, computer integrated system, etc. The emergence of such high technology requires not only professional knowledge in automobile, but also knowledge in electronics, computer, foreign language and other aspects. At present, many maintenance companies teach their apprentices by master, and the first disciple teaches the younger disciple, and solve problems based on previous experience. High-skilled and application-oriented talents in automobile maintenance can no longer meet the needs of modern automobile repair.[1] To this end, we must improve the quality of teaching and improve the efficiency of running a school. The comprehensive deepening of education and teaching is a top priority.

From the perspective of practical experience, there are three major problems in the practical teaching of colleges and universities in China at present: first, the lack of effective market orientation for students. In this process, everyone should choose what they want according to their work environment instead of doing what they want to do. In this situation of eager for quick success and instant benefit, it is very unfavorable for the growth of students. Without a clear plan, it is difficult for students to adapt to real life in school. Second, some schools will artificially split the whole vehicle during practical training, which will not only occupy the teaching space of the school, but also increase the investment of manpower, material resources and funds, as well as the related teaching facilities cannot be fully utilized, resulting in many problems for students in practice, which will not only improve the comprehensive quality of students, but also make students' learning more abstract. Third, in vocational education, the simulation operation and mechanical operation in many schools are relatively simple, and students cannot integrate what they have learned in scattered teaching. In practice, if problems are found, they cannot find the root of the problems, which affects the process of students' theoretical knowledge to practical knowledge[2].

3. Countermeasures for teaching and application reform of automobile application and maintenance courses in vocational colleges

In order to achieve the goal of "ten million" mentioned in the "Fourteenth Five-Year Plan", build 100 work-study integrated training mode majors and improve the quality of training highly skilled personnel, under the background of vigorously promoting the work-study integrated training mode in vocational colleges across the country, it is necessary to adopt the school-enterprise cooperation mode, deeply explore the regional and industrial skilled personnel training mode, play the role of experts, and expand the coverage of professional curriculum reform and application. In the course reform of automobile application and maintenance, the main measures are as follows:

3.1 Strengthen students' practice and training

Teachers should put the cultivation of students' practical abilities in the real social environment. Therefore, while letting students learn relevant technologies, they should also let students learn to find problems, analyze problems and deal with problems. Practical teaching should focus on "practicality", so that every student can experience it personally, so as to better promote the comprehensive quality of students. For example, when learning the structure and working principle of the gearbox, the teacher takes the students to the scene to observe and observe, so that the students can have a clear understanding of the structure and working principle of the gearbox, and have an intuitive understanding of the structure and working principle of the gearbox, so as to improve the students' thinking ability, improve their learning enthusiasm, change the teaching effect of the students, and let everyone find and solve problems. At the same time, in the classroom, the teacher will also give more strict guidance to the problems that students encounter in the actual operation, so that students can find problems in practice, so as to avoid future problems.

The knowledge of automobile maintenance specialty is very broad, and the traditional teaching method, from theory to practice, cannot achieve the expected effect. In practical teaching, case analysis can be used to make students feel that the original profound theoretical knowledge is so closely linked with real life. For example, the anti-lock braking of ABS tires. Many cars will feel the brake vibration when they brake hard. This is very normal. At this time, students will certainly be interested. Now introduce this part, the working process of ABS tire anti-lock device. If you understand the working principle of ABS, you will understand how it works. Through learning, students can not only understand the existence of life phenomena, but also understand the working process of ABS, realize that learning theoretical knowledge can be used to interpret various life phenomena, not only stimulate students' learning motivation, but also lay a foundation for future learning.

3.2 Gradually implement practice teaching

The purpose of practice is to let students improve their strength in practice, so practice should be gradual, and at the same time, let students grasp some of the rules in practice, so that students can learn in their own way, lay a solid foundation, and cultivate students' self-confidence. For example, some maintenance problems are relatively difficult. Let students think for themselves, and it will be very difficult to solve them. But if we can connect the new and old knowledge, let students start with the most basic problems, gradually develop their own ideas, and let students understand and apply what

they have learned, which can not only make students' actual operation more smooth, but also combine theoretical knowledge and practical operation, so that students' learning process is more perfect.

According to teaching needs, a large amount of money was invested to purchase advanced teaching equipment such as BMW/Toyota sedan, assembly components such as Dongfeng and Santana, motor, automatic transmission, computer car four-wheel alignment instrument, decoder, etc. Establish special classrooms and automobile technology training centers for engine application, comprehensive fault diagnosis and automobile electronic control system, and strive to achieve advanced, complete and practical teaching facilities. The practical professional courses such as automobile structure, electronic injection engine, automobile fault diagnosis and testing will be mainly taught and trained. Set up corresponding special classrooms, equipped with one or several sets of special equipment, wall charts, model teaching aids, etc., to meet the needs of the training teaching mode. In the classroom, the teacher explains and demonstrates, and students can conduct training in operation, use, testing, diagnosis, maintenance, etc. It can be said that this way makes the teaching mode of vocational education very different from that of ordinary colleges and universities, and fundamentally changes have taken place in the teaching content and form. Through the understanding of the complexity of vehicle structure, maintenance and testing equipment, students can better understand the theoretical knowledge they have learned, so as to achieve the training purpose of vocational colleges.

3.3 Pay attention to the technical guidance of standardized operation

The automobile maintenance industry is relatively difficult. The gap between our country's automobile maintenance industry and foreign automobile maintenance industry is relatively large, mainly due to the lack of standardized understanding of the management personnel of the automobile maintenance industry, and many non-standard situations have occurred in the actual operation, which has caused a large gap. For example, Japanese auto maintenance companies have high requirements for practical operation. When installing engines, they will have very clear regulations on the installation environment and conditions. What should be installed first, and then, should be carried out according to the most stringent standards. Every step cannot be changed. However, in China, this kind of standardized operation is difficult to implement, which is also one of the important reasons why Japan's automobile industry is famous around the world. Therefore, in normal teaching activities, we should strengthen the training of students' operating skills, achieve standardization, and have strict standards and operating procedures, so that students can strictly follow the requirements to improve their ability.

3.4 Construct majors and optimize course configuration

The vocational teaching mode should start from the actual situation of vocational education and go deep into the actual work of student education, rather than follow the path of formalism. According to the actual situation of vocational education, we should formulate phased training objectives, formulate targeted talent training plans, and improve the ability of "combining work and learning". In the post practice of "work-study combination", the school should start from improving students' ability and improve students' skill application level in practical work. The teaching mode of "work-study combination" optimizes the curriculum structure of automobile application and maintenance specialty. Teachers should highlight the subjectivity of students and implement the idea of "work-study combination" into practical work. In addition to imparting basic theoretical knowledge, they should also guide students according to their actual conditions, so as to form a three-dimensional curriculum system of automobile application and maintenance specialty and promote the healthy development of vocational education.

Students play a major role in the learning of knowledge, and school is the stage for students to acquire knowledge, providing students with a learning environment. Therefore, in the process of implementing the "work-study combination", we should fully recognize the current social and industrial development. For example, the current automobile industry in China is developing rapidly, and many new production technologies are constantly emerging. Therefore, when carrying out the "work-study combination" teaching, vocational colleges should keep close contact with the industrial departments, avoid old rules and bad habits, not hinder students' learning, and give full play to the advantages of educational resources, According to the requirements of "combination of work and study", a training program that meets the requirements of the times has been formulated. Vocational colleges and universities should adhere to two basic principles: first, they should grasp the industrial dynamics in a timely manner, integrate new technologies and new concepts into the teaching activities of "combination of work and learning", follow the trend of the times, and promote the development of

the automobile industry. Second, when implementing practical training courses, we should pay attention to strengthening the teaching of theoretical knowledge to prevent the excessive use of "work-study combination", break the main structure of teaching, adhere to the principle of "theory based, practice as the" icing on the cake ", and not" dominate ", so as to improve students' creativity.

3.5 Promote school-enterprise collaboration and strengthen sustainable development

Without on-the-job training, students are bound to go through a period of transition when working in enterprises. In the process of implementing the teaching mode of "work-study combination", "school-enterprise cooperation" and "industry-teaching integration" in vocational schools, it is very helpful for students' actual work. Vocational colleges can save a lot of practice equipment by adopting this kind of teaching mode. Influenced by the teaching mode, they can establish strategic cooperative relationship with enterprises. During the internship, enterprises can observe the work performance of students. For students with practical application ability, they can sign employment letters. After graduation, they can directly work in the company, which saves the time and cost of training personnel. It can also solve the employment problems of some students for vocational education, which is a win-win strategy for enterprises and schools. In the process of training professional talents, vocational colleges need to cooperate with some excellent enterprises in the society in combination with the current development of the automobile field, so that students can go deep into the production work of the front line of the enterprise, exercise their practical skills, and also let students understand the nature of their future work and their career planning. By strengthening the collaborative development between schools and enterprises, both schools and enterprises can carry out talent training, so that the whole talent training work can not only stay at the education level of schools, but also enter the social training level, so that students can contact social knowledge in advance, understand the nature of work, truly realize the comprehensive talent training objectives of students, and achieve the goal of moral education.

4. Conclusion

To sum up, the automobile application and maintenance specialty is a highly practical specialty, requiring teachers to focus on cultivating students' comprehensive practical skills, reflecting the new standards and requirements of the current era for talents in the automobile field. Therefore, cultivating students' practical skills in teaching is an important way to solve current teaching problems. Only by strengthening professional teaching reform and strengthening students' practical training can students effectively accumulate experience in front-line work, adapt to the environment and meet the competitive needs of the current fierce talent market.

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