

Application Status Analysis of Modern Apprenticeship in Industrial Robot Course of Secondary Vocational School

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Abstract

Through the in-depth analysis of the current situation of modern apprenticeship in secondary vocational schools, this paper takes the course of industrial robots as the starting point, discusses its existing problems and causes, and puts forward the corresponding optimization strategies. The research focuses on the problems of enterprise participation, teaching model and so on. The results show that the modern apprenticeship system faces many challenges in the secondary vocational schools, such as the low participation of enterprises and the single evaluation of teaching. To solve these problems, the paper puts forward some optimization strategies, such as strengthening policy guidance and improving teaching evaluation mechanism, in order to promote the healthy development of modern apprenticeship in secondary vocational schools.

Keywords

Modern apprenticeship; Secondary vocational school; Enterprise participation; Industrial robot.

1. Introduction

Since 2014, The State Council and the Ministry of Education have successively issued the Decision on Vigorously Developing Vocational Education and the Opinions on Carrying out the Pilot Work of Modern Apprenticeship. From 2015 to 2017, the Department of Human Resources and Social Security and the Ministry of Education successively issued documents such as the "Notice on the Pilot Work of New Apprenticeship in Enterprises" and the "Notice on the Announcement of the first batch of Modern Apprenticeship pilot units". The General Office of the Ministry of Education issued the "Notice on Doing a good job in the pilot work of Modern Apprenticeship in 2018", at the same time, the Ministry of Human Resources and Social Security in order to promote the further development of modern apprenticeship on October 12, 2018, the "Opinions on the comprehensive implementation of new apprenticeship in enterprises". [1] By establishing a cooperative relationship between secondary vocational schools and enterprises, the education concept of "modern apprenticeship" enables schools to have a deep understanding of the current market employment standards, and enterprises can also use the power of school education to break through their own barriers in terms of technology or personnel structure, thus achieving a good situation of two-way promotion.

2. Overview of Modern Apprenticeship

2.1. Connotation of modern apprenticeship

Modern apprenticeship is a new training mode of technical skills proposed by China's education department, which refers to the training of students' skills on the basis of in-depth cooperation between schools and enterprises, and joint teaching by teachers and enterprise masters [2]. Compared with the traditional education mode, the biggest difference of the modern apprenticeship system is that it pays attention to the inherited characteristics of practical skills, and focuses on the construction of production and education collaborative education system, so as to strengthen the school-enterprise dual body collaborative education mechanism.

2.2. Characteristics of Modern Apprenticeship

Modern apprenticeship breaks through the traditional teaching mode, through the school and the enterprise jointly build the framework and system of education, the school and the enterprise work together to implement the teaching plan to train talents. Under the teaching mode of modern apprenticeship, the roles of students and teachers are no longer limited to teachers and students, but also the new identity change of masters and apprentices. The guidance process in the teaching process is not only the unilateral guidance of school teachers, but also the new guidance object of enterprise teachers. Through the deep integration of classroom learning and on-the-job training, students can internalize their knowledge and strengthen their skills. Through the establishment of a joint management system between the school and the enterprise, both sides participate in the optimization of training programs, process monitoring and outcome evaluation, forming a new management system.

2.3. The Role of Modern Apprenticeship in the teaching process of secondary vocational schools Modern apprenticeship plays an important role in the teaching of secondary vocational schools.

First of all, it is conducive to promoting the teaching of secondary vocational schools and the production requirements and needs of enterprises. The improvement of education quality in secondary vocational schools is related to the teaching content and the job requirements of enterprises, as well as the coordination and matching degree between the teaching process and the production process of enterprises. Secondly, modern apprenticeship education can effectively promote the cooperation between secondary vocational schools and enterprises, which can provide students with a large number of practical operation opportunities and lay a solid foundation for students to enter the work field in the future. In addition, in the real working environment, it can also cultivate students' creative spirit and craftsman spirit, and improve students' working ability and learning ability.

3. Teaching Status of Industrial Robot Courses in Secondary Vocational Schools

3.1. Teaching content does not fit well with vocational positions

At present, in the teaching application of secondary vocational schools, the content of industrial robots is biased towards theories, and there is little teaching content about robot programming and robot development and application [3], resulting in insufficient knowledge reserve of students. As a result, students often have a kind of thought in their study, that is, students think that the knowledge they have learned is not much help to their work, or even can not apply the knowledge they have learned to practical work, so that students do not know what the knowledge is useful for work, and have no enthusiasm to learn, and even difficult to be qualified for the job in the future. At present, many students passively follow the teachers' ideas to learn,

and the cases and relevant materials provided in the books are outdated. After learning the cases in the books, students find that the products have been produced many years ago, and they also have contempt for the classroom teaching of teachers, thinking that they can hardly play a role in the future study after learning the knowledge. As a result, students' learning mood is extremely low.

3.2. Single teaching mode

In the current teaching of industrial robots in secondary vocational schools, the teaching methods adopted by teachers are relatively simple. In class, students are basically simply imparts theoretical knowledge, while students passively accept memorization and repetition. This traditional and outdated classroom teaching mode seriously restricts the development of students' professional ability and reduces the quality of talent training. The main reason is that professional teachers lack of curriculum design, making the curriculum less attractive and creative, and less resonance with students, affecting the interaction between teachers and students. Classroom teaching must always adhere to the principle of student-oriented and teacher-oriented teaching. At present, it seems that most teachers still adhere to the traditional educational concept that education is preaching, instructing and dispelling doubts, and pay attention to implanting knowledge while neglecting the cultivation of students' innovative ability [4].

Today's society is the era of knowledge explosion, the speed of knowledge renewal is unprecedented, that only imparting knowledge teaching method can not meet the needs of modern science and technology development. Moreover, many teachers only pay attention to how much knowledge has been taught and neglect how much knowledge students can actually master. And the teaching methods are too backward. In today's rapidly changing information society, many teachers do not update their teaching methods in time. Many teachers still choose to use too old examples to explain knowledge points, which usually results in students' knowledge in class cannot be combined with their daily life, and students will not carry out in-depth learning and understanding after class. We should realize that what we have learned must be closely related to our society and daily life. Only such knowledge can better stimulate students' interest in learning, so that they can learn relevant knowledge independently and take the initiative to learn.

3.3. Students' ability to think independently is weak, and it is difficult to manage

The process of listening and learning in class. It is difficult for secondary vocational students to concentrate their attention and cannot concentrate their attention on class in time. In the process of teaching, students tend to wander frequently, be attracted by other non-classroom factors inside and outside the classroom, and are very easy to be disturbed. When teaching activities are carried out in secondary vocational schools, most students are easily disturbed in the course of class. After hearing a subtle sound, their attention quickly shifts to the point where the sound is emitted, and in the next few minutes, their attention cannot quickly shift to the class. When the teacher asks questions about the teaching content, the students often do not respond or react slowly. This is reflected in the fact that after the teacher has taught the second knowledge point, the students' attention and thinking are still in the previous knowledge point, and they cannot keep up with the rhythm of the teacher's teaching in time, which leads to the very low efficiency of the students' learning in class. Moreover, quite a number of students seem to be looking at the blackboard and the teacher, but their minds have already flown out of the classroom, thinking free, unaware of the content being taught by the teacher and the teaching activities going on in the classroom.

Another performance of secondary vocational students in class is that they cannot think independently. In the teaching activities of teachers, they are often accompanied by classroom questions and book questions. However, in this process, the phenomenon that often happens is that the originally noisy class becomes silent, and students are confused about the teacher's questions, and then under the guidance and prompt of the teacher, students can give an incomplete answer to the question. In fact, in the real teaching process, the questions asked by the teacher are generally about the knowledge points just explained, but the students have low attention and can not think independently, so there is a great dependence on the teacher.

3.4. The outstanding problem of the current apprenticeship system is that enterprises do not pay enough attention to the training of apprentices.

Modern apprenticeship requires the active participation and deep cooperation of enterprises, but in practice, enterprises often lack the enthusiasm to participate. This is mainly due to the concern of enterprises about affecting the production schedule, increasing management costs and revealing trade secrets. In addition, some enterprises have insufficient awareness of modern apprenticeship and do not fully realize its importance for talent training and enterprise development, which also leads to their low participation enthusiasm.

4. How to Deal With The Problems Arising in The Teaching Process

4.1. Combine practical engineering cases with classroom content.

The goal of talent training in secondary vocational schools is to enable students to be proficient in operation and practice when they enter the workplace. Schools can set specific goals to strengthen students' robot programming ability to meet the needs of enterprises for talents. Taking the form of teachers and teachers, the work cases of enterprise teachers are combined with the teaching content of teachers, so that the teaching content is closer to the vocational position. Teachers should be based on the actual needs of enterprises, based on specific processing examples, guide students to analyze, and use the theoretical knowledge learned, to carry out the theoretical operation of robot programming. Enriching the current traditional teaching content will directly affect the effect of training talents at the end of the course. When formulating the course content, the teaching should be employment-oriented and closely focus on "improving students' robot programming ability". This not only strengthens the ability of students, but also strengthens the dual identity of students as apprentices, shoring up the connection between schools and enterprises, enabling students to have a deeper understanding of the current work tasks of enterprises and follow the footsteps of modern processing and manufacturing industries, laying a good foundation for future employment [2].

Schools should sort out and adjust the curriculum content according to professional standards and industry needs. Integrate professional standards into the curriculum to ensure that the knowledge and skills acquired by students are in line with the requirements of the profession. At the same time, the update of the course content should also keep pace with the pace of career development, and timely reflect the application of new technologies, new processes and new methods. Practice training is an important way to connect learning content with career. By participating in the internship training, students can experience the workplace environment, understand the career requirements and work processes. Schools should actively cooperate with enterprises to provide more internship opportunities for students. In addition, schools can also organize career experience activities, such as business visits, career interviews, etc., so that students can have a more intuitive understanding of the career world. In addition to the study of professional knowledge, schools should also focus on cultivating students' vocational skills and literacy. The vocational skill level and comprehensive quality of students can be improved by setting up vocational skill courses, organizing vocational skill competitions and carrying out

vocational quality education. In this way, students can better adapt to the career needs in the future workplace and better play their potential. Through the implementation of these measures, students can better adapt to career needs, improve employment competitiveness, and achieve a win-win situation of personal value and social value.

4.2. Build a diversified teaching model and introduce Apprenticeship into the classroom

During the implementation of the modern apprenticeship teaching model, teachers must fully combine the actual situation of students, professional characteristics and requirements of education and teaching objectives to carry out corresponding course design, with the help of scientific and reasonable educational design, to promote the modern apprenticeship teaching model to give full play to its own advantages. In the process of teaching design, teachers must combine the actual situation of students, according to the interests of students, learning habits and acceptance, etc., to design a relatively reasonable modern apprenticeship teaching classroom development mode, so as to effectively ensure that the teaching effect reaches the expected goal. In the process of education and teaching, teachers should be fully aware of the students' subjectivity in their own guidance and learning activities, adhere to the principle of the joint role of teachers and students, and use flexible and effective teaching measures to promote the coordination, interaction and mutual influence of teaching and learning activities.

4.3. Set clear learning tasks and drive students to think that

When students participate in classroom activities in the classroom, they are often at a loss for the classroom tasks assigned by teachers. At present, in the classroom teaching activities of secondary vocational schools, teachers often let students watch the examples or cases in the book after explaining a knowledge point to further understand the knowledge point, and then carry out classroom questioning and other teaching activities. However, secondary vocational students are often indifferent to the temporary tasks assigned by teachers in the classroom. After the tasks are issued, teachers need to urge and supervise them for many times before they slowly concentrate on completing the relevant tasks. As a result, the teacher's original teaching rhythm is interrupted, and the effect of continuing to teach is not as good as before. Therefore, teachers should make clear the learning objectives and related learning tasks of a class to students before the class activities begin. Then, in the process of teaching activities, teachers should actively teach around the objectives and related tasks of the class, so that students can participate in the classroom teaching activities with learning objectives and tasks. This can not only improve the attention of students, so that their spirit is concentrated, but also can make the teacher's teaching more smooth, achieve good teaching effect, improve the quality of teaching.

In the face of secondary vocational students' weak independent thinking ability and reluctance to think positively, teachers should lead students to think in the classroom teaching process, starting with the simplest questions and gradually going deep into complex questions. Teachers can actively guide students' answers and give students few but refined prompts. In this way, students can answer the questions after the teacher prompts them only a few sentences. This is of great help to increase students' interest and improve students' participation in class. At the same time, in the process of answering questions and thinking, teachers should actively encourage students, give them positive encouragement before they answer, and give them full affirmation after they answer, which can better increase students' self-confidence and make them have enough confidence to participate in class activities. A large part of the reason why secondary vocational students are not good at independent thinking is the lack of encouragement and affirmation from teachers. Teachers should encourage and affirm students in time so that students can better participate in the process of thinking.

4.4. The government, schools and enterprises should strengthen cooperation to make apprenticeship better carry out With the continuous development

Of modern vocational education, modern apprenticeship is an effective talent training model, and plays an increasingly important role in promoting the integration of industry and education and cooperation between schools and enterprises. However, in the actual implementation process, the enthusiasm of enterprises to participate in modern apprenticeship is generally not high, which has become a key factor restricting the further development of modern apprenticeship. Therefore, how to improve the enthusiasm of enterprises to participate in modern apprenticeship has become an urgent problem to be solved.

The government should further strengthen the policy support for modern apprenticeship, and reduce the cost burden of enterprises participating in modern apprenticeship through tax incentives, capital subsidies and other ways. At the same time, improve the relevant laws and regulations, clarify the rights and obligations of enterprises in the modern apprenticeship system, and provide legal protection for enterprises. In the process of promoting modern apprenticeship, the interests of enterprises should be fully considered to ensure that enterprises can obtain tangible benefits by participating in modern apprenticeship. For example, it is possible to jointly develop new technologies and new products through school-enterprise cooperation, or to use apprentices to carry out production internships to reduce enterprise labor costs. School-enterprise cooperation is an important basis for the implementation of modern apprenticeship. Enterprises should strengthen communication and cooperation with secondary vocational schools, jointly develop talent training programs, and jointly participate in curriculum design, practice and training. Through in-depth cooperation, resources are shared and advantages are complementary, and enterprises' enthusiasm to participate in modern apprenticeship is enhanced. It can also widely publicize the advantages and benefits of modern apprenticeship through media publicity, holding forums, sharing successful cases, etc., and improve the awareness and recognition of modern apprenticeship in society. At the same time, enterprises are invited to participate in relevant activities, so that they can experience the charm of modern apprenticeships, so as to stimulate their enthusiasm to participate. For enterprises that actively participate in modern apprenticeship and achieve remarkable results, the government and society should give some recognition and reward, in order to encourage more enterprises to join the practice of modern apprenticeship. At the same time, the competition mechanism between enterprises can be established to stimulate the sense of honor and competition of enterprises by selecting excellent enterprises and excellent apprentices.

To improve the enthusiasm of enterprises to participate in modern apprenticeship system needs the joint efforts of government, enterprises and secondary vocational schools. Through the implementation of measures such as optimizing policy support, clarifying enterprise interest protection, strengthening school-enterprise cooperation, expanding publicity and promotion, providing financial support, establishing incentive mechanism, simplifying participation process and strengthening training and guidance, enterprises can be further stimulated to participate in modern apprenticeship and promote the healthy development of modern apprenticeship.

5. Conclusion

To sum up, the modern apprenticeship teaching model is very much in line with the needs of vocational college education and teaching activities in the new era. Applying the modern apprenticeship teaching model to the industrial robot education and teaching process in vocational colleges can not only effectively promote the steady improvement of the scientific and rational teaching in vocational colleges, but also promote the precise docking of the supply

and demand chain of talents between schools and enterprises. In this context, vocational colleges must focus on strengthening the in-depth analysis and research in the application process of modern apprenticeship teaching mode, so as to help the smooth development of teaching reform and provide more practical high-quality comprehensive quality talents for the society.

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