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Research on the Training Mode of Industrial Robot Technology Specialty Students based on the Integration of Production and Education

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Abstract

With the development of intelligent manufacturing industry, the industry has put forward higher requirements for technical talents, which requires the seamless connection between Vocational Colleges and industries and enterprises to cultivate high-tech skilled talents.In this paper, combined with the regional industry of Zhejiang Province and Wenzhou, under the guidance of the concept of industry education integration education, first of all, establish the school enterprise industry education integration space, create the class form and curriculum system, and then rely on regional enterprises and colleges to carry out project teaching practice, and establish a multi subject evaluation system.It is proved that the teaching effect of robot is good based on the teaching practice of industrial specialty.

Keywords

Integration of production and education, Industrial Robot Technology, specialty students, Teaching Mode.

1. Introduction

"Made in China and Zhejiang" has occupied the global market rapidly in the past with the advantages of low cost and mass production produced by agglomeration and intensification.At present, due to the rise of factor costs and the impact of new business forms such as Internet e-commerce, these strengths are weakening. With the development of social economy, the demographic dividend gradually disappears, and the problems of "difficult recruitment" and "expensive employment" become increasingly prominent. To improve the competitiveness of Zhejiang manufacturing industry, we must enhance the technological core of Zhejiang manufacturing and take the road of intellectualization.In order to realize the intellectualization of manufacturing industry, "machine for man" needs a large number of industrial robot technical talents and technical support [1].

In recent years, for the integration of industry and education, school enterprise cooperation, the field of education has made more practical exploration. As a talent training mode of vocational education, the integration of industry and education is widely implemented in Colleges and universities, and the cooperative relationship between colleges and regional industry enterprises is widely established.Following the trend of "Internet plus" development, and taking the deep integration of vocational education and industrialization as the main line, the training of industrial robot technology professionals has always adhered to scientific development. It has insisted that science and technology service enterprises lead occupation construction, and manufacturing industry based on industry. Relying on the industry and industry, we will develop the robot technology special students with the integration of production and education. However, the current integration of production and education,

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school enterprise cooperation is still at a relatively shallow level, enterprises lack of initiative and consciousness, loose cooperation mode and low level of cooperation.Mainly for the following aspects. [2-4]

(1) The government policy encourages the integration of production and education, and the talent training mode of school enterprise cooperation;

(2) Higher vocational colleges are the main body of promoting school enterprise cooperation, and the degree of enterprise participation is low [5];

(3) The current situation of school enterprise cooperation of industrial robot technology major in our university: finding the win-win point of both sides is the key to stimulate enterprises to participate in the integration of production and education and school enterprise cooperation in education.Based on this understanding, the professional fully discusses the basis of cooperation with enterprises. The rapid development of industrial robot industry, the rapid growth of talent demand, talent shortage has become a bottleneck of enterprise development. Therefore, in order to meet the employment needs of enterprises as the basis point of school enterprise cooperation, the professional and industry cooperation is close, and the integration of training, practice and employment is realized. We should deepen the integration of production and education, dual education, school enterprise cooperation to jointly cultivate industrial robot talents, strengthen the penetration of "teaching" in the integration of production and education, and realize the integration of production and teaching, learning and work.

2. The Design of the Training Mode of the Integration of Production and Education

2.1. The Basic Idea of the Integration of Production and Education

Based on the industrial robot technology specialty training mode based on the integration of industry and education, relying on the Institute's R & D platform, intelligent manufacturing training center, and Mitsubishi Electric, ABB Robot and Omron, the industry education integration platform is established, and the college and enterprise are used to formulate the professional standards and standard system for the cultivation of specialty students conforming to the R & D and production of enterprises, as shown in Figure 1 In order to meet the needs of the school and the needs of the refined talent training program, in the form of tutor system to cultivate students with technical expertise.

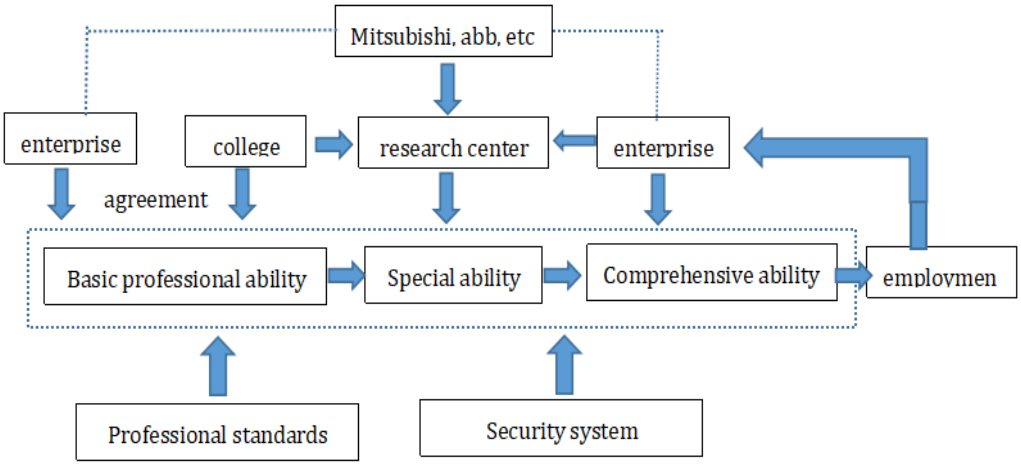

Fig 1. Industry education integration and school enterprise cooperation jointly cultivate the training system of industrial robot technology specialty students

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2.2. The Construction of Teaching Space Integrating Production and Teaching

The basic feature of the creation of teaching space of integration of production and education is to integrate the characteristics of school teaching and enterprise production technology. Its physical space is mainly based on the in campus R & D platform and enterprises outside the school. The traditional off campus training base is an upgrade of the traditional off campus training base. The off campus training base emphasizes that students are "doing" and less "teaching". The "teaching space of integration of production and education" is characterized by students with special skills, which are integrated into the teaching environment in the R & D platform and enterprise production environment. It can realize "centralized (Group) learning, divided post work, sub post work, centralized summary", providing an environment for students to communicate with each other, answer questions and solve doubts.

2.3. Class Form of Industrial Robot Technology Specialty Students

"Integration of production and education" takes small class (10-20 students) as the basic form of the class. Our school has set up many "R & D platforms" for cooperation between schools and enterprises. Students choose different "R & D platforms" for school enterprise cooperation according to their own preferences, and students who have the same preference for enterprise career voluntarily form a class. This kind of class formation is characterized by "tutor + project", which not only meets the needs of enterprises, but also helps students to carry out team cooperation. At the same time, because it meets the needs of students' career preference, it is more conducive to students' career ideal.

2.4. The Construction of Curriculum System of Integration of Production and Education

In order to provide the basis for realizing the integration of industry and education and the differentiation of talent cultivation in school enterprise cooperation, and meet the individualization of students in special classes, the dynamic adjustment of specialty module curriculum module mainly emphasizes the cultivation of professional ability. The "specialty" module mainly includes comprehensive courses refined by projects under Research on the platform and enterprises. The curriculum content is flexible, including automatic production line, automatic detection technology, etc, Pay attention to the cultivation of students' comprehensive design, research and development ability and innovation ability.

3. Application and Practice of Teaching Mode based on Integration of Production and Education

3.1. Teaching Objectives of Integration of Production and Education

Relying on the college's scientific research platform and production teaching integration training base, it actively carries out scientific research and technical services, adheres to the school running practice of "building the service platform for whatever enterprise problems exist in the region; cultivating talents for new technology application as long as the region has any new technology demand"; actively carries out the research and development of enterprise projects, promotes the transformation of scientific and technological achievements, and forms a project-based carrier, The biggest bright spot of teaching resource library in teaching activities is to transform the advantages of production and education integration into skill resources, and to realize the transformation of professional theoretical knowledge into innovation and entrepreneurship practice by taking projects as the carrier and combining teaching with research.

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3.2. Practice of Dual Tutor Project Teaching in School Enterprise Cooperation

Based on the integration of production and education, the training teachers of industrial robot specialty students are composed of professional teachers, R & D platform teachers and enterprise backbone. Each tutor connects at least one enterprise and project, and is responsible for the actual combat teaching and student management of the enterprise.

To carry out the dual tutor project teaching of school enterprise cooperation, establish a competency based, student-centered curriculum system, students participate in the tutor's R & D projects, carry out the project-based, task-driven training mode, and explore the practical working situation of school + enterprise tutors in the "project oriented, task driven" mode. In the content design of new technology course, tutor is involved in the design of course content. In the course of teaching, research and explore the real situation of the implementation of teaching methods. This paper studies how to carry out robot + production line intelligent technology teaching combined with real enterprise projects, and studies the new technology application practice with students as the main body in the factory practice environment.

3.3. Relying on the Integration of Production and Teaching, Cultivate the Students' Innovative Spirit and Entrepreneurial Ability

To improve the ability training mechanism, relying on the integration of production and education, and starting from solving the actual technical problems of enterprises, we should carry out innovation training programs for students with special skills and carry out innovation ability training. The entrepreneurial team will transform the innovation training results and start a business in the entrepreneurship base.

On the basis of learning the core courses of professional comprehensive ability, we should improve the innovation project, connect the entrepreneurial team with the innovation project development team, and participate in the innovation and entrepreneurship competition to enhance the core competitiveness of the innovation and entrepreneurship team. The innovation and entrepreneurship team will stay in the incubator base. Abb, Mitsubishi and other enterprises evaluate innovation projects, introduce venture capital, and boost the growth of innovation and entrepreneurship enterprises.

3.4. "Multi Subject" Evaluation Method

The cultivation of industrial robot technology specialty students adopts diversified evaluation methods, which not only pays attention to the evaluation methods of college students, but also pays attention to the evaluation of students' technical skills by enterprises, and establishes the employment feedback mechanism. In addition to teacher evaluation, let enterprise mentors also become one of the main evaluation subjects, form a strong school enterprise cooperation, dual education mode, mobilize the enthusiasm of enterprises to participate, so as to improve the quality of learning, and continue to improve.

4. Conclusion

The research of teaching mode in this paper takes the cultivation of industrial robot technology specialty students as the breakthrough point, introduces the teaching mode of industry education integration and school enterprise cooperation, constructs the teaching space of industry education integration, the curriculum system of industry education integration and the new form of teaching class. In the teaching practice, the typical real projects in school enterprise cooperation are used as teaching resources, and the multi subject evaluation is used to evaluate the industrial robot The cultivation of technical and skilled personnel can cultivate talents in Zhejiang Province and Wenzhou area and serve the regional economy. It is proved that the teaching effect of robot is good based on the teaching practice of industrial specialty.

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