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Exploration and Practice of the "1+3+1" Talent Training Model for The Integration of Secondary and Higher Vocational Education Based on the Integration of Industry and Education

Shuwei Pan[1, a], Yihuai Huang[1, b]

[1]Yongjia College, Wenzhou Polytechnic, Wenzhou, 325035, China

[a]393753643@qq.com, [b]623764597@qq.com

Abstract

The integrated talent cultivation mode of secondary and higher vocational education is an important part of the construction of modern vocational education system. In response to the problems of poor connection between secondary and higher vocational education, as well as poor effectiveness of on-the-job internships in the sixth semester of secondary and higher vocational education, the "3+2" segmented cultivation mode of secondary and higher vocational education has been implemented, Yongjia College of Wenzhou Polytechnic actively innovates and practices, formulates a "1+3+1" talent cultivation plan and curriculum system for the integration of secondary and higher vocational education in valve design and manufacturing, and builds an integrated practical teaching platform for secondary and higher vocational education. Practice has proven that talent cultivation has achieved good results.

Keywords

Integration of industry and education, Integration of secondary and higher vocational education, "1+3+1" talent cultivation model.

1. Introduction

In recent years, the reform of vocational education in China has been continuously strengthened, and the integration and cultivation of secondary and higher vocational education have been continuously deepened. The integrated talent cultivation of secondary and higher vocational education, also known as the "five-year consistent system" vocational education, aims to cultivate high-quality technical and skilled talents at the specialized level, with higher vocational colleges as the main body to coordinate the teaching and management of secondary and higher vocational education stages. Secondary vocational schools and vocational colleges are responsible for implementing a five-year integrated talent training program in a segmented manner[1]. According to the current "3+2" segmented training mode of secondary higher vocational education, which has poor connection and the poor effect of on-the-job internships in the sixth semester of secondary vocational education, Yongjia College of Wenzhou Polytechnic has been exploring a new five-year talent training model of "one place integration" for secondary and higher vocational education since 2021, establish a joint teaching and research group for secondary and higher vocational schools, collaborate with the valve industry and enterprises to develop a five-year talent training plan, jointly build the "1+3+1" curriculum system, jointly build a digital shared teaching resource platform, jointly carry out teaching process management, and form a new integrated talent training model for "1+3+1" secondary and higher vocational education.

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2. Current Situation Analysis

According to the original "3+2" segmented talent training model for secondary and higher vocational education in valve design and manufacturing, students study cultural and professional courses on campus from the first to fifth semesters of the secondary vocational education stage, and the sixth semester is the last semester of the secondary vocational education stage. Generally, the training mode of on-the-job internship in enterprises is adopted, and students generally enter the enterprise for on-the-job internship according to their own wishes. However, most students do not attach enough importance to this practical aspect and have not seriously participated in internships with corresponding professional enterprises, resulting in a state of "free range ". This " free range " internship training model has the following problems.

(1) The correlation between on-the-job internships and majors is generally low

Most students' internship units are not mechanical (valve) enterprises, which leads to the failure of on-the-job internships to consolidate the theoretical and practical knowledge of the majors learned in the school, resulting in the abandonment of students' majors during the past six months, which is not conducive to their subsequent professional learning and career development in higher vocational education.

(2) Secondary vocational school students have poor self-discipline ability

The state of "free range" cultivation leads to students with weak self-restraint ability becoming lazy in their thinking, relaxed in their thinking and learning state, and easily influenced by negative social trends. Some students cannot resist the temptation and give up on continuing their studies, leading to a loss of students.

(3) The enterprise training ability for internships is average

Due to the fact that students are currently in the stage of secondary vocational education and entering the stage of higher vocational education, and have not yet truly entered the stage of graduation on-the-job internships, the companies they independently seek have not developed a comprehensive talent training plan for on-the-job internships, resulting in most students becoming the simple labor force required for enterprise employment.

Therefore, the "free range" on-the-job internship training at this stage is not conducive to students' learning in the subsequent two years of higher vocational education, which brings many unfavorable factors and leads to a sharp decline in the quality of talent cultivation.

3. Integrated Talent Training Model for Secondary and Higher Vocational Education

In order to change the existing "free range" enterprise internship training mode for the sixth semester and achieve effective transition and connection between secondary and higher vocational education talent cultivation, the "1+3+1" talent cultivation mode is formulated and implemented, with the five-year system of secondary and higher vocational education as a whole to develop talent cultivation plans and curriculum systems, and improve the quality of talent cultivation in integrated vocational education.

3.1. Formulation of talent cultivation plans

Based on the educational characteristics of secondary and higher vocational schools, the requirements of industries and enterprises for talent cultivation, and the ability needs of job positions, taking the coordinated development of secondary and higher vocational education as an opportunity[2], Yongjia College of Wenzhou Polytechnic, relying on the one-stop education of secondary and higher vocational education, has established a teaching and research group for valve design and manufacturing majors, and collaborated with the valve

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industry and enterprises to develop the integrated "1+3+1" talent training plan for secondary and higher vocational education.

3.2. Connotation of talent cultivation plan

The integrated "1+3+1" talent cultivation of secondary and higher vocational education is a five-year teaching arrangement that ensures the respective talent cultivation advantages of secondary and higher vocational education, and achieves a hierarchical and orderly connection of talent cultivation.

The first "1" is the first grade of five-year talent cultivation. First grade students are not divided into majors, and their main training tasks are to consolidate their cultural foundation, enhance their humanistic literacy, strengthen professional cognition and emotions, offer public cultural foundation courses, career planning courses, several professional foundation courses, and professional cognition courses, guide students to understand the skill development path required for professional development, and clarify their career development plans

The "3" in the middle is for the second, third, and fourth grades, mainly cultivating students' professional knowledge and skills, ability to solve practical problems, systematic thinking, and team spirit. We offer valve core courses, professional expansion courses, comprehensive training, professional skills training, and enterprise on-the-job training, focusing on students' professional literacy and skills.

The final "1" is the fifth grade, which mainly strengthens students' job practice and professional literacy education, and offers teaching links such as graduation design and on-the-job internship to help students adapt and excel in their positions and integrate into their career ahead of time.

The "1+3+1" talent cultivation plan takes five years as a whole to build a course platform. From cultural basic courses to professional basic courses and then to professional core courses, the course arrangement is gradual, from easy to difficult, and from shallow to deep, which can better meet the requirements of talent cultivation goals and job skills.

4. Construction of Integrated Practical Teaching Bases for Secondary and Higher Vocational Education

Practical teaching is one of the important means to improve the integrated teaching quality of secondary and higher vocational education. In the stage of secondary vocational education, it is necessary to ensure the training of students' basic skills, and in the stage of higher vocational education, the improvement of professional skills is the main focus[3].

4.1. Integrated Practical Teaching Arrangements

Based on the skill requirements of valve enterprise positions, the "1+3+1" talent training program has arranged metalworking training (including fitters and ordinary lathe workers) and CNC lathe worker training in the fourth and fifth semesters, and organized students to participate in corresponding skill level exams. In the sixth semester, a practical training program for CNC machining centers was arranged, and in the eighth semester, the “1+X” skill level exam was arranged. In the summer of the eighth semester and the tenth semesters, the on-the-job internship for enterprises was arranged. Through skill level certification and on-the-job internships in enterprises, students can master job skills and lay a solid foundation for employment.

4.2. Construction of practical training bases in school

Yongjia College of Wenzhou Polytechnic adopts a one-stop approach of running secondary and higher vocational schools to cultivate integrated talents of secondary and higher vocational education. Secondary and vocational colleges jointly build a shared valve production training

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base. The training base of the secondary vocational department mainly consists of training workshops for fitters, ordinary lathe workers, and CNC lathe workers. The higher vocational department's training base is designed and built with the concept of "creating the entire lifecycle of valve products". It has a valve material physics and chemistry training room, a valve intelligent manufacturing training base, and a valve assembly and debugging base. Each training link is equipped with the latest processing and testing equipment that is synchronized with the enterprise. The processed and tested parts in the training are all sourced from the real valve products to be processed by the valve enterprise. This reduces the investment in training processing consumables and truly realizes the productive functions of the training base.

4.3. Construction of off-school training bases

Yongjia College of Wenzhou Polytechnic has established strategic cooperative relationships with several well-known valve enterprises in Yongjia, such as Bertelli Technology Co., Ltd., Founder Valve Group, Baoyi Group Co., Ltd. The technical personnel of these enterprises participate in the development of talent training plans and course construction. The college has established "factory in school" training bases in these enterprises, arranging students' summer practice and graduation internship. The company has arranged specialized corporate mentors for interns and requires them to meet the standards of prospective employees, so that students can understand the job content of the company and position in advance and enhance their motivation to learn professional knowledge. During the on-the-job internship, the company will further understand the students and prepare in advance for selecting outstanding graduates to come to the company for employment.

5. Conclusion

The "1+3+1" talent cultivation model for the integration of secondary and higher vocational education in valve design and manufacturing major adheres to the fundamental principle of cultivating morality and talents. The original independent training plans for secondary and higher vocational education are connected and restructured, based on the needs of industry enterprises and job abilities for talents. The valve design and manufacturing major systematically and scientifically sets up general courses, professional courses, and practical teaching links based on the talent needs of industry enterprises and job abilities. This curriculum setting achieves complementary advantages and resource sharing between secondary and higher vocational education, achieves the integration of vocational education and industry, and better meets the demand for high-quality technical and skilled talents in regional economic development.

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