

Based on the integration of production and education, the path of school-enterprise cooperative education for engineering management specialty

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Abstract: In order to implement China's the Belt and Road Initiative strategy, it is necessary to strengthen the cooperation between schools and enterprises, and explore the path of mutually beneficial cooperation between schools and enterprises. This paper will focus on the major of engineering management, based on the integration of production and education, put forward an important mechanism of school-enterprise collaborative education, participate in the formulation and implementation of professional personnel training programs, and collaborate in the development of professional curriculum systems. The mode of integrating production and education guides students to combine advanced techniques and methods of enterprises, greatly enhances students' engineering practice ability, and cultivates students' innovative thinking, in order to deepen the teaching reform of colleges and universities.

Key words: integration of production and education; project management; school-enterprise cooperation; collaborative education

1 Introduction

The integration of production and education is the direction of the construction of modern vocational education system in our country, and also the main mode of vocational education personnel training. Deepening the integration of production and education, and promoting the organic connection between the education chain and the talent chain with the industrial chain and the innovation chain are important measures to promote the structural reform of the supply side of human resources, and are of great significance to comprehensively improve the quality of education, expand employment and entrepreneurship, promote economic transformation and upgrading, and foster new forces of economic development under the new situation. Throughout the development process of the integration of production and education in domestic higher vocational colleges, there are some problems such as school-enterprise cooperation, "doing but not integrating", "integrating but not deep", etc. Therefore, deepening the school-running mode of integrating production and education and innovating the mechanism of coordinating education between production and education are both urgent and long-term measures.

2 Difficulties in the education of engineering management in universities

2.1 No professional student management mode has been formed

At present, some colleges and universities still adopt the traditional student management mode, which is not suitable for the current college engineering management. This traditional student management concept affects the development of the engineering management major in colleges and universities, and can not well adapt to the rapid development of the engineering management industry and the continuous progress of modern student management requirements. In addition, the curriculum of engineering management is not scientific, which affects the training effect of engineering management talents in colleges and universities, and needs to be highly valued [1].

2.2 The goal of talent cultivation is not clear

When colleges and universities make the project management personnel training plan, there are no clear answers to the questions of what kind of project management personnel the society needs and what advantages of the project management major has. The quality of talents training is affected by the lack of clear objectives when the engineering management specialty makes the talent training plan. The training of engineering management professionals should also focus on clarifying the relationship between theory and practice teaching, which is also a difficult point in college student management.

2.3 The theory and practice of professional teaching content are not coordinated

The training plan for engineering management professionals in some colleges and universities is not perfect, some schools emphasize theory over practice, and the teaching quality is uneven. The traditional subject education thought is still dominant, the phenomenon of emphasizing theory and neglecting practice is still relatively common. Compared with the theory teaching, the construction of practice teaching curriculum is lagging behind. In terms of practical teaching content, the traditional experimental content is still the main body of practical teaching, which cannot support the training of engineering management professionals well. In the process of training talents for engineering management, practice and theory study have not been well coordinated.

3 School-enterprise collaborative education path based on the integration of production and education

3.1 Create a shared digital teaching resource library for engineering management major

The university and the enterprise jointly set up a team of engineering management teachers, systematically planning the overall framework of professional digital teaching resource library, and reconstructing the professional curriculum system integrating advanced manufacturing technology and real cases of enterprises. Relying on online platforms such as Chinese university MOOC and smart vocational education, the university and enterprise cooperate to develop task-based digital teaching resources, integrating typical enterprise real products, real cases, curriculum ideological and political elements and cases into the teaching content, and systematically design diversified, information-based and shareable course teaching resources. In accordance with the principle of "construction, application, promotion and improvement", the teaching resources adapt to the needs of curriculum modular teaching and informatization teaching reform, integrate curriculum ideology and politics and innovative thinking training, and realize the co-construction and sharing of online high-quality resources, high-quality school-enterprise teachers and real-time education data [2]. The professional dual-teacher team develops online high-quality courses, and creates a shared digital teaching resource library for engineering management majors with system integration, curriculum modularization, resource granulation and teaching, training, popular science and self-learning functions, so as to realize the intelligent teaching and wisdom learning that enterprise training and professional courses can share, choose and combine.

3.2 Build a professional and systematic student management model

According to current training objectives of engineering management majors in colleges and universities, it is an important measure to build a unique professional and systematic student management model in response to the requirements of college personnel training. To build a more professional and systematic student management model, it is necessary to first attach importance to the principal role of students in education and teaching and understand the needs of students, so as to better play the service role of teaching. The traditional teacher-oriented teaching model can no longer meet the teaching needs and student management needs of engineering management major. Secondly, it is necessary to clarify the objectives of student management in engineering management major. In the process of student management and education, we should not only pay attention to the study of students' professional theoretical knowledge and skills, but also cultivate students' good learning habits.

3.3 Innovative modular curriculum system for education

On the basis of the shared curriculum system of "growth education course + professional platform course + core skill course + career development course" led by the college, the "engineering management" professional cluster is able to deeply analyze the working process of related vocational post groups, and master the common knowledge, skills and quality requirements needed for professional development. A modular curriculum system of "action orientation, ability progression, and integration of courses and training certificates" can be built, embedded with "curriculum thinking and politics", integrated with "1+X" content, etc., so that students can master the general basic qualities and abilities necessary for highly skilled professionals in this professional group, and the basic theories and skills common to industries or job groups, laying a solid foundation for students' sustainable development. Engineering management professional group builds "student system + apprenticeship" and "2+0.5+0.5" work and study combined personnel training model. Relying on the local large installation enterprises, with the innovation of school-enterprise cooperation talent co-education mechanism characterized by the "deep integration, and multiple evaluation" as the starting point, the "2+0.5+0.5", which is a combination of work and study talent training model reform is comprehensively implemented. Professional group develops a professional cluster course system of "platform course sharing, professional module course in parallel, and extension courses for mutual selection". In order to reflect the requirements of "bottom sharing, middle division and top mutual selection" in the course system of engineering management professional group, the courses of general education platform and professional basic platform are formed into "engineering management professional group platform course" to meet the sharing of all majors within the professional group.

3.4 Integration of production and education to match talent training needs

With students as the center and students' overall growth as the goal, the college innovates the concept of "double subject, three integration, five persistence, five dimensions" of professional cluster talent training, that is, deepening the integration of production and education, school-enterprise cooperation, and forming a dual-subject education mode [3]. Integrating professional education with innovation and entrepreneurship, the education process insists on the all-round development of professional talents; adheres to moral cultivation, fine skills education, educating people through culture, strong body forging people, labor molding people; pays attention to the comprehensive development of students' morality, intelligence, physical beauty and labor, all-round cultivation of students' moral height, skill depth, cultural thickness, life length, life intensity. Actively introduce the latest equipment and instruments in the market, and build the most cutting-edge teaching and training platform, in order to enrich students' intuitive understanding of the factory environment, with the latest platform to solve the most cutting-edge problems, which not only allows students to apply their professional knowledge to practice, but also cultivates professionals who meet the needs of enterprises.

4 Conclusion

In view of the construction mode and personnel training mode of university-enterprise cooperation in the integration of production and education, the specific system and mechanism measures are put forward, which can be used for reference by relevant colleges and universities in the construction of majors and professional groups, and provide reference for relevant colleges and universities to strengthen the integration of production and education. At the level of operation mechanism, it provides the principle, countermeasures and more specific operation path for the integration of school-enterprise cooperation and production and education. The ideas and methods provided in this paper have universal applicability and important theoretical value to the construction and development of high-level professional groups and double-high professional groups under the current situation. This case still has some shortcomings, and the following needs to be done next.

1. The demand for professional talents has changed from single-skilled talents to multi-skilled talents. In order to adapt to this change, professional groups need to further explore how to make use of the production and education integration model with school-enterprise cooperation to fully serve the all-round development of students and cultivate multi-skilled talents.

2. The mode of service industry development needs to further explore the ability of professional groups to serve regional economic and industry development and industrial transformation and upgrading under the background of production and education integration, which is a direct reflection of the core competitiveness of professional groups. Further exploration on the mode of serving small, medium and micro enterprises, community education and industrial enterprise training is the direction of the construction and development of professional groups in the next step.

Conflicts of interest

The author declares no conflicts of interest regarding the publication of this paper.

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