

Research on the path to improve the quality and safety management ability of higher vocational students under the background of "post-course-competition-certificate" integration

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ABSTRACT

With the continuous deepening of vocational education reform in my country, improving the quality and safety management ability of higher vocational students has become a key goal to achieve high-quality employment and service industry development. The "post-course-competition-certificate" integrated education model, as a comprehensive education mechanism integrating post requirements, curriculum teaching, skill competitions and certificate certification, provides a systematic solution for improving the ability of higher vocational students. Based on the analysis of the connotation of this model, combined with typical cases and empirical research, this paper systematically analyzes the main problems in the quality and safety management ability training of higher vocational colleges, and discusses the curriculum reform path by post requirements, the practical strategy of competition-education integration, the certificate standardization certification mechanism and the multi-evaluation system of school-enterprise collaboration. The study shows that the "post-course-competition-certificate" integrated model can effectively improve students' professional ability and professional literacy, enhance their practical operation level and safety norms awareness, and has important practical value for building a high-quality technical and skilled talent training system. At the end of the article, countermeasures and suggestions are proposed to optimize the quality of integrated teaching, improve the institutional guarantee mechanism and expand future research directions.

KEYWORDS

Post-Course-Competition-Certificate Integration; Quality Management; Safety Management; Ability Improvement Path; Professional Ability Standard

1 Introduction

With the continuous upgrading of my country's industrial structure, quality and safety have become the core elements of the coordinated development of manufacturing and service industries, and higher standards have been set for technical and skilled talents. As the main position for the cultivation of skilled talents, higher vocational education urgently needs to solve problems such as fragmented curriculum systems, weak practical teaching, and disconnected professional standards in the process of serving regional economic and industrial development ^[1]. Faced with the urgent needs of enterprises for the composite capabilities of quality control and safety management, the "post-course-competition-certificate" integrated education model came into being, and gradually became a key path to deepen the reform of higher vocational education and improve the effectiveness of education.

The "post-course-competition-certificate" integrated model organically integrates post requirements, course teaching, competition training and professional certificates to build a comprehensive education mechanism with task orientation and ability as the main line. This model focuses on actual post docking, practical training embedding, actual combat exercises and empirical certification, and strengthens students' understanding and practice of industry norms and process control during their school years. It is especially suitable for the cultivation of post capabilities that emphasize standardization and systematization, such as quality and safety management. It promotes the transformation of education from the traditional "teaching-assessment" model to the "project-competence" orientation, providing a more targeted path for the generation and improvement of students' professional capabilities.

This study focuses on the application and practice of the integration of "post-course-competition-certificate" in the quality and safety management education of higher vocational colleges, aiming to analyze its ability improvement path and implementation results, and analyze the practical difficulties and optimization strategies it faces ^[2]. Through literature analysis, case research and empirical induction, this study systematically explores how to achieve curriculum reconstruction, competition integration, certificate integration and school-enterprise co-education under post orientation, providing theoretical support and practical reference for higher vocational colleges to deepen reforms and accurately educate people, and help build a team of high-quality compound technical and skilled talents.

2 Analysis of the integrated education model of "post-course-competition-certificate"

Under the background of integrated education of "post, course, competition and certificate", higher vocational

education is transforming from traditional knowledge imparting to capability-oriented education, providing a new systematic path for the cultivation of students' quality and safety management capabilities. This model builds a multi-dimensional collaborative education mechanism through the deep integration of post requirements, course content, skill competition and professional certificates, breaks down the barriers between disciplines and posts, and promotes the precise connection between educational content and industry standards.

In terms of the curriculum system, post connection has become the core design concept. Colleges and universities refine the post tasks of enterprises, concretize the quality and safety management requirements into teaching modules, introduce real project cases and on-site management processes, so that students can master key capabilities such as standard implementation and risk prevention in the classroom^[3]. At the same time, by embedding skill competition projects into the teaching process, students simulate post challenges in practical training, improve their practical operation level, problem response and process optimization capabilities. The integration of competition standards not only stimulates students' learning motivation, but also promotes the synchronous updating of teachers' teaching content and industry development, and further strengthens the practical orientation of teaching.

As an important support for capability certification, the vocational qualification certificate system is organically integrated into the teaching arrangement. Colleges and universities use certificates such as quality engineer and safety manager as guidance, and set up special certification courses and assessment mechanisms to guide students to achieve the progressive transformation from knowledge to skills, and from skills to abilities in the learning process. Ultimately, the close combination of "position-course-competition-certificate" has promoted the overall improvement of students' comprehensive professional quality, enabling higher vocational education to truly achieve the goal of serving the industry and serving development, and becoming an important path to lead the high-quality development of education.

3 Analysis of the current status of quality and safety management capabilities of higher vocational students

At present, higher vocational education faces many challenges in cultivating quality and safety management capabilities, and there is still a certain degree of disconnection between the education system and teaching practice and industry needs. Although most higher vocational colleges have set up relevant courses and tried to strengthen students' professional capabilities through practical training, case teaching and other methods, the overall teaching content still focuses on the teaching of theoretical knowledge, lacking sufficient post scene introduction and problem-oriented training mechanisms^[4]. The teaching evaluation method is also mainly based on written examinations, which is difficult to fully reflect students' ability to find and solve problems in actual operations, resulting in students often showing maladaptation when facing real work scenarios.

In the process of cultivating students' abilities, one of the prominent problems is the lack of practical operation ability and comprehensive management ability. Quality and safety management not only requires the accuracy of technical operations, but also emphasizes the comprehensive control of process control, standard execution and teamwork. However, there are problems of fragmentation and isolation in the current curriculum setting. There is a lack of systematic integration between theoretical courses, practical training content and management practice, and it is difficult for students to form a complete ability structure. At the same time, in terms of teaching resources, some colleges and universities have outdated equipment related to quality and safety management, and their case libraries are not rich enough, which cannot simulate the real scenes of the industry well, thus affecting students' immersive learning experience and practical ability training.

In addition, there is also a clear gap between talent training goals and the actual needs of enterprises. With the continuous improvement of quality control and safety supervision requirements in various industries, enterprises generally expect higher vocational graduates to have the ability to quickly take up their posts and independently handle on-site problems. Especially in high-risk industries such as manufacturing, construction, and chemicals, quality and safety positions tend to choose experienced, responsible, and familiar with industry norms. Talents. However, in the early stage of entering the enterprise, higher vocational graduates often lack systematic project management experience, lack the ability to analyze and make decisions when facing complex tasks, and cannot assume core post responsibilities. This mismatch between supply and demand not only reduces the employment quality of graduates, but also reduces the confidence of enterprises in the use of higher vocational talents.

4 Exploration of the path to promote the improvement of quality and safety management capabilities through the integration of "post courses, competitions and certificates"

Driven by the integrated concept of "post, course, competition and certificate", higher vocational colleges are building

a multi-dimensional collaborative and post-oriented capacity training path, especially in the field of quality and safety management. Through the deep integration of curriculum reform, teaching practice and ability evaluation, the limitations of "teaching without use" and "learning without practice" in traditional teaching are broken. The curriculum is closely aligned with industry standards and post processes, focusing on core contents such as "quality data analysis", "risk prevention and control" and "emergency drills". Through project-driven and case-introduction methods, students' post awareness and professional judgment are strengthened, prompting them to achieve a role change from theoretical learning to skill practice during the school stage^[5].

At the same time, the integration of competition and teaching has become an effective means to strengthen practical ability and management literacy. Colleges and universities embed skill competitions into the teaching process, and improve students' operational standardization and on-the-spot adaptability through simulating real post scenarios, task group training, process collaborative management, etc., especially in quality control and safety assessment. Students have formed strong problem-solving and standard execution capabilities through actual combat exercises, realizing the leap from "technical mastery" to "fine management". In addition, as an important link in the integrated path, vocational certificates have promoted the standardization of competency certification and the benchmarking of teaching content^[6]. After completing the course, students will obtain the corresponding industry-recognized certificates, which will give them stronger competitiveness and post adaptability in employment.

Finally, the school-enterprise collaboration mechanism provides an important guarantee for the effective implementation of the above path. Colleges and universities have achieved a high degree of docking between teaching content and industry needs through the co-construction of training bases, guidance from enterprise mentors, joint curriculum development and evaluation feedback, and built a four-in-one multi-evaluation system of "course + competition + certificate + enterprise evaluation". This model not only improves the systematicness and effectiveness of students' quality and safety management capabilities, but also breaks through the barriers between higher vocational education and professional positions, becoming an important supporting path for the cultivation of high-quality technical and skilled talents.

5 Typical case analysis

Under the background of the in-depth promotion of the integration of "post courses, competitions and certificates", many higher vocational colleges have continuously innovated their educational paths and formed typical practices that can be promoted. Among them, X Province Mechanical and Electrical Vocational and Technical College, as a pioneer, relies on majors related to intelligent manufacturing and industrial safety management, systematically integrates post competency elements and teaching tasks, and builds a four-in-one comprehensive education system of "project tasks + competition training + certificate assessment + school-enterprise cooperation". The college introduces post matching courses such as "production quality control and improvement" and "safety hazard investigation practice" through curriculum reconstruction, while incorporating skill competitions into daily teaching, and guiding students to obtain quality and safety certificates, so that students can gradually complete the transformation from knowledge acquisition to ability generation in the learning process. The college has carried out in-depth cooperation with many local enterprises, and strengthened students' perception and adaptability to the actual post by setting up enterprise order classes, carrying out work-study alternating practices, and introducing enterprise mentors. Students can not only master theories and skills in the classroom, but also hone their standard awareness and safety management capabilities in real enterprise scenarios. According to statistics, in recent years, the college's students have performed well in provincial and above competitions, with a high employment rate. Employers generally report that they have good quality control, process standardization and teamwork capabilities, and can quickly handle actual work tasks. Some of the improvement plans proposed by students have been adopted by enterprises, demonstrating the effectiveness of education. The significance of this case lies not only in the smooth operation of its internal mechanism, but also in its strong replicability and promotion value. From curriculum development to competition and certification integration, and then to school-enterprise co-education system design, it provides a practical model for other colleges and universities. Its approach verifies the actual effectiveness of the integration of "post, course, competition and certification" in improving the quality and safety management capabilities of higher vocational students. It also shows that as long as we adhere to post orientation, ability-based and collaborative education, we can achieve a deep fit between talent training and industry development, and provide strong support for vocational education reform.

6 Problems and Countermeasures

Although the integrated model of "post courses, competitions and certificates" has achieved certain results in

improving the quality and safety management capabilities of higher vocational students, it still faces many problems and constraints in the specific implementation process, which restricts its wide promotion and in-depth development. First, at the top-level design level, some colleges and universities do not have a comprehensive understanding of the connotation of this model, and there is a tendency to one-sided and formalize "post courses, competitions and certificates", resulting in superficial docking between courses and posts, disconnection between teaching and competition, and lack of systematic planning for certificate training, thus failing to truly achieve the organic integration of the four. Secondly, in terms of teacher team building, many teachers lack actual corporate work experience, which makes it difficult for them to introduce the latest industry standards into the classroom, and it is also difficult for them to be competent for the dual tasks of practical teaching and competition guidance. In addition, school-enterprise cooperation is still at the "point-to-point" level, lacking an institutionalized and long-term collaborative mechanism. The depth and breadth of enterprise participation in curriculum development and teaching evaluation are insufficient, making it difficult to support the full process of capacity building.

In response to the above problems, to improve the quality of integrated teaching of "post, course, competition and certificate", it is necessary to systematically promote it from multiple dimensions such as concept updating, mechanism building, and resource integration. First, strengthen the overall planning ability of colleges and universities in integrated teaching, build a curriculum system with "post ability map" as the core, design teaching content through work task orientation, promote the integration and embedding of "course, competition and certificate", and ensure that students gradually form the knowledge structure and operational ability of quality and safety management in the learning process. Secondly, strengthen the construction of the "dual-teacher" team of teachers, actively introduce industry engineers and managers as part-time teachers, carry out enterprise practice training and post training, and improve the dual quality of teachers' professional skills and teaching ability. At the same time, in terms of teaching methods, we should focus on the use of information technology, use virtual simulation systems, smart classroom platforms and other tools to improve teaching interactivity and practical training immersion, and create an integrated learning ecology of "online + offline" and "theory + practice".

In order to achieve sustainable improvement of students' quality and safety management capabilities, it is also necessary to build a stable and scientific system of institutional guarantees. On the one hand, it is necessary to establish and improve the school-enterprise collaborative education mechanism, encourage enterprises to deeply participate in the entire process of talent training, from post demand analysis to curriculum development, and then to practical guidance and ability evaluation, to achieve resource sharing, responsibility sharing, and results sharing; on the other hand, we should promote the standardized development of the professional ability certification system, link the certificate acquisition with course learning and skill competition results, and build a closed-loop management model covering the entire process of "learning-training-assessment-certification-employment". In addition, the government should introduce policy guidance and financial support to promote the construction of regional teaching resource sharing platforms, the formulation of industry talent training standards, and the teacher capacity improvement project, so as to provide institutional guarantees for the integrated and long-term development of "post courses, competitions and certificates".

7 Conclusion

In summary, the integrated education model of "post-course-competition-certificate" provides a systematic, practical and standardized path for improving the quality and safety management capabilities of higher vocational students. Through the reshaping of educational concepts and the innovation of teaching mechanisms, this model effectively connects the disconnection between classroom teaching and post capabilities, theoretical knowledge and practical operations, and builds a compound talent training system with post orientation and ability as the core. Research shows that while improving students' professional skills, this model pays more attention to cultivating their standard execution, sense of safety responsibility and comprehensive professional quality, laying a solid foundation for high-quality employment and lifelong development.

At the practical level, the integrated education model effectively stimulates students' learning initiative and practical potential through the integration of multiple teaching contents, in-depth collaboration between schools and enterprises, and the embedding of professional certificates. Students constantly hone their process control and risk management capabilities in real or simulated scenarios, and gradually realize the role transformation from "learners" to "post competent persons". At the same time, colleges and universities are also constantly improving their own governance systems in the reconstruction of educational resources, the improvement of teacher capabilities and the innovation of evaluation methods, promoting vocational education to move towards a sustainable development path that pays more attention to ability-based, process-oriented and quality results.

Although the integration of "post-course-competition-certificate" has achieved remarkable results, its deepening

development still needs to face challenges in institutional mechanism construction, balanced resource supply and industry collaborative governance. Future research can focus on model adaptation under different professional backgrounds, quantitative standards of key ability indicators, and co-construction and sharing mechanisms of integrated platforms and teaching resources to carry out more empirical and forward-looking explorations, so as to further improve the quality of education and promotion value, and help higher vocational education achieve efficient docking and deep integration with industrial development.

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