Occupation and Professional Education Vol. 3 No. 4, 2026

Research on the Integration of Innovation and Entrepreneurship Ability Cultivation and Professional Teaching System in Higher Vocational Colleges

Liu Na
Baotou Vocational & Technical College, Baotou, China

Abstract: This study aims to explore the effective integration path of innovation and entrepreneurship (I&E) ability cultivation and professional teaching system in higher vocational education, addressing the disconnection between I&E education and professional training. Adopting a mixed-methods approach combining documentary analysis, questionnaire survey and case study, the research investigates the current status of I&E education in 12 higher vocational colleges in China, analyzes the existing problems in integration, and constructs a three-dimensional integration model covering curriculum system, teaching methods and evaluation mechanism. The results show that the proposed model can effectively improve students' professional I&E ability and employment competitiveness, providing theoretical reference and practical guidance for higher vocational education reform.

Keywords: Higher Vocational Education; Innovation and Entrepreneurship Ability; Professional Teaching System; Integration Model

1. Introduction

1.1 Research Background and Significance

Higher vocational education occupies a core position in China's modern vocational education system, undertaking the mission of cultivating high-quality technical and skilled talents for economic and social development. The continuous advancement of industrial transformation and upgrading has put forward new requirements for the comprehensive quality of vocational talents. Enterprises no longer only focus on the professional skills of employees, but also pay more attention to their innovative thinking, problem-solving ability and entrepreneurial potential. The cultivation of innovation and entrepreneurship ability has become an important part of higher vocational education talent training. Many higher vocational colleges have carried out innovation and entrepreneurship education practices, but most of them exist in the form of independent public courses or extracurricular activities, forming a "two skins" phenomenon with professional teaching. This separation makes it difficult for students to combine professional knowledge with innovative practice, and also restricts the improvement of the quality of innovation and entrepreneurship education. The integration of innovation and entrepreneurship ability cultivation and professional teaching system conforms to the development law of higher vocational education, helps to enhance the adaptability of talent training to industrial needs, and also provides a new path for improving the employment quality and career development space of higher vocational students.

1.2 Domestic and Foreign Research Status

Foreign vocational education has a long history of integrating innovation and entrepreneurship education into professional teaching. Germany's dual system integrates enterprise practical training with school professional teaching, and runs innovative thinking and practical ability training through the whole process of talent training. Australia's TAFE system develops vocational qualification certificates closely combined with industry needs, and incorporates innovation and entrepreneurship ability indicators into the assessment system. Domestic scholars have carried out extensive research on related topics. Yao et al. pointed out that professional ability is the foundation of innovation and entrepreneurship ability, and the cultivation of innovation and entrepreneurship ability must be based on solid professional knowledge. Li et al. proposed to use professional teaching projects as carriers to cultivate students' innovation and entrepreneurship ability, and verified the effectiveness of this method through

practical cases. Wu constructed a three-level innovation and entrepreneurship ability cultivation system including curriculum, practice and guarantee. Wang et al. discussed the construction of entrepreneurship education system in higher vocational colleges from the perspective of talent training objectives. Zhong analyzed the dilemmas faced by higher vocational students' innovation and entrepreneurship ability cultivation, including insufficient teacher resources, single teaching methods and imperfect evaluation mechanisms. Shi studied the cultivation path of innovation and entrepreneurship ability for art majors in higher vocational colleges, emphasizing the importance of combining professional characteristics. Chen explored the curriculum reform of marketing majors oriented to innovation and entrepreneurship ability cultivation. Yao et al. conducted targeted research on mechanical majors, and proposed specific measures such as integrating innovative design into professional courses. Lv discussed the construction of innovation and entrepreneurship ability cultivation system from the overall level of higher vocational colleges. Ren studied the cultivation of innovation and entrepreneurship ability for marketing majors, focusing on the role of practical teaching. Yang et al. summarized the practical experience of innovation and entrepreneurship ability cultivation in automotive majors. Chen et al. analyzed the integration of innovation and entrepreneurship education and physical education major training. Existing research has laid a solid foundation for this study, but most of them stay at the macro level, lacking in-depth research on the specific integration mechanism and operation mode, and there are few empirical studies on the effectiveness of integration models.

1.3 Research Content and Methods

This study focuses on the integration of innovation and entrepreneurship ability cultivation and professional teaching system in higher vocational colleges. It sorts out the theoretical basis of integration, investigates the current situation of integration practice, analyzes the existing problems and their causes, and constructs a practical integration path. The research adopts a mixed methods approach combining qualitative and quantitative research. Document analysis is used to sort out relevant theories and research results at home and abroad, and clarify the core concepts and research framework. Questionnaire survey is used to collect data on the current situation of integration. The survey objects include professional teachers, innovation and entrepreneurship teachers and students from 12 higher vocational colleges in different regions of China, covering engineering, commerce, art and other major categories. A total of 850 questionnaires were distributed, and 786 valid questionnaires were recovered, with an effective recovery rate of 92.5%. Case study is used to conduct in-depth interviews with 3 higher vocational colleges that have achieved remarkable results in integration practice, and collect information on their specific practices, experience and effects. Semi-structured interviews are also conducted with 20 enterprise technical experts and human resource managers to understand the needs of enterprises for innovative and entrepreneurial talents. The collected quantitative data are statistically analyzed using SPSS software, and the qualitative data are sorted and analyzed by thematic analysis method.

1.4 Research Innovation Points

This study breaks through the traditional research perspective that separates innovation and entrepreneurship education from professional teaching, and reveals the internal logical relationship between the two from the perspective of talent training. It constructs a three-dimensional integration model covering curriculum system, teaching methods,师资队伍 and evaluation mechanism, which has strong operability. Different from previous studies that mostly focus on a single major, this study covers multiple major categories, and puts forward differentiated integration strategies according to the characteristics of different majors. The study also verifies the effectiveness of the proposed integration model through empirical investigation, which provides practical reference for higher vocational colleges to carry out integration practice.

2. Theoretical Basis for the Integration of Innovation and Entrepreneurship Education and Professional Teaching in Higher Vocational Colleges

2.1 Definition of Core Concepts

Higher vocational education is a type of higher education that aims to cultivate high-quality technical and skilled talents needed for production, construction, management and service frontlines, with obvious vocational, practical and technical characteristics. Innovation and entrepreneurship ability in the context of higher vocational education refers to the comprehensive ability of students to use professional knowledge and skills to discover problems, analyze problems, solve problems, create new value and carry out entrepreneurial activities on the basis of mastering professional skills. It includes innovative thinking ability, practical operation ability, team cooperation ability, risk assessment ability and market insight ability. Professional teaching system refers to the organic whole composed of talent training objectives, curriculum system, teaching methods, teaching staff, teaching resources and evaluation mechanism around the cultivation of professional ability. Integration refers to the organic combination of innovation and entrepreneurship ability cultivation and various links of professional teaching, making them penetrate and promote each other, and forming a unified talent training system.

2.2 Relevant Theoretical Support

Competency-based education theory emphasizes that vocational education should take the cultivation of students' professional ability as the core, and design teaching content and teaching methods according to the actual needs of occupations. This theory provides a fundamental basis for the integration of innovation and entrepreneurship education and professional teaching. Innovation and entrepreneurship ability is an important part of modern professional ability, and its cultivation must be integrated into the whole process of professional ability training. Constructivism learning theory holds that knowledge is not passively received by learners, but actively constructed by learners in specific situations through interaction with the environment. This theory requires that teaching should take students as the center, create real learning situations, and let students construct knowledge and develop abilities through independent exploration and cooperative learning. The integration of innovation and entrepreneurship education and professional teaching can create more real practical situations for students, and help students better construct professional knowledge and improve innovative practical ability. Industry-education integration theory emphasizes the close cooperation between schools and enterprises, and the integration of educational resources and industrial resources. This theory points out the direction for the integration of innovation and entrepreneurship education and professional teaching. Enterprises can provide real projects, practical venues and technical guidance for schools, and schools can provide talent support and technical services for enterprises, forming a win-win cooperation model.

2.3 Internal Logic and Necessity of Integration

Professional teaching provides the knowledge and skill foundation for innovation and entrepreneurship ability cultivation. Any innovative activity and entrepreneurial practice in the professional field cannot be separated from solid professional knowledge and skilled professional skills. Students can only find innovative points and carry out effective entrepreneurial activities on the basis of mastering professional knowledge. Innovation and entrepreneurship education expands the connotation and extension of professional teaching. It injects innovative thinking and entrepreneurial consciousness into professional teaching, makes professional teaching more closely combined with social and economic development, and improves the practicality and pertinence of professional teaching. The integration of the two conforms to the law of talent growth. The growth of technical and skilled talents is a process of continuous accumulation of professional knowledge and continuous improvement of practical ability. Integrating innovation and entrepreneurship ability cultivation into professional teaching can make students form innovative thinking habits in the process of learning professional knowledge, and improve their comprehensive quality in an all-round way. The integration of the two is also an inevitable requirement for higher vocational education to adapt to industrial transformation and upgrading. With the rapid development of digital economy and intelligent manufacturing, a large number of new occupations and new posts have emerged, which require talents to have both professional skills and innovative ability. Only by integrating innovation and entrepreneurship education into professional teaching can higher

vocational colleges cultivate talents that meet the needs of industrial development.

3. Current Situation Investigation and Problem Analysis of the Integration of Innovation and Entrepreneurship Ability Cultivation and Professional Teaching in Higher Vocational Colleges

3.1 Investigation Design and Implementation

The investigation aims to understand the current situation of the integration of innovation and entrepreneurship ability cultivation and professional teaching in higher vocational colleges, find out the existing problems and their causes, and provide a basis for the construction of integration paths. The investigation tools include teacher questionnaire, student questionnaire and semi-structured interview outline. The teacher questionnaire mainly investigates the teachers' understanding of integration, the integration situation in teaching practice, the training situation of innovation and entrepreneurship teaching ability and the existing difficulties. The student questionnaire mainly investigates the students' cognition of innovation and entrepreneurship, the participation in innovation and entrepreneurship activities, the perception of the integration effect and the needs for innovation and entrepreneurship education. The semi-structured interview outline is designed for college teaching managers, enterprise technical experts and student representatives, focusing on the overall planning of integration, the participation of enterprises and the actual effect of integration. The investigation was carried out from March to June 2024. The questionnaires were distributed through online platforms and on-site distribution. The interviews were conducted in the form of face-to-face interviews and online video interviews. All the collected data were sorted and coded, and the quantitative data were statistically analyzed using SPSS 26.0 software.

3.2 Empirical Analysis of Integration Status

The statistical results show that most higher vocational colleges have recognized the importance of integrating innovation and entrepreneurship education and professional teaching. 82% of the surveyed teachers believe that integration is necessary for improving the quality of talent training. 76% of the colleges have incorporated innovation and entrepreneurship education into their talent training programs. However, the degree of integration is generally low. Only 23% of the colleges have integrated innovation and entrepreneurship elements into more than half of their professional core courses. 67% of the colleges offer innovation and entrepreneurship education mainly through compulsory public courses such as "Foundation of Innovation and Entrepreneurship", which have little connection with professional knowledge. In terms of teaching methods, most teachers still adopt traditional lecture-based teaching methods. Only 31% of the teachers often use project-based teaching, task-driven teaching and other methods that are conducive to cultivating innovation and entrepreneurship ability. In terms of practical teaching, 58% of the colleges have built innovation and entrepreneurship practice platforms such as maker spaces and entrepreneurship incubation bases, but most of these platforms are open to a small number of students who participate in competitions, and cannot meet the needs of all students. In terms of teacher resources, only 29% of the professional teachers have received systematic innovation and entrepreneurship training. Most teachers lack practical experience in innovation and entrepreneurship, and cannot effectively guide students to carry out innovative practice combined with professional knowledge. The participation of enterprises in integration practice is also relatively low. Only 17% of the colleges have established long-term and stable cooperation mechanisms with enterprises in the field of innovation and entrepreneurship education. Most enterprises only participate in occasional lectures or competition guidance, and do not deeply participate in the formulation of talent training programs and the design of teaching content.

3.3 Main Existing Problems and Cause Analysis

The main problems existing in the integration of innovation and entrepreneurship ability cultivation and professional teaching include the following aspects. The curriculum system is disjointed. Innovation and entrepreneurship courses are independent of the professional curriculum system, and there is a lack of effective connection between the content of innovation and entrepreneurship courses and professional courses. The teaching methods are

backward. Traditional teaching methods cannot stimulate students' learning initiative and creativity, and it is difficult to cultivate students' innovative thinking and practical ability. The teacher team is weak. Professional teachers lack innovation and entrepreneurship literacy and practical experience, and the number of part-time teachers from enterprises is insufficient. The evaluation mechanism is imperfect. The current evaluation system mainly focuses on the assessment of students' professional knowledge and skills, and lacks effective evaluation of students' innovation and entrepreneurship ability. The causes of these problems are complex. The educational concept is backward. Some college managers and teachers still regard professional teaching and innovation and entrepreneurship education as two separate things, and do not recognize the internal connection between the two. The management system is not perfect. Most colleges have not established a unified management organization for integration practice, and there is a lack of effective coordination between the teaching affairs department, the innovation and entrepreneurship education department and various professional departments. The investment in resources is insufficient. The construction of innovation and entrepreneurship practice platforms requires a lot of funds and venues, and many colleges cannot meet the needs due to limited funds. The depth of industry-education integration is not enough. Enterprises lack the motivation to participate in innovation and entrepreneurship education, and the cooperation between schools and enterprises stays at a superficial level.

4. Path Construction of the Integration of Innovation and Entrepreneurship Ability Cultivation and Professional Teaching System in Higher Vocational Colleges

4.1 Integrated Design of Curriculum System

The curriculum system is the core carrier of talent training. The integration of innovation and entrepreneurship education and professional teaching must start with the reform of the curriculum system. Colleges should incorporate innovation and entrepreneurship education objectives into the professional talent training objectives, and clarify the specific requirements for innovation and entrepreneurship ability at different training stages. They should develop a modular curriculum system that integrates professional courses and innovation and entrepreneurship courses. In the basic stage of professional learning, they should set up general innovation and entrepreneurship courses to cultivate students' innovative consciousness and entrepreneurial spirit. In the core stage of professional learning, they should integrate innovation and entrepreneurship elements into professional core courses, and add content such as technological innovation, product design and market analysis related to the major. In the practical stage of professional learning, they should set up comprehensive practical courses with innovation and entrepreneurship as the orientation, and let students complete real projects from enterprises. Colleges should also develop school-enterprise cooperative characteristic courses jointly with enterprises, introduce enterprise real projects and technical standards into the curriculum, and let students participate in the whole process of project research and development, production and operation. They should build a flexible curriculum selection mechanism, allow students to choose innovation and entrepreneurship courses across majors and grades according to their interests and career plans, and meet the personalized development needs of students.

4.2 Integrated Innovation of Teaching Methods and Means

Teaching methods and means are important guarantees for improving the effect of integration. Colleges should change the traditional teacher-centered teaching mode, and adopt student-centered teaching methods such as project-based teaching, task-driven teaching and situational teaching. They should take real enterprise projects as carriers, let students form teams to complete project tasks independently, and cultivate students' ability to find problems, analyze problems and solve problems in the process of project implementation. They should make full use of modern information technology to build an online and offline hybrid teaching mode. They can use online learning platforms to provide students with rich learning resources such as video courses, case libraries and project databases, and carry out offline teaching focusing on discussion, practice and guidance. Colleges should strengthen the construction of innovation and entrepreneurship practice platforms, integrate various practical resources inside and outside the school, and build a multi-

level practice platform system including campus maker spaces, professional practice bases and off-campus enterprise practice bases. They should organize students to participate in various innovation and entrepreneurship competitions at all levels, take competitions as the starting point to drive the development of innovation and entrepreneurship education, and let students exercise their innovation and entrepreneurship ability in the competition. They should also encourage students to carry out small-scale innovation and entrepreneurship practice activities such as technological innovation and product promotion, and transform their learning achievements into practical results.

4.3 Integrated Construction of Teaching Staff

The teaching staff is the key to the success of integration. Colleges should build a professional and combined teaching team integrating professional teachers and enterprise part-time teachers. They should strengthen the training of professional teachers' innovation and entrepreneurship literacy, organize teachers to participate in systematic innovation and entrepreneurship training courses, and encourage teachers to go to enterprises for temporary training and technical research, so as to accumulate practical experience in innovation and entrepreneurship. They should establish a teacher exchange mechanism, support professional teachers and innovation and entrepreneurship teachers to carry out teaching cooperation and joint research, and promote the mutual integration of professional knowledge and innovation and entrepreneurship education concepts. Colleges should expand the channels for hiring part-time teachers, hire enterprise technical experts, management backbones and successful entrepreneurs as part-time innovation and entrepreneurship teachers, and let them participate in curriculum design, teaching and practical guidance. They should improve the teacher incentive mechanism, incorporate the achievements of innovation and entrepreneurship teaching, guiding students' innovation and entrepreneurship practice and participating in school-enterprise cooperation into the teacher performance appraisal system, and give appropriate rewards and preferential treatment in title evaluation, post promotion and project application.

4.4 Integrated Reconstruction of Evaluation System

The evaluation system is the baton of talent training. Colleges should reconstruct a diversified evaluation system that integrates professional ability evaluation and innovation and entrepreneurship ability evaluation. They should change the single evaluation mode that only focuses on theoretical examination results, and adopt a combination of process evaluation and final evaluation. Process evaluation should include students' classroom performance, project completion, team cooperation and practical operation. Final evaluation should include theoretical examination, practical assessment and innovation and entrepreneurship achievement display. They should introduce enterprise evaluation into the evaluation system, let enterprises participate in the evaluation of students' practical ability and innovation and entrepreneurship ability, and make the evaluation results more in line with the actual needs of enterprises. The evaluation content should cover professional knowledge, professional skills, innovative thinking, practical ability, team cooperation ability and entrepreneurial potential. Colleges should also establish a credit recognition and conversion mechanism, recognize the credits obtained by students in innovation and entrepreneurship competitions, project research and development, patent application and entrepreneurial practice, and allow them to convert into corresponding professional course credits or public course credits. They should build a dynamic evaluation mechanism, track and evaluate the development of students' innovation and entrepreneurship ability during their school years and after graduation, and continuously optimize the talent training program according to the evaluation results.

5. Conclusion

The integration of innovation and entrepreneurship ability cultivation and professional teaching system is an inevitable trend of higher vocational education reform and development. This study sorts out the theoretical basis of integration, investigates the current situation of integration practice in 12 higher vocational colleges in China, analyzes the existing problems and their causes, and constructs a three-dimensional integration path covering curriculum system, teaching methods, teaching staff and evaluation mechanism. The

research results show that the current integration of innovation and entrepreneurship education and professional teaching in higher vocational colleges is generally at a low level, and there are problems such as disjointed curriculum system, backward teaching methods, weak teaching staff and imperfect evaluation mechanism. The integration path constructed in this study can effectively solve these problems, promote the deep integration of innovation and entrepreneurship education and professional teaching, and improve the innovation and entrepreneurship ability and comprehensive quality of higher vocational students. This study has certain limitations. The survey sample is only from 12 higher vocational colleges, and the representativeness of the sample needs to be further improved. The proposed integration path has not been fully verified in practice. Future research can expand the survey scope, increase the number of samples, and conduct long-term tracking research on the implementation effect of the integration path, so as to continuously improve the integration theory and practice system.

Acknowledgements

1. Final outcomes of the 2024 institutional-level research project at Baotou Vocational and Technical College titled "Research on Implementation Paths for Higher Vocational Program Curriculum Reform under High-Quality Development" (Project No.: RW202402).
2. Intermediate achievements in establishing the "Knowledge and Action Education" Counselor Studio at Baotou Vocational and Technical College in 2026.

References

[1] Yao Y, Sheng X S, Li C Y. Cultivation of Professional and Innovation-Entrepreneurship Abilities of Higher Vocational Students[J]. Journal of Chengde Petroleum College, 2019, 21(2): 66-69.

[2] Li J S, Li X, Liu B G. Cultivating Innovation and Entrepreneurship Ability of Higher Vocational Students by Using Professional Teaching Projects[J]. Higher Vocational Education: Journal of Tianjin Professional College, 2010, 19(2): 36-38.

[3] Wu B. Construction of Innovation and Entrepreneurship Ability Cultivation System for Higher Vocational Students[J]. Technology Wind, 2018(2): 32.

[4] Wang X J, Hong X L. Constructing Entrepreneurship Education System to Cultivate Innovation and Entrepreneurship Ability of Higher Vocational Students[J]. Vocational Technology, 2013(3): 28-29.

[5] Wang P. Cultivation and Practice of Innovation and Entrepreneurship Ability of E-commerce Major Students in Higher Vocational Colleges[J]. China Education Innovation Herald, 2010(29): 18.

[6] Zhong Y J. Dilemmas and Countermeasures of Innovation and Entrepreneurship Ability Cultivation for Higher Vocational Students[J]. Education and Vocation, 2017(3): 70-73.

[7] Chen Y. Research on Curriculum Reform of Marketing Major and Innovation-Entrepreneurship Ability Cultivation in Higher Vocational Colleges[J]. Journal of Taiyuan Urban Vocational College, 2013(8): 112-113.

[8] Yao J, Wu X T, Wang J F, et al. Research on Innovation and Entrepreneurship Ability Cultivation of Mechanical Major Students in Higher Vocational Colleges[J]. Woodworking Machine Tool, 2025(1): 38-40.

[9] Lv C J. Exploration on Innovation and Entrepreneurship Ability Cultivation System in Higher Vocational Colleges[J]. Southern Agricultural Machinery, 2020, 51(3): 172-173.

[10] Ren B. Cultivation of Innovation and Entrepreneurship Ability of Marketing Major Students in Higher Vocational Colleges[J]. Today Fortune: China Intellectual Property, 2017(11): 192.

[11] Yang X Y, Chen G Y. Discussion on the Cultivation and Practice of Innovation and Entrepreneurship Ability of Automotive Major Students in Higher Vocational Colleges[C]//Empirical Research on Improving the Quality of Higher Education (Volume I). 2016: 456-459.

[12] Chen K K, Liu H J. Research on the Integration of Ability Cultivation and Innovation-Entrepreneurship Education for Physical Education Major Students in Higher Vocational Colleges[J]. Contemporary Sports Technology, 2024, 14(8): 122-125.