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Cultivation Practice of Innovative and Entrepreneurial Talents in Universities in the Background of Industry-Education Integration

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Abstract: In the era of accelerated development of new productive forces and continuous upgrading of industrial structure, industry-education integration has become a core path to promote higher education reform and address the disconnection between the cultivation of innovative and entrepreneurial talents in universities and industrial demands. Based on the policy orientation and connotative significance of the times of industry-education integration, this paper systematically sorts out the theoretical basis and practical dilemmas of cultivating innovative and entrepreneurial talents in universities under the background of industry-education integration, explores the practical cultivation path of "school-enterprise collaboration, industry-education symbiosis, and the unity of knowledge and action", verifies the effectiveness of the practice through specific cases, and puts forward targeted optimization strategies. The purpose is to provide practical references for universities to improve the quality of cultivating innovative and entrepreneurial talents, align with industrial development needs, serve the national innovation-driven development strategy, and promote the in-depth integration of industry and education and the coordinated development of innovative and entrepreneurial talent cultivation.

Keywords: Industry-education integration; Universities; Cultivation practice of innovative and entrepreneurial talents

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1. Introduction

As the core carrier of innovation-driven development, the quality of cultivating innovative and entrepreneurial talents is directly related to the effectiveness of industrial upgrading, the enhancement of national innovation capacity, and the sustainable development of the economy and society. A series of policy documents, such as the Implementation Plan for National Vocational Education Reform and the Opinions on Deepening the Reform of the Modern Vocational Education System, clearly state that it is necessary to deepen the integration of industry and education, promote the effective connection of the education chain, industrial

chain, and innovation chain, and cultivate a large number of high-quality, innovative, and entrepreneurial talents. Universities shoulder the important mission of delivering compound talents with an innovative spirit and entrepreneurial ability to society. However, for a long time, there have been common problems in the cultivation of innovative and entrepreneurial talents in Chinese universities, such as "emphasizing theory over practice" and "prioritizing classroom teaching over industrial engagement." There are also difficulties, including the disconnection between talent cultivation programs and industrial development needs, insufficient practical teaching resources, superficial school-enterprise cooperation, and the weak practical ability of the teaching staff. As a talent cultivation model characterized by "in-depth integration of industry and education and collaborative talent cultivation", the core of industry-education integration lies in breaking down the barriers between universities and enterprises, realizing the co-construction and sharing of educational and industrial resources, complementing each other's advantages, and enabling students to enhance their innovative and entrepreneurial abilities in real industrial scenarios.

2. Deepen industry-education integration and establish a school-enterprise collaborative education mechanism

2.1. Establish an in-depth school-enterprise collaborative mechanism

Universities should proactively align with industrial needs, establish long-term and stable cooperative relationships with leading enterprises and small and medium-sized enterprises in the industry, sign school-enterprise cooperation agreements, and formulate specific implementation details for cooperation, so as to promote the development of school-enterprise cooperation from a superficial level to an in-depth one [1]. At the same time, a school-enterprise collaborative education leading group should be established, jointly led by relevant persons in charge of universities and enterprises, to coordinate and promote cooperation in talent cultivation, practical teaching, scientific research and innovation, entrepreneurial incubation, and other fields. Regular cooperation meetings should be held to solve problems encountered in the cooperation process, forming a collaborative education pattern of "joint construction, joint management, and shared benefits" between schools and enterprises.

2.2. Promote enterprises' in-depth participation in the entire process of talent cultivation

Enterprise representatives can be invited to participate in core links such as the formulation of talent cultivation plans, curriculum setting, teaching implementation, practical guidance, and evaluation and assessment, allowing enterprises to put forward talent cultivation requirements and suggestions based on their own job needs, so as to ensure that the talent cultivation plans are accurately aligned with enterprise demands [2]. Enterprises should assign technical backbones and entrepreneurial mentors to participate in university classroom teaching, practical guidance, project review, and other work, integrating actual enterprise projects, industrial standards, and technical specifications into the teaching process, so that students can understand the actual operation mode of enterprises and the development trend of the industry.

2.3. Establish a benefit-sharing mechanism for industry-education symbiosis

A cooperation mechanism facilitating benefit and risk sharing between schools and enterprises should be established, aiming to achieve win-win results through various means such as jointly building practical training bases, collaborating on scientific research projects, and co-incubating entrepreneurial projects [3].

Universities provide talent support services for enterprises to help them solve technical difficulties, while enterprises provide practical resources, financial support, and faculty supplements for universities to assist them in improving the quality of innovative and entrepreneurial talent training. Meanwhile, the government should introduce relevant policies to provide subsidies and other support for enterprises participating in industry-education integration, thereby stimulating their intrinsic motivation to engage in such collaboration.

3. Optimize talent cultivation programs and promote curriculum system reform

3.1. Establish innovation and entrepreneurship-oriented talent cultivation objectives

Universities should integrate industrial development needs with their own educational characteristics, establish a three-in-one talent cultivation objective of "innovation awareness, entrepreneurial ability, and practical literacy" for innovative and entrepreneurial talents, and integrate innovative and entrepreneurial education into the entire process of professional talent cultivation, so as to cultivate versatile talents with outstanding innovative and entrepreneurial abilities [4].

3.2. Optimize the curriculum system and promote the alignment of curriculum content with industrial needs

A three-in-one curriculum system consisting of "professional core courses+innovation and entrepreneurship core courses+practical courses" needs to be established, with an increased proportion of practical courses to ensure that the proportion of practical courses is not less than 30%. Professional core courses should update their content in conjunction with cutting-edge industrial technologies and enterprise job requirements, incorporating industrial standards and actual enterprise cases [5]; innovation and entrepreneurship core courses should cover innovative thinking training, entrepreneurial management, marketing, financing planning, intellectual property protection, and other fields to cultivate students' innovative and entrepreneurial skills; practical courses should focus on combining with actual enterprise projects, offering courses such as project practice, entrepreneurial simulation, and internships, allowing students to improve their skills through practice.

3.3. Innovate teaching models to enhance teaching effectiveness

It is necessary to promote new teaching models such as project-based teaching, flipped classrooms, and blended teaching. Taking actual enterprise projects as carriers, guide students to actively participate in the entire project process and cultivate their innovative thinking. At the same time, invite enterprise technical backbones and successful entrepreneurs to enter the classroom to share actual enterprise cases and entrepreneurial experiences, enhancing the relevance and practicality of teaching. Online teaching platforms can also be utilized to integrate high-quality teaching resources, provide personalized learning services for students, expand teaching space, and improve teaching efficiency [6].

4. Strengthen the construction of practical platforms and enrich practical teaching resources

4.1. Jointly build school-enterprise collaborative practical teaching bases

Universities should collab1orate with enterprises to jointly establish platforms such as training centers,

practical teaching bases, and entrepreneurial incubators, sharing enterprise resources, including equipment, technology, and venues, to provide students with authentic practical scenarios and positions. Based on industrial development needs and professional characteristics, targeted practical bases should be established, such as intelligent manufacturing practice bases, e-commerce entrepreneurial bases, and cultural and creative industry incubation bases, to ensure that practical teaching is consistent with industrial development. Meanwhile, the operation and management of practical bases should be strengthened, with professional managers and instructors appointed, and a comprehensive practical teaching management system established to ensure the orderly conduct of practical teaching.

4.2. Build an innovation and entrepreneurship incubation platform

Educators should rely on school-enterprise cooperation resources to build platforms such as college students' innovation and entrepreneurship incubators and maker spaces, providing one-stop services for students' entrepreneurial projects, including venue support, equipment guarantee, technical guidance, financial support, and market connection. Educators should also invite enterprise mentors and investment experts to provide guidance for students' entrepreneurial projects, helping them improve their business plans, solve problems encountered in the entrepreneurial process, and promote the transformation and implementation of entrepreneurial projects. By holding innovation and entrepreneurship competitions, entrepreneurial salons, project roadshows, and other activities, educators can stimulate students' entrepreneurial enthusiasm, tap their innovative potential, and provide a platform for students to showcase and exchange ideas.

4.3. Enrich the content and forms of practical teaching

A variety of practical teaching activities can be carried out, including internships, project practices, entrepreneurial simulations, and social practices, allowing students to accumulate experience and enhance their skills in different practical scenarios. Organize students to participate in actual enterprise project research and development, technical breakthroughs, and other activities, enabling students to understand the production process and technical standards of enterprises and enhance their ability to solve practical problems. Entrepreneurial simulation activities can also be carried out to simulate the entire process of enterprise registration, operation, and management, allowing students to accumulate entrepreneurial experience and enhance their entrepreneurial abilities. Organize students to carry out social practice activities, go deep into enterprises and communities to understand market demands, and explore entrepreneurial opportunities.

5. Strengthen the construction of a "dual-qualified" teaching staff and enhance educational capabilities

5.1. Improve the practical ability, innovation, and entrepreneurship teaching ability of university teachers

Firstly, universities should formulate teacher training plans, organizing teachers to take secondments in enterprises, participate in enterprise project research and development, attend industrial training, and other activities, so as to understand industrial development trends and enterprise actual needs, accumulate practical experience, and enhance practical teaching abilities. Secondly, teachers are encouraged to participate in innovation and entrepreneurship projects and scientific research and innovation activities to improve their

own innovation ability and entrepreneurial literacy, and integrate practical experience and innovation achievements into the teaching process. Furthermore, a mechanism for evaluating teachers' innovation and entrepreneurship teaching abilities should be established, incorporating the effectiveness of practical teaching and the results of guiding students in innovation and entrepreneurship projects into the scope of teacher assessment, so as to stimulate teachers' enthusiasm for improving their own abilities.

5.2. Strengthen the enterprise teaching faculty

On the one hand, it is necessary to establish a corporate mentor pool, inviting enterprise technical backbones, entrepreneurial mentors, industry experts, and others to serve as part-time teachers in universities, participating in classroom teaching, practical guidance, project review, and other work to supplement the faculty strength of universities. On the other hand, it is also necessary to formulate an incentive mechanism for corporate mentors, providing them with corresponding labor remuneration, professional title recognition, and other preferential policies to stimulate their enthusiasm for participating in teaching and form a stable corporate teaching team. In addition, a two-way communication mechanism between university teachers and corporate mentors should be established to promote complementary advantages and mutual improvement.

5.3. Strengthen teacher training and exchange

Regularly organize training for "dual-qualified" teachers, seminars on innovation and entrepreneurship teaching, school-enterprise teacher exchange activities, and other events, and invite domestic and foreign experts, outstanding teachers, and enterprise mentors to share teaching experience and practical insights, so as to enhance the overall level of the teaching staff. Encourage universities to collaborate with other universities and enterprises to jointly establish teacher training bases, share teacher training resources, and promote the coordinated development of teacher team building.

6. Improve the evaluation system and establish a sound incentive mechanism

6.1. Establish a scientific and comprehensive innovation and entrepreneurship evaluation system

Universities need to establish a diversified evaluation system that combines "process evaluation, summative evaluation, and practical achievement evaluation." The evaluation content covers students' theoretical knowledge, innovation awareness, entrepreneurial ability, practical achievements, team collaboration ability, and other aspects, comprehensively reflecting students' innovative and entrepreneurial qualities. Process evaluation focuses on assessing students' learning and practical processes through classroom performance, practical reports, project progress, and other methods; summative evaluation focuses on evaluating students' innovation and entrepreneurship achievements through entrepreneurial projects, innovative works, internship performance, and other methods; practical achievement evaluation focuses on assessing the implementation and achievement transformation of students' innovation and entrepreneurship projects, ensuring the scientificity and objectivity of the evaluation.

6.2. Innovate evaluation methods and strengthen process evaluation

A diversified evaluation method can be adopted, incorporating multiple evaluation subjects such as student self-evaluation, teacher evaluation, and enterprise evaluation, to ensure the comprehensiveness and fairness

of evaluation results. Information technology can also be utilized to establish student innovation and entrepreneurship files, recording students' learning processes, practical experiences, innovation achievements, and other information, so as to realize the informatization and intelligence of evaluation, promptly identify problems encountered by students in the process of innovation and entrepreneurship, and provide targeted guidance.

6.3. Improve the incentive mechanism to stimulate the enthusiasm of teachers and students

Firstly, establish and improve a teacher incentive mechanism, providing incentives such as commendations, professional title promotion, and performance bonuses to teachers who participate in industry-education integration teaching, guide students in innovation and entrepreneurship projects, and carry out scientific research and innovation activities, so as to stimulate their enthusiasm for teaching and innovation. Secondly, establish a student incentive mechanism, providing financial support, honorary commendations, and credit recognition to outstanding students in innovation and entrepreneurship and excellent entrepreneurial projects, encouraging students to actively participate in innovation and entrepreneurship activities. At the same time, set up a special fund for innovation and entrepreneurship to provide start-up capital and subsequent development funding support for student entrepreneurial projects, promoting the transformation of entrepreneurial achievements.

7. Conclusion

Industry-education integration is the core path to address the disconnection between the cultivation of innovative and entrepreneurial talents in universities and industrial needs, and it plays an important supporting role in talent cultivation in the background of new productive forces. The research in this paper shows that universities need to adhere to the concept of "school-enterprise collaboration, industry-education symbiosis, and the unity of knowledge and action", and improve the quality of innovative and entrepreneurial talent cultivation by deepening industry-education integration and optimizing training programs. Currently, talent cultivation through industry-education integration still faces challenges such as insufficient integration depth and disconnection between courses and industries, which requires collaborative efforts from universities, enterprises, and the government. In the future, universities should proactively adapt to the needs of industrial upgrading, deepen industry-education integration, innovate training models, and contribute high-quality innovative and entrepreneurial talents to the country's innovation-driven development.

Disclosure statement

The author declares no conflict of interest.

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