



Research Article

The Importance, Issues, and Path Exploration of Innovation and Entrepreneurship Education in Cultivating Practical Abilities of Software Engineering Students

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Abstract

Objective: This paper aims to explore the significant role of innovation and entrepreneurship education in cultivating the practical abilities of software engineering students. It analyzes the value of innovation and entrepreneurship education from the perspectives of talent cultivation goals and career development needs, and delves into the major issues currently faced in this field.

Methods: The paper further analyzes the characteristics of college students' innovation and entrepreneurship projects from initiation to maturity, proposing improvements in areas such as institutional guarantees for innovation and entrepreneurship education, refined management of project guidance, and project-based practical ability cultivation.

Results: There are urgent issues to address, such as the low integration of innovation and entrepreneurship education with the professional course system, the lack of a systematic management mechanism, insufficient professional development of guidance teachers, and inadequate incentives and policy support.

Conclusion: The aim is to provide a systematic solution for enhancing students' comprehensive practical abilities.

Keywords: innovation and entrepreneurship education; software engineering; practical ability; importance of cultivation; issues; paths

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1 INTRODUCTION

In the wave of the digital age, with the rapid development of cutting-edge technologies such as artificial intelligence, big data, and cloud computing, the global economy and society are undergoing profound structural transformations. This is especially true after the outbreak of the COVID-19 pandemic in 2020, which significantly increased society's

dependence on information technology to unprecedented levels^[1-3]. The pandemic has accelerated the digital transformation of various industries, especially the application of the internet and information technology, which has driven the emergence of new professions and innovative services. This transformation not only requires various industries to quickly adapt to new technological

requirements but also urgently needs a large number of highly qualified software engineering talents with innovation and practical abilities to support national economic development and social progress^[4]. In this context, the talent cultivation model in software engineering must also undergo corresponding adjustments and innovations. The software engineering professionals of the future must not only have solid professional foundations and technical abilities but also possess innovative thinking and entrepreneurial practice abilities^[5]. How to cultivate software engineering talents with innovation and entrepreneurship abilities has become a major issue in higher education. Especially in the face of rapidly changing industries and continuous technological advancements, how to effectively enhance students' innovation and practical abilities and improve their ability to solve complex problems in real-world work has become a key challenge that needs to be addressed in higher education.

Innovation and entrepreneurship education in software engineering majors is typically implemented through practical activities such as college students' innovation and entrepreneurship training programs (known as "Dachuang projects")^[6,7]. These practical activities not only provide students with opportunities for hands-on training but also enable students to learn key skills such as teamwork, project management, and problem-solving within specific projects. The Dachuang projects, along with various innovation and entrepreneurship competitions, such as the "Internet+" College Students Innovation and Entrepreneurship Competition, the "Challenge Cup" Scientific and Technological Innovation Competition, and the "Chuang Qing Chun" College Student Entrepreneurship Competition, provide students with rich practical platforms^[6,7]. Additionally, students can further enhance their innovation and practical abilities by applying for various levels of project funding, joining innovation studios, or participating in entrepreneurial incubators^[8]. However, despite the existence of multiple innovation and entrepreneurship education platforms, many universities' teaching models still have significant shortcomings. In particular, there is a need for further exploration and improvement in areas such as effectively integrating innovation and entrepreneurship education with professional course content and better supporting the stimulation of students' innovative thinking and the enhancement of their practical abilities^[9,10]. Therefore, optimizing the existing innovation and entrepreneurship education system, improving educational quality and practical effectiveness, and helping students successfully meet the demands of rapidly developing technological industries after graduation has become an urgent task in higher education. Against this background, this paper focuses on how to optimize the teaching methods and management models of innovation and entrepreneurship education to further enhance the practical abilities of software engineering students, aiming to provide actionable suggestions and improvement paths

for innovation and entrepreneurship education in higher education institutions.

2 MATERIALS AND METHODS

2.1 The Importance of Innovation and Entrepreneurship Education in Enhancing the Practical Abilities of Software Engineering Students

In modern higher education, innovation and entrepreneurship education is seen as an essential way to cultivate students' innovative spirit and practical abilities. Particularly in software engineering education, innovation and entrepreneurship education is not only limited to helping students develop entrepreneurial awareness and abilities, but more importantly, it enhances students' overall qualities and professional skills through practical processes (A summary of the role of innovation and entrepreneurship education in enhancing the practical abilities of software engineering students is shown in Table 1)^[11,12]. This process not only helps students better adapt to changes and solve problems in the workplace but also provides them with more practical opportunities to improve their hands-on skills and increase their career competitiveness.

Although the success rate of entrepreneurship is relatively low, and most graduates may not pursue entrepreneurial paths, the actual value of innovation and entrepreneurship education is not confined to the final entrepreneurial outcomes. For most students, the innovation and entrepreneurship practice itself is a valuable opportunity for learning and growth. Through this process, students can cultivate innovative thinking, enhance problem-solving abilities, improve communication and teamwork skills, and lay a solid foundation for their future careers^[13]. Particularly in software engineering, students who participate in innovation and entrepreneurship projects can apply the professional knowledge they have learned to real-world problems, improve their overall abilities, and thereby promote the comprehensive development of their professional qualities.

2.1.1 Promoting the Integration of Professional Courses and Practice

Students in software engineering have unique advantages, as they can combine what they have learned with practice through innovation and entrepreneurship projects. Unlike many other disciplines, innovation and entrepreneurship projects in the field of software engineering do not require complex experimental equipment or expensive materials. With just computers and network resources, students can engage in technological research, project development, and implementation. Through this low-cost form of practice, students can make full use of modern network platforms, open-source resources, and innovative tools to turn ideas into actual projects, carrying out the entire process from conception to realization. This method not only fills the gap in the cultivation of practical abilities in traditional

Table 1. Summary of the Role of Innovation and Entrepreneurship Education in Enhancing the Practical Abilities of Software Engineering Students

Aspect	Specific Content	Role and Significance
Promoting the Integration of Professional Learning and Practice	By participating in innovation and entrepreneurship projects, students can apply professional knowledge to actual development, expanding their technical abilities.	Through practice, students not only consolidate the professional knowledge they have learned but also enhance their problem-solving abilities and improve their practical skills.
Cultivating Comprehensive and Professional Qualities	Through teamwork, communication and coordination, project management, etc., students cultivate professional qualities such as teamwork, leadership, and communication skills.	These soft skills are crucial in the workplace and help students quickly adapt and demonstrate strong comprehensive abilities and leadership potential in their future careers.
Laying the Foundation for Research Ability and Further Study	Through project practice, students cultivate the ability to discover and solve problems, gain early exposure to the research process, and master research skills such as literature review and data analysis.	This research experience provides students with valuable exposure to academic work, helping them develop the ability to conduct independent academic research in the future.

classroom teaching but also helps students consolidate and expand their professional knowledge through real projects. Especially in highly technical courses, students often lack opportunities to integrate theory with practice. Innovation and entrepreneurship projects provide an excellent platform for students to flexibly apply their knowledge of programming, algorithms, software design, etc., to real-world applications, thus improving their technical level and ability to solve practical problems.

Through the guidance of innovation and entrepreneurship projects, students can deepen their understanding of professional knowledge while engaging in self-directed learning and exploration throughout the project process, enhancing their initiative in learning and practical abilities^[14,15]. For example, when participating in the development of a software application, students need to work through stages such as requirements analysis, system design, code implementation, and testing feedback. These practical stages allow students to gain a deeper understanding of technical details and apply theoretical knowledge to solve real problems.

2.1.2 Cultivating Comprehensive Qualities and Professionalism

Comprehensive qualities and professional qualities are fundamental requirements for talent in the modern workplace, and innovation and entrepreneurship education can provide students with valuable opportunities to develop in these areas. By participating in innovation and entrepreneurship projects, students are not only engaged in technical development but also need to communicate and coordinate with others, manage resources, and solve conflicts within a team. The cultivation of these soft skills is an indispensable part of the workplace.

In innovation and entrepreneurship projects, students often face complex organizational tasks such as team management, task distribution, and time control, all of which will enhance their leadership skills, decision-making abilities, and teamwork spirit^[16]. Additionally, students need

to refine their communication and public speaking skills through repeated discussions and presentations. Practice has proven that graduates with strong communication abilities and a spirit of teamwork are more likely to stand out in the future workplace^[17,18].

In completing innovation and entrepreneurship projects, students not only gain practical experience but also cultivate resilience and perseverance. Facing challenges and failures in a project, students must remain calm, adjust their plans in time, and improve their problem-solving skills through continuous trial and error. These qualities will form the foundation for students' ability to overcome difficulties and face challenges in their future careers.

2.1.3 Laying the Foundation for Research Ability and Further Study

With the popularization of graduate education, cultivating research abilities has become one of the important goals of undergraduate education. In this context, innovation and entrepreneurship education provides students with early exposure to research practices. By participating in innovation and entrepreneurship projects, students can discover problems, propose solutions, and adjust their goals through experiments and research, ultimately achieving innovative objectives. This process closely mirrors the problem discovery, knowledge application, and results summary found in research work.

Through practical experience in innovation and entrepreneurship projects, students can conduct independent research and exploration under the guidance of their mentors, learning how to consult literature, develop research plans, analyze data, and even write papers and reports. This accumulation of research processes lays a solid foundation for students to enter graduate studies, enabling them to quickly adapt to research work and develop certain research capabilities^[19]. For example, through exploring and solving technical problems, students can cultivate a problem-oriented mindset and basic skills in scientific research during the innovation and entrepreneurship

Table 2. Summary of Problems Facing Innovation and Entrepreneurship Education

Problem Area	Specific Manifestations	Impact and Consequences
Insufficient Integration of Professional Education and Innovation and Entrepreneurship Education	Professional courses are mostly focused on traditional knowledge transfer, lacking integration with cutting-edge technologies. After-school assignments are disconnected from innovation and entrepreneurship education.	The course content does not match the needs of innovation and entrepreneurship, making it difficult for students to apply their knowledge to solve practical problems and lacking innovation capabilities.
Insufficient Precision in Innovation and Entrepreneurship Project Management	Project progress is slow, and there is a lack of mid-term monitoring and support. Some projects fail to be transformed into tangible results due to lack of funding and market demand.	Students' projects stagnate or are terminated midway, and innovation and entrepreneurship projects fail to be successfully implemented, significantly reducing the effectiveness of education.
Insufficient Professional Development of Innovation and Entrepreneurship Instructors	Most instructors lack practical entrepreneurial experience and project management knowledge and have not received specialized entrepreneurial guidance training.	The quality of guidance is low, and there is a lack of effective direction for students, limiting the development of projects.
Inadequate Incentive Mechanism for Instructors	Most instructors' work is unpaid, and project results rarely lead to personal honors or workload credits, lacking effective incentives.	The enthusiasm of instructors to participate decreases, impacting the quality of teaching and the level of guidance for students' innovation and entrepreneurship projects.

process, providing valuable experience and methods for future research work.

3 RESULTS

3.1 The Current Situation and Main Problems of Innovation and Entrepreneurship Education

In our Software Engineering School, innovation and entrepreneurship education has made considerable progress in terms of institutional guarantees, resource support, and practical method exploration, and valuable experience has been accumulated during the implementation process. However, in specific educational practices, there are still many challenges, especially regarding the integration of professional courses with innovation and entrepreneurship education, the management of innovation and entrepreneurship projects, and the professional development of instructors. Significant shortcomings remain in these areas (A summary of the problems facing innovation and entrepreneurship education is shown in Table 2). These problems affect the effectiveness of innovation and entrepreneurship education and need to be addressed in future teaching reforms.

3.1.1 Insufficient Integration of Professional Education and Innovation and Entrepreneurship Education

Currently, there is a certain disconnection between the curriculum of the software engineering major and innovation and entrepreneurship education. The teaching content of professional courses is mostly focused on traditional theoretical knowledge, which, although covering the basic framework of the discipline, is not closely connected with cutting-edge technologies in current scientific and technological developments, making it difficult to meet the demands for cultivating students' innovation and entrepreneurship abilities^[20]. Many courses also lack effective integration of innovation and entrepreneurship concepts in their practical components, leading students to often lack sufficient innovative thinking

and the ability to solve practical problems when completing assignments and experiments.

Furthermore, the form of innovation and entrepreneurship education mainly consists of lectures and short-term courses, which are more general and lack systematic, continuous, and targeted approaches. This educational format has not truly sparked students' entrepreneurial awareness and lacks effective training in key skills such as discovering market demands, forming innovative teams, and implementing projects. As a result, after completing basic innovation and entrepreneurship courses, students still struggle to apply what they have learned to practical problems, lacking hands-on experience and an understanding of the entire entrepreneurial process.

3.1.2 Insufficient Precision in Innovation and Entrepreneurship Project Management

Innovation and entrepreneurship projects usually require a long-term commitment. At the early stages of a project, students, driven by interest and enthusiasm, are often actively involved in exploration. However, as the project progresses and more challenges arise, students tend to experience burnout, causing the project to progress slowly or even stagnate. Although there are periodic checks during the project, this management approach lacks sufficient monitoring of daily progress and specific guidance, leading to a loss of direction in the middle stages of the project. Moreover, many innovative projects that show promising ideas or initial results fail to achieve commercialization after participating in various innovation and entrepreneurship competitions due to a lack of subsequent financial support and market validation. At the same time, students' academic progress often conflicts with the choice of entrepreneurial projects. Many students have to make a choice between academics and entrepreneurship, which ultimately leads to the dissolution of projects and teams, causing the original intention of innovation and entrepreneurship education to be unfulfilled.

3.1.3 Insufficient Professional Development of Innovation and Entrepreneurship Instructors and Lack of Incentive Mechanisms

In the current innovation and entrepreneurship education, most of the project guidance is carried out by professional course instructors, who have a strong theoretical foundation in their fields and can provide necessary technical support for students. However, these instructors often lack practical entrepreneurial experience and specialized knowledge in market operations, particularly in areas such as project management, team building, and market demand assessment, which limits their guidance ability^[21,22]. Due to the lack of relevant entrepreneurial training and practical experience, the role that instructors play in innovation and entrepreneurship education is constrained, affecting the quality of project guidance.

In addition, there is a lack of an effective incentive mechanism for innovation and entrepreneurship instructors, leading to a low level of enthusiasm for teachers' involvement in entrepreneurial projects. Although instructors spend significant time and effort on project evaluation, defense, and other processes, most of this work is unpaid, and only a few projects lead to actual honors or measurable outcomes. This lack of effective incentives has significantly reduced instructors' motivation to engage in innovation and entrepreneurship education, which in turn affects the improvement of educational outcomes.

4 DISCUSSION

4.1 Exploration of Models and Suggestions for Improving the Practical Ability Cultivation in Innovation and Entrepreneurship Education

Innovation and entrepreneurship education is not only a key way to cultivate students' innovative awareness but also an important means to enhance their practical abilities and cultivate interdisciplinary talents^[23,24]. In order to cultivate innovative and compound talents capable of thriving in today's complex and ever-changing economic and technological environments, a profound reflection and reform of educational models are necessary (A summary of the core elements of the innovation and entrepreneurship education system is shown in Table 3). Our Software Engineering School, in promoting innovation and entrepreneurship education, has gradually optimized the educational pathways, emphasizing the integration of theory and practice, with the goal of comprehensively enhancing students' innovation and entrepreneurship capabilities through sound institutional guarantees, rich resource allocation, and meticulous project management.

4.1.1 Development and Construction of Hardware Support Conditions and Institutional Guarantee System for Innovation and Entrepreneurship Education

The success of innovation and entrepreneurship education relies on effective hardware support conditions and a sound institutional guarantee system. By improving innovation

and entrepreneurship practice platforms and establishing a sustainable development system, we provide comprehensive support for students' innovation and entrepreneurship.

4.1.1.1 Construction of Hardware Support Facilities

Our Software Engineering School places significant emphasis on the construction of hardware facilities, and the establishment of the Innovation and Entrepreneurship Practice Center reflects this strategy. The construction of the Innovation Practice Center not only provides a physical space for project incubation but also equips students with modern hardware facilities such as high-performance computers, development tools, and virtual laboratories, providing technical support for students' innovation and entrepreneurship. In addition, the center is equipped with several innovation studios dedicated to supporting small-scale R&D experiments, promoting the integration of practical operations with theoretical knowledge.

4.1.1.2 Institutional Guarantee System

In order to ensure the sustainability of innovation and entrepreneurship activities, the school has formulated a series of institutional support measures. The Innovation and Entrepreneurship Leadership Group is led by the school's senior leadership, with the department heads coordinating implementation and counselors and teachers actively participating. Through this institutionalized organizational structure, all aspects of innovation and entrepreneurship activities can receive effective supervision and support (The organizational management structure of students' innovation and entrepreneurship activities is shown in Figure 1).

Furthermore, the school has established a project evaluation and reward mechanism to ensure that excellent entrepreneurial projects receive funding and promotion. The school collaborates with multiple enterprises to set up dedicated entrepreneurial funds and provides incubation support for outstanding projects, ensuring that projects smoothly transition from the initial stage to market application.

4.1.1.3 Construction of the Guidance Teacher Team

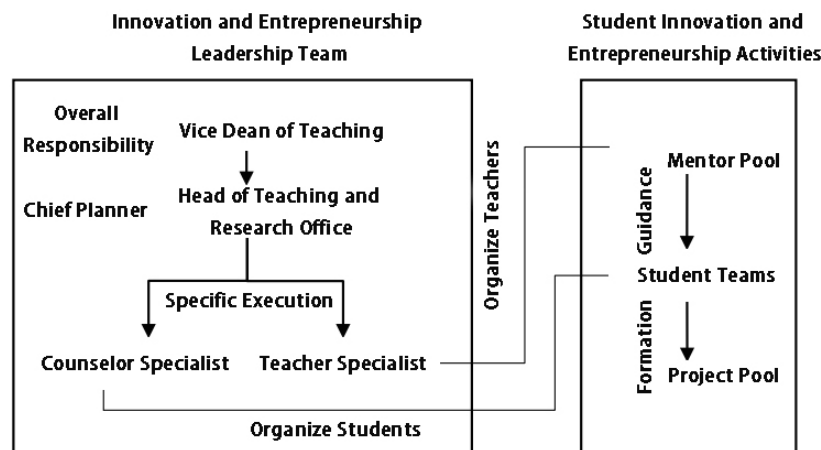
The school attaches great importance to the construction of the innovation and entrepreneurship mentor team, recruiting a wide range of business experts and scholars with rich innovation and entrepreneurship experience as part-time mentors. At the same time, the school also provides specialized training for teachers to help them enhance their project guidance capabilities, particularly in team management, market analysis, and financing strategies. Through these measures, the school ensures that teachers can provide better professional guidance to students, improving the success rate of student entrepreneurship.

4.1.2 Fine Management of Innovation and Entrepreneurship Teams and Project Progress

Innovation and entrepreneurship activities often

Table 3. Summary of Core Elements of the Innovation and Entrepreneurship Education System

Element	Content Description	Impact
Hardware Support Conditions	The Innovation and Entrepreneurship Practice Center provides a 400-square-meter office area, with 66 workstations, equipped with modern development tools and technical support platforms.	Provides physical and technical support, promoting the initiation of students' innovation activities.
Institutional Guarantee System	Establishes an Innovation and Entrepreneurship Leadership Group with clear division of responsibilities; sets up reward and funding mechanisms, as well as a project incubation system. Teachers' guidance for innovation projects is rewarded and counted for work credits.	Ensures the smooth progression of innovation and entrepreneurship activities, motivating both students and teachers.
Teacher Team Construction	Invites business experts and academic mentors to jointly participate in innovation and entrepreneurship guidance; regularly holds faculty training to enhance teachers' guidance capabilities.	Enhances teachers' professionalism and guidance ability, improving the quality of innovation project mentoring.
Team Management and Project Advancement	Regular project progress reviews and defense sessions are held; adopts a "worst performer elimination" system and grading incentives to encourage and supervise teams. Team members collaborate based on their different functions.	Strengthens team competitiveness, ensures smooth project progression, and enhances students' teamwork abilities.
Project Application and Initiation	Through lectures, experience-sharing sessions, and other activities, the school stimulates students' innovative thinking, encourages them to apply for innovation projects, and provides financial support and market connection for the projects.	Stimulates students' awareness of innovation, providing funding support and practical opportunities for excellent projects.
Integration of Innovation and Professional Courses	Professional courses are deeply integrated with innovation and entrepreneurship education, offering project practice opportunities; interdisciplinary collaboration cultivates students' innovative thinking and problem-solving skills.	Enhances students' practical abilities, combining innovative thinking with professional skills for practical application.
Cultivation of Students' Practical Abilities	At each stage of the project, students are helped to improve their skills in research, proposal design, teamwork, problem-solving, and resilience, fostering their innovative thinking.	Promotes students' overall development, cultivating them into compound talents with strong practical abilities.


Figure 1. Organizational Management Structure of Innovation and Entrepreneurship Activities in the School.

involve complex teamwork and project management, making meticulous management methods particularly important. The school's Innovation and Entrepreneurship Practice Center ensures the orderly progress of projects by establishing a series of standardized management processes.

4.1.2.1 Team Management and Project Advancement Mechanism

The Innovation and Entrepreneurship Practice Center

ensures that student teams operate efficiently through detailed team management systems and project progress monitoring. The center has set up a regular evaluation mechanism to review and provide feedback on each team's progress. Additionally, each team has a dedicated project manager or team leader to ensure that team members perform their roles and responsibilities clearly. Regular project presentations, defense sessions, and other activities are organized to enhance both competition and

collaboration between teams, boosting the innovation and practicality of projects.

4.1.2.2 Project Progress Tracking and Quality Control

To ensure the smooth implementation of innovation and entrepreneurship projects, the school tracks the entire project implementation process. Through systematic periodic reviews and feedback mechanisms, problems in the project implementation process can be identified and addressed in a timely manner. Mid-term checks and final project reviews are crucial components of the entire process. The school establishes strict quality control standards to ensure that projects meet the expected goals at each stage.

4.1.3 Exploration and Practice of Cultivating Students' Practical Innovation Ability Centered on Innovation and Entrepreneurship Projects

The core objective of innovation and entrepreneurship education is to cultivate students' practical innovation ability. Through the promotion of actual projects, students not only convert theoretical knowledge into practical results but also develop their teamwork and innovative thinking skills in the process of solving real-world problems.

4.1.3.1 Comprehensive Promotion and Application for Innovation Projects

To stimulate students' innovation potential, the school actively conducts innovation and entrepreneurship education from the moment students enter as freshmen. Through lectures, sharing sessions, and entrepreneurial experience exchanges, students gain a better understanding of the significance of innovation and entrepreneurship, and their interest in participating in innovation projects is sparked. The school also has a dedicated Innovation and Entrepreneurship Promotion Committee, which organizes regular innovation project exhibitions and exchanges, encouraging students to transform innovative thinking into practical entrepreneurial proposals.

4.1.3.2 In-depth Integration of Professional Courses with Innovation and Entrepreneurship

The school has strengthened the integration of professional courses with innovation and entrepreneurship education. After completing each programming course, students will engage in several weeks of practical project experience. Teachers guide students to apply what they have learned to actual development work through project development. Additionally, the school incorporates innovation and entrepreneurship elements into elective courses, where students can choose topics closely related to market demand for in-depth research, forming innovative projects with practical application value.

4.1.3.3 Diversified Cultivation of Students' Practical Abilities

The development of innovation and entrepreneurship

projects covers a wide range of skill cultivation. The school ensures that students can master the corresponding practical skills at different stages by setting up specialized courses and project-based teaching. For example, during the project initiation phase, students need to conduct market research and demand analysis, and develop specific implementation plans. In the project advancement phase, students must address technical difficulties, team coordination, resource integration, and other issues, all of which significantly enhance students' comprehensive abilities.

5 CONCLUSION

With the continuous deepening of the innovation-driven development strategy, innovation and entrepreneurship education has become increasingly important in higher education, especially in the training process of software engineering majors. By integrating various resources and building an innovation and entrepreneurship ecosystem, comprehensively enhancing students' practical innovation abilities, and cultivating innovative talents that meet the needs of the times, it has become an inevitable trend in educational development. In order to truly achieve this goal, it is essential to continuously innovate educational models, improve management mechanisms, and provide students with platforms for growth through diversified practical activities. First, the school should increase its efforts to promote and expand innovation and entrepreneurship education, so that students can establish an awareness of innovation from the moment they enroll, and continuously foster this awareness. In addition, by leveraging the advantages of school-enterprise cooperation and social resources, the school can provide more practical platforms and industry mentors for students, broadening their horizons and enhancing their ability to solve real-world problems. Second, the college should actively integrate innovation and entrepreneurship elements into the teaching process. By optimizing and innovating course content, the college can guide students to identify and solve practical problems within their professional studies. In this way, students can not only improve their technical abilities but also develop comprehensive skills such as project management, teamwork, and market analysis, laying a solid foundation for their future careers. Furthermore, during the implementation of practical projects, the school should establish a sound project management and evaluation mechanism, tracking and guiding innovation and entrepreneurship projects throughout their entire process. In the early stages of a project, through guidance on market research, document writing, and technical proposals, students can clarify their project goals and develop feasible plans. During the project implementation phase, the teaching team should provide technical support, help students overcome technical difficulties, and guide them in dealing with communication and coordination issues in teamwork. After the project ends, through defense, summaries, and promotions, students' results should be evaluated and showcased, providing a

basis for their subsequent development. Finally, to stimulate students' enthusiasm for participating in innovation and entrepreneurship, the school should establish diversified incentive mechanisms, offering financial support, scholarships, entrepreneurial assistance, and other policy supports. At the same time, the school should set up a dedicated innovation and entrepreneurship fund to support promising projects entering the market, giving students real opportunities to realize their entrepreneurial dreams. In conclusion, innovation and entrepreneurship education is not only about the transmission of knowledge but also about the comprehensive cultivation of practical abilities and innovative thinking. By continuously optimizing teaching methods, increasing resource input, and improving management mechanisms, the school can better promote the enhancement of students' innovation and entrepreneurship capabilities, cultivating more innovative talents that meet societal needs. As the "Double Innovation" policy deepens, the education sector should keep pace with the times, offering students a broader stage to help them stand out in the fierce market competition and achieve success in the future.

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Conflicts of Interest

The author declared no conflict of interest.

Data Availability

All data generated or analyzed during this study are included in this published article and its supplementary information files.

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Author Contribution

The author contributed to the manuscript and approved the final version.

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