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# Research on Strategies for Enhancing College Students' Innovation and Entrepreneurship Capabilities through Digital Intelligence Technology

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**ABSTRACT**
In the context of the digital intelligence era, the rapid development of digital intelligence technology has provided new opportunities for enhancing college students' innovation and entrepreneurship capabilities, and injected new vitality into innovation and entrepreneurship education. Regarding various problems in the process of college students' innovation and entrepreneurship, it is necessary to base on the advantages of the empowerment of digital intelligence technology, and follow the progressive path of enlightenment and infiltration, deepening practice, and solidification and extension, to promote the implementation of strategies from dimensions of cognitive cultivation, capability improvement, and sustainable execution. Through precise push of cutting-edge information, intelligent analysis of successful cases, application of data analysis tools, establishment of an intelligent solution design platform and other measures, practical problems in college students' innovation and entrepreneurship can be solved, and their innovative thinking, practical ability, and resource allocation capacity can be enhanced. These measures provide all-round support for college students' innovation and entrepreneurship, and enable them to adapt to the development needs of the digital intelligence era, enhance competitiveness, and achieve personal development and innovation and entrepreneurship development.

**KEYWORDS**
Digital intelligence technology; College students; Innovation and entrepreneurship capabilities; Empowerment strategies

## 1 Introduction

College students are the main force in innovation and entrepreneurship, and their innovation and entrepreneurship capabilities directly affect their personal growth and development, as well as the implementation of the national innovation-driven development strategy [1]. With the widespread application of digital intelligence technology, the field of innovation and entrepreneurship is gradually transforming towards digitalization and intelligence, which puts forward higher requirements for innovation and entrepreneurship capabilities of college students. However, current innovation and entrepreneurship education in colleges and universities is plagued by problems such as insufficient digital intelligence cognition, poor application of technology, and inadequate achievement transformation among students, which hinders the improvement of students' innovation and entrepreneurship capabilities [2]. Based on this reality, this paper explores strategies to strengthen college students' innovation and entrepreneurship capabilities from three aspects: enlightenment and infiltration, deepening practice, and solidification and extension. It can not only innovate the education model of innovation and entrepreneurship and optimize the education effectiveness, but also help college students better seize the opportunities of digital intelligence development and stimulate their innovation and entrepreneurship motivation, thus cultivating more innovative and entrepreneurial talents that meet the needs of the times.

## 2 Cognitive Expansion: Digital Intelligence Technology Facilitates the Dissemination of Innovation and Entrepreneurship Concept

### 2.1 Extensive Reach of Cutting-Edge Information to Stimulate Innovation Consciousness

The popularization of digital intelligence technology enables college students to conveniently access various cutting-edge information on innovation and entrepreneurship, effectively breaking down information barriers and stimulating innovative consciousness. By leveraging technologies such as big data and artificial intelligence, various innovation and entrepreneurship platforms, short video channels, and industry official accounts can precisely push information tailored to college students' interests and majors, including emerging industry trends, cutting-edge technology applications, and policy support, so as to enable college students to keep abreast of current hot areas and development directions of innovation and entrepreneurship. In this way, college students can not only break through the cognitive limitations caused by information asymmetry, but also come into contact with interdisciplinary and cross-field innovation cases and technological innovation trends, such as the precise diagnosis assisted by AI in the medical and health sector, and the integration of the metaverse with traditional cultural industries. Such continuous and targeted information input can constantly stimulate college students' desire for knowledge and exploration, and enable them to proactively connect their professional knowledge with the application scenarios of digital intelligence technologies, and transform from passively receiving information to actively exploring opportunities. Therefore, they can gradually develop a strong innovative insight, laying a ideological foundation for subsequent innovation and entrepreneurship practice.

### 2.2 In-depth Interpretation of Successful Cases to Inspire Entrepreneurial Thinking

Innovation and entrepreneurship education serves as an important support for implementing the innovation-driven development strategy [3]. The popularization of digital intelligence technology has provided an efficient channel for college students to access and understand high-quality innovation and entrepreneurship cases. Through digital intelligence forms such as video interpretation, visual-textual analysis, and online salons, various platforms can conduct a comprehensive dissection of successful innovation and entrepreneurship cases in various fields and of various scales, from the perspectives of project intention, model design, technology application, and market promotion. They elaborate on the logic and thinking behind these cases, in order to enable college students to directly grasp the core logic of innovation projects in different scenarios, understand how entrepreneurs utilize technological advantages to transform theoretical knowledge into market value, and learn solutions to issues such as capital shortage and user growth bottlenecks. Both typical cases of college student entrepreneurship and those of mature entrepreneurial enterprises can be widely disseminated and deeply interpreted through digital and intelligent platforms. College students can drawn on the successful experience of these cases according to their own realities to avoid common risks. At the same time, digital intelligence technology supports the classified retrieval of cases, enabling college students to quickly locate and study examples that align with their majors and interests. In the process of analyzing these cases, students can cultivate their logical and innovative thinking, and gain valuable insights for their own innovation and entrepreneurship.

### 2.3 Virtual Situation Simulation and Practice to Accumulate Initial Experience

Innovation and entrepreneurship activities are usually carried out based on specific scenarios [4]. The application of digital intelligence technologies helps to create virtual simulation platforms, enabling college students to conduct innovation and entrepreneurship simulation exercises in a safe and low-cost environment, effectively accumulate initial experience, and reduce the risks of actual entrepreneurship. Using virtual simulation technology to simulate the entire process of innovation and entrepreneurship, including project initiation, market research, product design, as well as promotion and operation, makes college students experience the entrepreneurial process in a simulated environment and attempt to solve various problems such as unclear market positioning, poor resource connection, and unsatisfactory promotion effect. Meanwhile, the virtual scenario can reproduce real market environments and entrepreneurial scenes. College students can adjust their strategies timely based on the simulation feedback and repeatedly practice and optimize to gradually master the basic processes and methods of innovation and entrepreneurship, and accumulate valuable initial experience. Moreover, the virtual scenario supports collaborative frills for multiple people. College students can form simulation teams and experience their responsibilities and team cooperation in the process of role division and coordination, thereby strengthening their communication and coordination skills. This low-risk and high-interaction simulation mode allows college students to complete multiple iterations of entrepreneurial scenarios in a short period, gradually establish a capability system to deal with various emergencies, and enhance confidence and strength in innovation and entrepreneurship.

### 2.4 Interactive Communication in Online Communities to Inspire Innovative Ideas

Online communities support by digital intelligence technology provide a convenient and efficient platform for college students to communicate about innovation and entrepreneurship, which service as an important channel to stimulate innovative ideas and forge entrepreneurial consensus. Leveraging digital intelligence tools, various online communities for innovation and entrepreneurship break through the constraints of time and space, and bring together college students from different majors and institutions, as well as industry practitioners, entrepreneurship mentors and other stakeholders, thus creating a multi-dimensional and three-dimensional communication environment. College students can share their innovative ideas and entrepreneurial dilemmas in the communities, and also browse others' viewpoints and experiences, so as to generate new innovative inspiration through the collision of thoughts. At the same time, thematic discussions, idea relay, and problem-solving can be organized in online communications to prompt college students to think and communicate, continuously refine fragmented ideas and eventually develop into feasible innovation plans. Entrepreneurship mentors and senior industry practitioners provide online guidance through the communities, and offer suggestions on college students' innovative ideas based on their own experience, thus helping them avoid entrepreneurial mistakes and broaden innovation horizons. In addition, online communities can facilitate resource sharing among college students, enable students with the same entrepreneurial direction to support each other, and transform individual inspiration into collective innovative strength, thus laying a sound ideological foundation for subsequent innovation and entrepreneurship practices. Through this way, online communities can help college students gradually form scientific concepts of innovation and entrepreneurship and enhance the activity and foresight of their innovative thinking.

## 3 Capacity Development: Integrate Digital Intelligence Technology into Innovation and

## Entrepreneurship Practice Training

### 3.1 Data Analysis Tools to Assist in the Identification and Verification of Market Opportunities

Cultivating the innovation and entrepreneurship capabilities of college students is a practical demand in response to the competition in the job market [5]. In innovation and entrepreneurship practice training , data analysis tools in digital intelligence technology can quickly identify market opportunities and verify their feasibility, thereby enhancing the scientific nature and success rate of innovation and entrepreneurship. College students can utilize user-friendly data analysis tools to collect and sort put data on market demand, industry competition, and user preferences, and can apply data statistics, trend analysis, and other means to quickly identify market gaps and unmet needs, thus accurately finding opportunities for innovation and entrepreneurship. Data analysis tools can also verify the identified market opportunities, and analyze the authenticity of user needs, the size of markets, and the quality of competitive landscape, so as to help college students judge the feasibility and development potential of opportunities and avoid blind investment. In both market research or project feasibility verification, data analysis tools can simplify the process and improve efficiency, freeing college students from cumbersome manual data processing and allowing them to focus more on opportunity analysis and strategy formulation. It can gradually improve students' market insight and data analysis capabilities, provide scientific support for innovation and entrepreneurship practice, ensure that projects meet market demands, and increase the success rate of entrepreneurship.

### 3.2 Intelligent Platforms to Support Business Plan Design and Optimization

Intelligent platforms built with digital intelligence technology can provide comprehensive support for the design and optimization of innovation and entrepreneurship business plans for college students, and make the plans more feasible and targeted. The intelligent platforms integrate various resources such as business plan templates, industry data, and case references. With the help of platform templates, college students can quickly build a framework of a business plan, and supplement and refine core contents such as product introduction, market analysis, operation plans, and capital planning according to their own project characteristics, thus avoiding the blindness of plan design. At the same time, the intelligent platforms are equipped with the function of providing plan optimization suggestions. Based on the business plans submitted by college students, according to industry trends and market demands, they can propose targeted improvement suggestions in terms of logical structure, content integrity, and feasibility, prompting college students to identify deficiencies in their plans and revise them accordingly. In addition, the intelligent platforms support real-time modification of plans and multi-person collaboration, and college students can revise and improve their plans at any time based on feedback to improve the design efficiency and quality of plans. This further enhances students' plan design and logical thinking abilities, and lays a foundation for the implementation of innovation and entrepreneurship projects.

### 3.3 Cloud Collaboration Mechanisms to Promote Team Collaboration and Resource Sharing

The cloud collaboration mechanism can break the constraints of time and space, enable innovative and entrepreneurial teams to collaborate efficiently and share resources, and enhance their overall capabilities. In practice training of innovation and entrepreneurship, college student teams can use the cloud collaboration platform to complete task assignment, progress tracking, document sharing, real-time communication, and other operations, thus coordinating work and synchronizing progress in a timely manner. For instance, team members can use the cloud platform in various locations such as dormitories, laboratories, or off-campus internship sites to view task schedules, and clarify their respective responsibilities and tasks, thereby preventing work delays caused by information asymmetry. Meanwhile, the cloud platform can centrally store various team materials, such as business plans, market data, design outcomes, all of which can be accessed, modified and used on the cloud platform, thereby establishing a dynamically iterated knowledge asset library and achieving resource sharing and utilization. Additionally, the cloud platform can connect with external high-quality resources to provide technical guidance, fund information and other support to teams, thereby enhancing the teams' capacities and levels of innovation and entrepreneurship. This mechanism can not only enhance the efficiency of teamwork, but also cultivate members' awareness of division of labor and cooperation as well as their ability of resource integration, thus providing a strong guarantee for the development of innovation and entrepreneurship projects.

### 3.4 Intelligent Evaluation Systems to Promote Project Iteration and Optimization

With the in-depth development of the digital era, artificial intelligence has become a key driving force for the transformation of college students' innovation and entrepreneurship [6]. As a crucial digital intelligence means to promote the continuous improvement of entrepreneurial projects and the sustained progress of capabilities, intelligence evaluation systems can provide scientific support for project optimization and help college students hone their innovation and entrepreneurship capabilities in practice. Intelligent evaluation systems integrate project operation data, market feedback information, industry development trends and other elements relying on digital intelligence technology to form a comprehensive and efficient evaluation system. Without cumbersome manual statistics, the system can accurately determine the feasibility and sustainability of entrepreneurial projects and provide objective evaluations. With this system, college students can clearly identify the advantages and shortcomings of their entrepreneurial projects, and

accurately pinpoint directions for improvement, thus avoiding unnecessary resource waste due to arbitrary adjustments. Meanwhile, the system can automatically generate targeted improvement suggestions for different project conditions, provide feasible methods for improving business plans, offer feasible proposals for adjusting market positioning, and make rational arrangements for resource allocation. The intelligent evaluation system can also monitor the entire iterative process of projects and record the effects after each adjustment, enabling college students to clearly understand the development trajectory and progress of their projects. Additionally, the system can analyze and compare data from other similar outstanding projects to provide reference for college students. It can help college students broaden their thinking, optimize plans, and promote the continuous update and improvement of entrepreneurial projects, so as to enhance the quality and competitiveness of the projects. It also can enable college students to strengthen their innovative awareness and practical operation skills in the process of project improvement.

## 4 Achievement Implementation: Digital Intelligence Technology Boosts the Improvement of Innovation and Entrepreneurship Capabilities

### 4.1 Digital Channel Expansion to Consolidate the Foundation of Entrepreneurship Capability

The various digital channels established by digital technology can facilitate the rapid expansion of early-stage users for college students' innovation and entrepreneurship projects, achieve precise audience reach, and lay a solid foundation for the improvement of innovation and entrepreneurship capabilities. In line with the features of projects and the needs of target user groups, college students can release project-related content through digital channels including short-video platforms, social media, live-streaming commerce and online communities, and highlight the advantages and characteristics of products or services, in order to attract intended users. Moreover, digital channels feature real-time interactivity. College students can communicate with users through comments and private messages to understand user needs and obtain feedback, so as to make timely adjustments to marketing strategies and product services, and increase user attention and loyalty. By leveraging the dissemination advantages of digital channels, innovation and entrepreneurship projects can rapidly accumulate users in the initial stage, enhance their popularity and influence, inject impetus into the subsequent development of projects, and simultaneously cultivate college students' capabilities in marketing promotion and user operation.

### 4.2 Online Community Empowerment to Improve Brand Operation Capability

Online communities supported by digital intelligence technology serves as a word-of-mouth communication platform for college students' innovation and entrepreneurship projects. They can help students cultivate their skills in brand operation and reputation management, and promote the improvement of their innovation and entrepreneurship capabilities. In practice, college students can post practical content, user feedback, and application experience related to their projects on various online communities such as industry forums, user communities, and social platforms, thereby stimulating discussions experience sharing among users, and creating an atmosphere for the spread of good reputation. At the same time, users in online communities can communicate with and recommend to each other, and high-quality products or services can spread quickly through spontaneous user sharing, thus forming a positive reputation and attracting more potential users to pay attention to the project. By leveraging the word-of-mouth communication advantages of online communities, college students can master core brand operation skills such as user insight, content operation, and community management, and gradually improve their comprehensive abilities ranging from user connection to brand value transmission, thus laying consolidate the brand foundation for the sustainable development of innovation and entrepreneurship projects.

### 4.3 Data Feedback to Enhance Innovative Practice Capability

Utilizing digital intelligence technology to collect and sort various data feedback generated during the promotion of innovation and entrepreneurship projects, and provide scientific basis for the iteration and improvement of products or services can help college students continuously optimize their projects, enhance market competitiveness, and steadily improve their innovation and entrepreneurship capabilities. Collecting user experience, demand suggestions, satisfaction and other relevant data through digital channels, online communities, user surveys and other approaches, and adopting data analysis tools to organize and analyze the data can accurately identify deficiencies and improvement directions of products or services. For instance, by using A/B testing to compare indicators such as user retention rate and conversion rate of different product versions, college students can clearly determine whether the optimization direction is effective. With user behavior path analysis tools, they can discover bottlenecks and pain points during user usage. As a results, they can make targeted adjustments to product functions or service processes. At the same time, the continuous data feedback loop can cultivate students' keen market insight, and enables them to detect potential changes in demand from data trends and make early arrangements for product innovation, thus gradually forming a closed-loop thinking of "data collection, analysis, optimization, and verification", and injecting sustained momentum into project development. Moreover, when processing a large amount of data, college students can improve their data analysis, logical thinking, and problem-solving abilities, which will become important supports for their future innovation and entrepreneurship. In the

process of continuously translating data feedback into actual improvement actions, college students can not only enhance the market adaptability of their projects, but also deepen their understanding of innovation laws through continuous practice, thus achieving the shift from theoretical cognition to practical competence. It lays a solid foundation for the implementation of entrepreneurial projects in the future.

### 4.4 Intelligent Analysis to Assist Business Decision-Making and Risk Management

In the implementation stage of college students' innovative and entrepreneurial achievements, intelligent analysis tools can provide scientific support for business decision-making, effectively avoid entrepreneurial risks, encourage college students to improve their entrepreneurial performance, and help achieve a qualitative improvement in their innovation and entrepreneurship capabilities. Supported by digital intelligence technology, intelligent analysis can rapidly integrate various data generated during entrepreneurship—including market demand, consumer behavior, industry competition, and project operation data—and accurately identify hidden patterns and trends, thereby providing reliable support for college students' entrepreneurial decision-making. Without spending much time sorting out and analyzing data, college students can use intelligent analysis tools to clearly understand market trends and identify their own positioning in the process of entrepreneurship. They can also reasonably arrange product research and development, pricing, and promotion strategies, thereby reducing erroneous judgments caused by a lack of rational thinking and making business decisions more targeted and operational. At the same time, intelligent analysis tools can conduct real-time monitoring of entrepreneurial projects, promptly identify potential risks such as changes in market demand, capital chain rupture, and intensifying competition, and automatically generate risk early warning information to enable college students to detect risks in advance and take corresponding measures. In addition, intelligent analysis can integrate risk data from previous entrepreneurial cases to provide risk response suggestions for college students and enable them to formulate scientific risk prevention and control plans to reduce losses during entrepreneurship, thus ensuring the smooth progress of entrepreneurial projects. By doing this, it can allow college students to accumulate experience in business decision-making and risk management in practice, thereby enhancing their innovation and entrepreneurship capabilities, and promoting the effective implementation and continuous advancement of entrepreneurial achievements.

## 5 Conclusion

The enhancement of college students' innovation and entrepreneurship capabilities driven by digital intelligence technology should follow a progressive path of cognitive expansion, capability development, and achievement implementation. The three stages are progressive and interrelated. With the widespread adoption of digital technology, college students gradually develop a data-driven decision-making mindset in practice, transform abstract innovation concepts into concrete actions that can be implemented and optimized, and ultimately achieve a spiral improvement of their innovation practice capabilities. Only by giving full play to the advantages of digital intelligence technology, and effectively strengthening concept guidance, consolidating practical foundations, and promoting achievement transformation can the efficiency of college students' innovation and entrepreneurship be improved, risks in entrepreneurship be avoided, as well as their entrepreneurial competitiveness be enhanced.

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