

Application Strategies of “Artificial Intelligence + Mass Entrepreneurship and Innovation Education” in the International Sphere

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Abstract: With the continuous development of science and technology, artificial intelligence has become one of the core drivers of the development in the current era. Against the background of deepening internationalization and opening-up, higher vocational colleges should focus on promoting “artificial intelligence + innovation and entrepreneurship education”, make use of international transaction resources, learn from the excellent teaching experience of developed countries, promote the transformation of achievements in cultivating students’ innovation and entrepreneurship capabilities, and alleviate the employment difficulties of higher vocational students. Based on this, this paper studies the application strategies of “artificial intelligence + innovation and entrepreneurship education” in the international field, expounds the relationship between artificial intelligence and innovation and entrepreneurship education, analyzes the existing problems, and puts forward corresponding application strategies, aiming to promote the sound development of “artificial intelligence + innovation and entrepreneurship education” and cultivate innovative and entrepreneurial talents needed by the times.

Keywords: International field; Artificial intelligence; Innovation and entrepreneurship education; Application strategies; Higher vocational colleges

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1. Introduction

The rise of artificial intelligence technology has brought unprecedented opportunities and challenges to innovation and entrepreneurship education, driving education towards informatization and intellectualization. Against the backdrop of educational internationalization, higher vocational colleges should rely on artificial intelligence technology to improve innovation and entrepreneurship education, seize the favorable opportunities of internationalization, break the limitations of traditional education, enhance the quality of innovation and entrepreneurship education, and bring students a richer and more personalized learning experience. This paper starts from and attaches great significance to the in-depth study of the integrated development strategy of

“artificial intelligence + innovation and entrepreneurship education”, to give better play to the advantages of the combination of the two and cultivate high-quality talents with an international vision and innovative ability.

2. The relationship between artificial intelligence and innovation and entrepreneurship education

2.1. Technology empowers educational reform

As a cutting-edge technology, artificial intelligence is comprehensively driving profound changes in the field of education, bringing new development opportunities for the reform of innovation and entrepreneurship education. With the help of intelligent teaching platforms, teachers can integrate diverse multimedia resources such as virtual simulation experiments and intelligent interactive courseware into the teaching process, making course content more vivid, intuitive, and easy to understand ^[1]. Through in-depth mining and analysis of educational big data, artificial intelligence can accurately grasp educational trends, assist educational managers in formulating more scientific and reasonable policies and plans, optimize the allocation of educational resources, and promote the overall upgrading of the education system.

2.2. Technology facilitates students’ personalized development

Every student is a unique individual with different learning styles, interests, and knowledge bases. The involvement of artificial intelligence technology provides strong support for realizing personalized education. In terms of teaching models, it breaks the traditional single and fixed teaching format. By analyzing students’ learning behaviors and characteristics, it can accurately push personalized learning resources to improve teaching effectiveness ^[2]. The system can customize personalized learning paths for students and recommend suitable learning materials, such as personalized reading materials and extended exercises. This personalized learning model fully respects students’ individual differences, stimulates their learning interest and potential, and promotes their all-around development ^[3].

2.3. Collaborative development and mutual promotion

Innovation and entrepreneurship education aims to cultivate students’ innovative thinking, entrepreneurial awareness, and practical abilities, while artificial intelligence technology provides it with powerful technical tools and rich application scenarios. The integration of artificial intelligence enables students to access the most cutting-edge technical knowledge, analyze market demands, and inspire innovative ideas ^[4]. The practice of innovation and entrepreneurship education also provides a testing ground for the application and development of artificial intelligence technology. In their entrepreneurial projects, students continuously explore innovative applications of artificial intelligence in different industries, promoting the iterative upgrading of technology. The two promote each other, forming a positive cycle, and jointly contributing to the cultivation of innovative talents who meet the needs of the times ^[5].

3. Existing dilemmas of “Artificial Intelligence + Innovation and Entrepreneurship Education” in the international field

3.1. Inadequate construction of curriculum systems

Currently, higher vocational colleges have started relatively late in innovation and entrepreneurship education,

with a shallow understanding of its educational concepts. They often rigidly introduce traditional educational concepts into innovation and entrepreneurship teaching, making it difficult to effectively exert their due value and apply international cutting-edge research results to curriculum construction. Artificial intelligence technology iterates rapidly, but most courses fail to keep up with frontier knowledge and application cases in a timely manner, resulting in a disconnect between what students learn and the actual needs of the industry. Part of innovation and entrepreneurship education focuses on theoretical teaching, lacking the design of deeply integrating artificial intelligence technology into entrepreneurial practice links, making it difficult for students to practically master the skills of using artificial intelligence for innovation and entrepreneurship in courses. Different courses operate independently, lacking an organic connection, and fail to form a complete knowledge chain from basic theories to practical applications.

3.2. Insufficient development of international faculty

An international faculty is a key force in promoting the development of “Artificial Intelligence + Innovation and Entrepreneurship Education,” but there are obvious shortcomings in this aspect at present. “Artificial Intelligence + Innovation and Entrepreneurship Education” requires teachers to be proficient in artificial intelligence technology, familiar with the concepts and methods of innovation and entrepreneurship education, and have an international perspective to understand the business environments and educational models of different countries. However, in reality, most teachers only have expertise in a single disciplinary field, which makes it difficult to meet teaching needs. Moreover, international educational concepts and technologies are constantly updated, but due to various constraints, many teachers cannot obtain international cutting-edge information in a timely manner, making it difficult to integrate the latest international educational concepts and methods into the teaching process, which hinders the improvement of educational quality.

3.3. Need for strengthening international innovation and entrepreneurship platforms

International innovation and entrepreneurship platforms play an important role in promoting students’ practice, communication, and resource connection, but their construction is still incomplete, with many problems. For example, their functions are single and services are inadequate. Some platforms only provide simple project display and communication functions, lacking guidance and services for the entire process of students’ entrepreneurial projects. Schools have insufficient close cooperation with internationally renowned enterprises and research institutions, failing to establish long-term and stable international cooperative relations. This cannot provide students with rich international internship and exchange programs, as well as opportunities to participate in international innovation and entrepreneurship competitions, limiting the expansion of students’ international perspectives.

4. Application strategies of “Artificial Intelligence + Innovation and Entrepreneurship Education” in the international field

4.1. Building a collaborative platform for artificial intelligence and innovation, and entrepreneurship education

In the international context, higher vocational colleges should establish a modern educational philosophy, focus on improving the quality of talent cultivation, integrate the characteristics of international talent development, and build a collaborative platform for artificial intelligence and innovation, and entrepreneurship education.

First, build a collaborative education platform. Higher vocational colleges should proactively expand off-campus practice bases and promote the establishment of close collaborative networks with multiple companies and research institutions. For example, in art and design disciplines, colleges can collaborate with the art and design industry, allowing students to participate in practical projects. By applying artificial intelligence technology to creative design products, students' innovation and entrepreneurship capabilities can be enhanced ^[6]. Collaborations with research institutes can help students stay updated on the latest research trends, enabling them to use artificial intelligence to drive the development of innovative enterprises ^[7].

Second, construct an innovation and entrepreneurship education ecosystem with China-ASEAN international talent characteristics. Schools should leverage the achievements of China-ASEAN exchanges, collaborate with industry enterprises to compile characteristic entrepreneurship textbooks, jointly design curriculum systems, and optimize teaching practices. For instance, establishing effective collaboration mechanisms requires schools to pursue efficiency and organic coordination, with regular communication and collaboration mechanisms with relevant stakeholders ^[8]. Specifically, enterprises can provide practical work environments and project resources, schools can focus on talent cultivation and theoretical innovation, and research institutions can lead scientific and technological research. Through information sharing and joint project research, resources can be efficiently organized, and effective mechanisms for talent development and technological innovation can be established. In terms of support mechanisms, governments should lay a solid foundation for the platform's sustainable development. Policies should encourage schools and enterprises to participate in innovative education, such as offering tax reductions, exemptions, or subsidies, to boost their enthusiasm ^[9].

4.2. Improving curriculum systems for international fields

With deepening international exchanges, higher vocational colleges should refine their curriculum systems to meet the demand for innovative and entrepreneurial talents across industries. First, ensure the freshness of the course content. Keep pace with international advancements in artificial intelligence technology and industry trends, integrating new research breakthroughs and practical application cases into courses. For example, introducing the widely recognized achievements of generative artificial intelligence in art, writing, and other fields in recent years can expose students to cutting-edge technological information and enhance their industry sensitivity ^[10].

Second, build a systematic and coherent curriculum structure. Higher vocational colleges should offer foundational theoretical courses to lay the groundwork for AI and innovation, such as Introduction to Artificial Intelligence and Introduction to Innovation Principles. Specialized courses should focus on applying AI to drive industry innovation and entrepreneurship, such as Innovative Applications of AI in Finance and AI-Oriented Product Innovation Design ^[11]. Additionally, interdisciplinary elective courses should be added to encourage students to explore other fields, fostering interdisciplinary communication, broadening their horizons, and improving their comprehensive abilities. Third, introduce high-quality overseas teaching materials. To achieve international education goals and meet market needs, deepening international exchanges and cooperation is crucial. This includes co-developing and accrediting courses with world-leading universities and educational institutions, and inviting top foreign teachers to assist in curriculum development and teaching. Schools should also promote online international courses through platforms like MOOCs, enabling students to access high-quality foreign courses easily, improve their learning outcomes, expand their global perspectives, and better respond to international challenges ^[12].

4.3. Enrich teaching methods for artificial intelligence + innovation and entrepreneurship education

In response to the application needs of artificial intelligence technology, teachers should focus on enriching methods to integrate AI technology into innovation and entrepreneurship education activities, thereby enhancing teaching effectiveness. For example, teachers can adopt project-oriented learning methods and use intelligent technologies to stimulate students' innovative thinking and practical abilities. Taking art design-related courses as an example, teachers can offer an exploratory project titled "Using Artificial Intelligence to Enhance Innovation in Artistic Creation," guiding students to conduct research in groups through collaborative discussions and independent thinking. During the project exploration, group members investigate the application of intelligent technologies in image generation and creative conception, understand the generation logic and application methods of intelligent technologies, use tools such as MidJourney and Stable Diffusion to generate artistic inspiration materials, and analyze their impact on the artistic creation process and style. Group members review relevant literature, conduct group research, and attempt to use intelligent technologies to assist artistic creation, thereby cultivating students' digital literacy. Teachers can use artificial intelligence technology to build intelligent teaching platforms to promote personalized learning. Intelligent platforms can use big data analysis and other technologies to accurately grasp students' learning situations and push personalized learning resources based on their actual conditions ^[13]. For instance, in the teaching of programming-related innovation and entrepreneurship courses, intelligent platforms can record data such as the time spent writing code, types of errors, and problem-solving duration to determine students' mastery of different programming knowledge points. For students who struggle with algorithm implementation, the platform can push algorithm explanation videos and code exercises; for students who progress quickly, it can provide challenging project practice tasks and extended materials to help them achieve further development. In addition, schools can organize entrepreneurship competitions, such as business plan writing contests, requiring students to write business plans based on their professional fields, covering market analysis and business model elaboration, to cultivate students' project planning abilities and lay a solid foundation for their future entrepreneurship.

4.4. Vigorously cultivating an international teaching team

To realize international innovation and entrepreneurship education, higher vocational colleges should ensure the diversity of their teaching staff structure, strengthen cooperation and exchanges between institutions in different countries, promote a certain degree of international mobility of the teaching team, and vigorously cultivate an international teaching team. First, increase training efforts for faculty and staff to broaden their international perspectives. Schools should allocate special funds to support teachers in participating in international education forums and AI-integrated innovative education training camps, such as organizing some teachers to participate in activities held by the International Society for Technology in Education (ISTE) to learn about advanced overseas AI education practices and innovative educational concepts. At the same time, encourage teachers from different fields in the school, such as those specializing in AI technology, innovation and entrepreneurship, management, and art design, to conduct joint teaching research, explore interdisciplinary courses together, and actively apply for participation in joint projects. Schools should encourage teachers to break down the barriers between departments and majors, attend relevant courses in other disciplines, focus on obtaining interdisciplinary qualifications, improve their teaching skills and research capabilities in interdisciplinary fields, and guide students to develop innovative ideas of multidisciplinary integration ^[14].

Second, establish an international exchange and cooperation mechanism for teachers. Schools should

strengthen close cooperation with foreign prestigious universities and enterprises, regularly send teachers to study abroad, conduct research, or participate in internships; invite top overseas talents to offer open courses and training programs on campus, promoting in-depth understanding and cooperation between local teachers and foreign experts. This will enable teachers to engage in broader knowledge sharing and thinking innovation, creating a strong atmosphere of international education and teaching on campus. Third, introduce more high-level overseas talents. Schools should adopt active talent introduction measures to attract foreign teachers and scholars with AI knowledge and innovation and entrepreneurship experience from world-class universities and institutions, such as recruiting foreign teachers or visiting professors. They should provide a favorable working environment and start-up funds for scientific research to create a good atmosphere for teaching and research, striving to retain these talents or invite them to teach, thereby introducing high-quality foreign teaching models and the latest research results to the campus.

4.5. Connecting with the public service system for student entrepreneurship

In the process of promoting innovation and entrepreneurship education, schools should focus on meeting students' actual entrepreneurial needs, build a sound public service system, and create a favorable entrepreneurial environment for them. First, provide policy guarantees. In terms of finance, the government should set up special support funds to provide financial support for student entrepreneurial projects. For example, for entrepreneurial teams developing artificial intelligence educational assistance products, government departments can offer research and development subsidies to help them overcome technical difficulties and promote product implementation. In terms of financing, government departments should encourage financial institutions to innovate financial products and services, and open green channels for student entrepreneurial projects. For instance, launch low-interest loans for artificial intelligence entrepreneurial projects, lower loan thresholds, simplify approval procedures, and alleviate the financial shortage dilemma of college students' entrepreneurship. Government departments should guide various regions to establish public service platforms for college students' entrepreneurship, break down barriers between institutions of higher learning and localities, promote effective integration of education and industry, and guide promising entrepreneurial projects within five years of graduation to join the public service platform^[15].

Second, provide education and training support. Higher vocational colleges, enterprises, and social institutions should provide education and training support for student entrepreneurship and offer systematic entrepreneurship courses. Among them, higher vocational colleges should give full play to their advantages in theoretical teaching, explaining basic entrepreneurial theories, business plan writing, and other knowledge; enterprises should share practical industry experience, such as application cases of artificial intelligence in different industries and market promotion strategies; social training institutions can carry out special skills training covering aspects from technical research and development direction control, business model optimization to market risk response, and provide one-on-one guidance to help students avoid detours.

4.6. Integrating ideological and political education into innovation and entrepreneurship education

Ideological and political education can guide students to establish correct employment and career views, enabling them to have clearer goals and firmer beliefs when facing employment choices. In innovation and entrepreneurship education, higher vocational colleges should focus on integrating ideological and political education into "artificial intelligence + innovation and entrepreneurship education" and meet the requirements of

international education. On the one hand, teachers should use artificial intelligence technology to deeply explore ideological and political elements in innovation and entrepreneurship education. Through big data analysis, they can accurately grasp students' ideological trends in innovation and entrepreneurship practice, such as their value orientation in idea conception and project promotion, to targetedly integrate ideological and political content such as social responsibility, guide students to establish correct values of innovation and entrepreneurship, and ensure that students do not forget their social responsibilities when using artificial intelligence for market analysis, product design, and other activities.

On the other hand, build an innovation and entrepreneurship ideological and political education platform based on artificial intelligence. Teachers should integrate high-quality ideological and political education resources, use intelligent recommendation systems to push personalized innovation and entrepreneurship ideological and political learning materials to students, such as social responsibility cases of excellent domestic and foreign entrepreneurial teams and patriotic stories containing the spirit of innovation; with the help of virtual simulation technology, create immersive ideological and political practice scenarios, such as simulating situations of resolving cultural conflicts in international business cooperation, so that students can deepen their understanding of ideological and political concepts in practice, improve their abilities and qualities in carrying out innovation and entrepreneurship activities in complex international environments, and promote the in-depth integration of ideological and political education and innovation and entrepreneurship education under the empowerment of technology.

5. Conclusion

To sum up, from the perspective of educational internationalization, higher vocational colleges should focus on implementing the development concept of the new era, learn more from the beneficial experiences of domestic and foreign institutions of higher education in carrying out innovation and entrepreneurship education, promote cooperation with various countries and regions, and deepen international cooperation and exchanges in innovation and entrepreneurship education. In the actual teaching process, schools should focus on building a collaborative platform for artificial intelligence and innovation and entrepreneurship education, improve the curriculum system oriented to the international field, enrich the teaching methods of "artificial intelligence + innovation and entrepreneurship education", vigorously cultivate an international teaching team, connect with the public service system for college students' entrepreneurship, integrate local resources to promote the integration of industry and education, and enhance the quality of talent training. With the continuous progress of artificial intelligence technology and the deepening of foreign exchanges, higher vocational colleges should constantly improve and optimize the innovation and entrepreneurship education model, and play a more important role on the international education stage.

Disclosure statement

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