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# Research on the Innovation of Dual Innovation Talent Cultivation Mode in Colleges and Universities in the New Era

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**Abstract:** Driven by the new era of scientific and technological innovation and globalization, the social demand for talents is diversified and high-end, and it is difficult for traditional education to cultivate dual-innovation talents, so dual-innovation education in colleges and universities is emerging. At present, China's higher education is popularized but there is a shortage of high-quality innovative talents, and colleges and universities are in urgent need of reform: the curriculum system should integrate interdisciplinary knowledge and cultivate innovative thinking; practical teaching should strengthen the construction of resources and build a platform for dual-creation; and the evaluation system should build diversified indexes and emphasize the weight of innovation and practice, so as to stimulate the vitality of students, improve the quality of talent cultivation, and boost the socio-economic development and innovation upgrading.

**Keywords:** new era, dual-creation, talent training, innovation

## Introduction

With the rapid development of science and technology, especially the wide application of artificial intelligence, big data, cloud computing and other technologies, the social demand for talents has undergone profound changes. The traditional education model, which tends to focus on the transfer of knowledge and the cultivation of test-taking skills, is inadequate in terms of innovation, critical thinking, teamwork and so on. According to China's Higher Education Quality Report, the gross enrollment rate of higher education in China has reached 48.1%, marking that China's higher education has entered the popularization stage, but at the same time, the supply of high-quality and innovative talents is seriously insufficient, which has become a major challenge for education in the new era. Based on this, we need to start from several aspects to promote the in-depth development of bi-cultural education. On the one hand, it is necessary to deepen the reform of the curriculum system, build a cross-disciplinary and cross-field curriculum system, broaden students' knowledge, and cultivate their innovative thinking and cross-disciplinary problem-solving ability. On the other hand, it is necessary to strengthen the construction of practice teaching resources, establish more innovation and entrepreneurship practice platforms, and provide students with more practice opportunities and practice resources. At the same time, it is also necessary to reform the evaluation system, establish a diversified evaluation system, and pay attention to the evaluation of students' innovation and practice ability, so as to stimulate students' enthusiasm for innovation and practice motivation.

## 1. Analysis of the current situation

### 1.1 Status quo of dual-creation education in colleges and universities

At present, dual-creation education in colleges and universities is in the stage of rapid development, but the status quo still faces many challenges and opportunities. According to the data of the Ministry of Education, in recent years, more

than 80% of colleges and universities have opened innovation and entrepreneurship education courses, and this ratio shows the increasing popularity of dual-creation education in colleges and universities. However, despite the wide range of courses, the actual results are uneven. The dual-creation education in some colleges and universities still remains at the theoretical level and lacks close integration with practice, resulting in insufficient in-depth cultivation of students' innovation ability and entrepreneurial spirit.

### 1.2 Analysis of successful cases at home and abroad

Taking Stanford University as an example, the university has successfully cultivated many innovative enterprises, such as Google and Hewlett-Packard, by building a dual-creation education system that deeply integrates industry, academia and research. Stanford University focuses on transforming scientific research results into actual productivity, and provides students with a practical platform through cooperation with enterprises, so that they can exercise their dual-creation ability in the process of solving practical problems. According to statistics, a considerable part of Stanford graduates have become entrepreneurial elites in Silicon Valley, making important contributions to the economic and social development of the United States and the world. This success story shows that universities should strengthen the connection with enterprises and society to build an open and cooperative dual-creation education ecosystem.

In China, Tsinghua University's "iCenter" dual-creation education model is also worthy of reference. Based on the concept of "innovation-led, cross-border integration, open sharing", iCenter provides students with all-round dual-creation support by integrating internal and external resources[1]. iCenter not only has advanced laboratories and studios, but also regularly organizes entrepreneurship lectures, workshops and other activities, and invites industry experts and entrepreneurs to have face-to-face communication with students to stimulate innovative thinking and entrepreneurial enthusiasm. The iCenter not only has advanced laboratories and studios, but also regularly organizes activities such as entrepreneurship lectures and workshops, inviting industry experts and entrepreneurs to meet with students face-to-face to stimulate their innovative thinking and entrepreneurial enthusiasm. According to the official data of Tsinghua University, in recent years, more than one hundred entrepreneurial projects have been incubated through the iCenter platform, and there are many successful cases of obtaining financing and achieving rapid development. The success of this model is attributed to its accurate grasp of students' dual-creation needs and effective integration of resources.

The common point of successful cases at home and abroad is that they all focus on the combination of theory and practice, emphasizing that students learn and grow in a real environment. At the same time, these cases also demonstrate the important role of colleges and universities in dual-creation education, i.e., as the source of knowledge innovation and the cradle of talent cultivation.

## 2. Mode innovation design

### 2.1 Reconstruction of curriculum system

In the innovative design of dual-creative talent cultivation mode, the reconstruction of the curriculum system is a crucial link. The traditional curriculum system often focuses on the teaching of theoretical knowledge, while neglecting the cultivation of practical ability and innovative thinking. In order to meet the needs of the new era, we must make bold reforms and innovations in the curriculum system. Specifically, we can learn from the advanced dual-creative education models at home and abroad, such as Stanford University's "Design Thinking" program, which cultivates students' innovative thinking and teamwork ability by guiding them to solve practical problems[2]. On this basis, a set of curriculum system covering theoretical learning, practical operation, innovation training and other aspects can be constructed in accordance with the actual situation of China's colleges and universities.

In the process of reconstructing the curriculum system, emphasis should be placed on the combination of theory and practice, and rich practical courses should be set up. For example, the "Entrepreneurship Simulation and Practical Training" course can be set up to let students learn how to make business plans, conduct market research, manage teams and other key skills in practice by simulating the real entrepreneurial environment. At the same time, "project-based teaching" can also be introduced to encourage students to participate in real research projects or enterprise cooperation

projects, and apply what they have learned to solve real problems. This teaching mode can not only enhance students' practical ability, but also stimulate their innovative potential.

### 2.2 Reform of practical teaching mode

In the reform of practical teaching mode, the “project-driven” teaching method can be emphasized for the cultivation of dual-creative talents. This method emphasizes that students solve practical problems through teamwork in real or simulated project environments, so as to cultivate their innovative thinking and practical ability.

In order to evaluate the effectiveness of the reform of practical teaching mode, “Koch's four-level assessment model” can be adopted, which considers four dimensions, namely, reaction level, learning level, behavior level and result level. The reaction layer mainly collects students' satisfaction with the teaching mode; the learning layer tests students' mastery of knowledge through exams and assignments; the behavior layer observes students' behavioral changes in practice, such as teamwork and problem solving abilities; and the outcome layer measures the impact of the teaching mode on students' long-term development through indicators such as project results, employment rate, and entrepreneurship rate. Through this model, we were able to comprehensively and objectively assess the effectiveness of the practice teaching mode reform[3].

## 3. Implementation path and strategy

### 3.1 Establishment of school-enterprise cooperation mechanism

The establishment of school-enterprise cooperation mechanism is a crucial link in the innovation research of dual-creation talent cultivation mode in colleges and universities in the new era. This mechanism can not only promote the deep integration of theory and practice, but also provide a broader practical platform for students. For example, a well-known university cooperated with a large science and technology enterprise to jointly establish a dual-creation education and practice base. The base not only provides students with advanced experimental equipment and R&D environment, but also introduces real projects of the enterprise, so that students can learn in practice and practice in learning, which greatly enhances their innovation and practical ability. According to statistics, the entrepreneurial success rate of students who participated in the program has increased by nearly 30% compared with those who did not participate, which fully proves the effectiveness of the school-enterprise cooperation mechanism[4].

The success of the school-enterprise cooperation mechanism cannot be separated from the close cooperation and resource sharing between the two sides. Colleges and universities can provide talent support and intellectual support for enterprises, while enterprises can provide practice bases and financial support for colleges and universities. This mutually beneficial and win-win cooperation model not only helps to enhance students' practical ability and innovative spirit, but also promotes the technological innovation and industrial upgrading of enterprises.

### 3.2 Cultivating teachers' ability of bi-cultural education

In order to effectively improve teachers' capabilities in dual-creation education, many universities at home and abroad have taken a series of measures. For example, Stanford University provides teachers with systematic theoretical and practical training in dual-creation education by setting up a special dual-creation education teacher training program and inviting industry experts and successful entrepreneurs to serve as lecturers[5]. At the same time, the university also encourages teachers to actively participate in dual-creation practice activities to deepen their understanding and awareness of dual-creation education through hands-on experience. The implementation of these measures has not only significantly improved the dual-creation education capacity of Stanford University teachers, but also laid a solid foundation for the sustainable development of its dual-creation education.

In China, some colleges and universities have also actively explored new paths to cultivate teachers' capabilities in bi-cultural education. For example, a university promotes the in-depth development of bi-cultural education by building a “dual-teacher” teaching team, i.e., teachers with both theoretical teaching ability and practical guidance ability. The university improves teachers' practical ability and dual-creation literacy by sending them to enterprises for on-the-job training and participating in innovation and entrepreneurship programs. At the same time, the university has also

established an exchange platform for teachers of dual-creation education, and regularly organizes dual-creation education seminars, experience-sharing sessions and other activities to promote exchanges and cooperation among teachers. The implementation of these measures has effectively enhanced the bi-inventive education capacity of the school's teachers and provided strong support for the innovative development of its bi-inventive education.

### 3.3 Integration and utilization of innovative resources

The integration and utilization of innovation resources is a crucial part in the innovation of dual-creative talent cultivation mode. Colleges and universities, as the main position of dual-creation education, have rich educational resources, including faculty, research facilities, experimental platforms and so on. However, these resources are often scattered among various colleges and departments and lack effective integration, leading to inefficient utilization of resources. Therefore, the integration and utilization of innovative resources has become the key to improving the quality of dual-creation education.

Taking a famous university as an example, the university has integrated its faculty, scientific research projects, experimental equipment and other resources through the establishment of “Sharing Platform for Dual-Creation Education Resources”, which realizes the sharing and optimal allocation of resources. According to statistics, since its establishment, the platform has attracted the participation of more than 500 teachers and 2,000 students, and has carried out more than 1,000 bi-innovation projects, among which there are many excellent projects that have won national awards[6]. This success story fully proves the important role of innovation resource integration and utilization in dual-creation education.

## 4. Conclusion

In summary, although dual innovation education in colleges and universities has been widely carried out, the depth of the combination of practice and theory is insufficient. Drawing on Stanford University's “University-Industry-Research” and Tsinghua University's “iCenter” models, it is crucial to clarify the integration of theory and practice, and to build an open and cooperative ecology. The restructuring of the curriculum system should combine the advanced experience with the actual situation of the university, and strengthen the practical courses; the reform of practical teaching adopts the “project-driven” and the Koch's model to evaluate the effectiveness. The implementation strategies of school-enterprise cooperation, teachers' ability training and resource integration and utilization are practical and feasible, which strongly promote the improvement of students' dual-creation ability. From a comprehensive point of view, the cultivation of dual-innovation talents in colleges and universities needs to collaborate and innovate in various aspects, and continuously optimize and improve the cultivation mode, so as to meet the social demand for innovative talents and promote the development of dual-innovation education in higher education to a new height.

## Conflicts of interest

The author declares no conflicts of interest regarding the publication of this paper.

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