Research on the Mechanism of Cultivating Innovation and Entrepreneurship Capabilities Based on the “Tiaozhanbei” Competition

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Abstract
In light of the existing circumstances emphasizing the necessity to enhance the pivotal role of innovation and entrepreneurship among college students, it is evident that their capabilities in these domains are somewhat deficient, coupled with a lack of awareness regarding innovation and entrepreneurship. Consequently, numerous colleges and universities have initiated programs aimed at fostering students’ innovation and entrepreneurship skills through competitions such as the "Tiaozhanbei" competition. By establishing a sustainable development organizational system for the "Tiaozhanbei" competition team, we ensure the active participation of team members in the competition. Through implementing team management, the barriers of colleges, majors, and grades between team members are transcended. By integrating professional education with innovation and entrepreneurship education, college students’ awareness of innovation and entrepreneurship can be continuously stimulated. By establishing a robust guarantee mechanism for innovation and entrepreneurship competitions like “Tiaozhanbei,” college students’ enthusiasm for the competition topics can be ignited. Through the implementation of the "Tiaozhanbei" competition, college students can independently engage in innovation and entrepreneurship practices. This process allows students to enhance their personal innovation and entrepreneurship capabilities and foster an entrepreneurial spirit.

Keywords
Tiaozhanbei, Innovation and Entrepreneurship Capacity Cultivation, Innovation and Entrepreneurship Practice

The General Office of the State Council "Guiding Opinions on Further Supporting Innovation and Entrepreneurship of College Students" (published by the State Council [2021] No. 35) points out that promoting entrepreneurship and innovation in depth and scale is essential support for the in-depth implementation of the innovation-driven development strategy. College students are the main force of mass entrepreneurship and innovation, so supporting college students’ innovation and entrepreneurship is of great significance. At the same time, the document proposes to encourage students at academic levels to actively participate in the competition by creating an innovation and entrepreneurship competition brand, strengthening the role of the competition as an innovation and entrepreneurship education practice platform.

The “Tiaozhanbei” competition includes the "Tiaozhanbei" extracurricular academic science and technology work competition and the "Tiaozhanbei" entrepreneurial plan competition. The former focuses on innovation, and the latter focuses on entrepreneurship. It is an "Olympic" event of contemporary college students' scientific and technological innovation.
1. Raising the question

At present, there are many bad situations for college students, such as "lack of initiative in innovation and entrepreneurship," "weak ability in innovation and entrepreneurship," and "lack of awareness of innovation and entrepreneurship." The main reasons for this situation are as follows: (1) There are lack of sources of information on innovation and entrepreneurship for students; thus, they have no impulse and awareness to innovate and start a business. (2) There are lack of practical platforms for students, or they do not know how to carry out relevant practical activities, even if some are aware of innovation and entrepreneurship. (3) The professional knowledge or personal abilities students acquire are insufficient to support their innovation and entrepreneurship practice. (4) Students lack timely guidance and sound policy guarantees in innovation and entrepreneurship practice, making it easy to give up once they encounter difficulties (Gates, Ian D. et al., 2021). Given this, many colleges and universities cultivate the innovation and entrepreneurship capabilities of college students using innovation and entrepreneurship competitions such as the "Tiaozhanbei" to cultivate innovation and entrepreneurship capabilities. The "Tiaozhanbei" competition is an innovation and entrepreneurship competition commonly carried out in major universities nationwide. The "Big Challenge" and "Small Challenge" have been held separately for 18 and 13 sessions, forming a three-level competition system at the national, provincial, and university levels. It is an essential means for universities to carry out innovation and entrepreneurship education, cultivate innovative and entrepreneurial talents, and promote the integration of industry, academia, and research.

![Figure 1. Problems and reasons for college students' innovation and entrepreneurship at present.](image)

This article aims to analyze the internal mechanism of cultivating innovation and entrepreneurship abilities of college students using the "Tiaozhanbei" competition from these aspects: the establishment of the sustainable development organizational system of the "Tiaozhanbei" competition team, the goal management concept of the "Tiaozhanbei," the search for the source of innovation of the "Tiaozhanbei" through specialized integration, and establishment of a sound guarantee mechanism for innovation and entrepreneurship competitions such as the "Tiaozhanbei." Demonstrate the principle of implementation of cultivating innovative and entrepreneurial abilities by relying on the "Tiaozhanbei" from the perspectives of students, teachers, and schools' achieved results, and finally, taking a higher vocational college in Shenzhen as an example to demonstrate the "educational" effectiveness of relying on the "Tiaozhanbei" competition.

2. Implementation methods and internal mechanisms

2.1 Establish a sustainable development organizational system for the "Tiaozhanbei" competition team

The "Tiaozhanbei" competition lasts for nearly a year, from the selection of projects in the school competition to the provincial preliminary rounds and finals and then to the preliminary rounds and finals of the national competition. It takes a long time to polish after the recommended projects within the school are selected. Hence, team members may have graduated before the competition is over. Therefore, it is necessary to establish a sustainable development organizational system for the "Tiaozhanbei" competition team to ensure uninterrupted project research. After entering college, first-year students will experience the popularization of introductory courses on innovation and entrepreneurship, some will also join relevant academic science and technology societies or join the project team of professional teachers to carry out more targeted innovation and entrepreneurship activities and become the team's backbone.
At this time, some members (usually sophomores or senior students) will choose to start their own businesses or find employment in innovative companies after 1-2 years of professional training and competition experience. These outstanding alumni can serve as social resources to train and guide the team during the subsequent growth process of the "Tiaozhanbei" competition team members, which can achieve the sustainable development of the "Tiaozhanbei" competition team. The entire process is inseparable from the proactive promotion of students (Manpreet Rajpa & Bindu Singh, 2023).

2.2 Management by objectives—the management philosophy of the “Tiaozhanbei” competition team

The "Tiaozhanbei" competition team implements goal management and agrees with the goal-driven mechanism. For the "Tiaozhanbei" competition team, achieving excellent "Tiaozhanbei" competition results is their common goal, which enables team members to show goal consistency. Under the drive by the team's overall goal, the guidance of the team instructor, the assistance of the full-time competition administrators from the functional departments, and the self-management of the team's backbone, team members work together in stages to accomplish their respective goals. Spontaneous innovation and entrepreneurship practices are gradually realized by holding regular discussions, correcting problems promptly, and encouraging and rewarding members who achieve their goals. Under the premise of goal management, team members transcend the barriers between colleges, majors, and grades. Driven by the common competition goals, they actively conduct self-control and self-management and give full play to the enthusiasm of the competition subjects. At the same time, due to the support of on-campus and social resources, the success rate of innovation and entrepreneurship practice activities can be improved to a certain extent, stimulating team members' enthusiasm to carry out innovation and entrepreneurship more deeply, thus forming a virtuous cycle (Ng & Au, 2022).

![Figure 2. The mechanism of “Tiaozhanbei” competition team achieving excellent results under goal management.](image)

2.3 Specialized fusion of innovation and entrepreneurship education and professional education—the source of innovation in the "Tiaozhanbei" competition

The main participants of the "Tiaozhanbei" competition are college students. They spent most of their time in college receiving professional education. Therefore, the practice of combining innovation and entrepreneurship education and professional education is a more feasible path based on professional education theoretical support inspired by it (Paladino, 2022). First, we can embed innovative and entrepreneurial thinking enlightenment courses into teaching professional theoretical knowledge education in the daily curriculum teaching design of colleges, strengthening the construction of innovation and entrepreneurship education curriculum system and stimulating college students' awareness of innovation and entrepreneurship. Secondly, we can add innovation and entrepreneurship-related lectures outside the first class, invite corporate technical personnel to explain the latest technical needs and future development trends of the profession, and invite "Tiaozhanbei" competition experts to explain the relevant requirements of the competition, and invite "Tiaozhanbei" competition experts to explain the relevant requirements of the competition and matters needing attention in topic selection to encourage students to improve their personal creativity and practical ability through competitions such as the "Tiaozhanbei," and can also organize students to go to well-known professional-related companies to conduct research and social practice, experiencing "stuck neck" technology, smart factories, and the forefront of scientific and technological innovation on the spot as well as corporate culture, which is of great significance to enhancing students' awareness of their majors, establishing a correct outlook on career choice and employment, and helping students have good career awareness and career planning. In addition, we can also increase the training of professional knowledge and skills related to the core technologies of competition works when students participate in competitions such as the "Tiaozhanbei," realizing the unity of "learning by doing" and "learning by doing," and realizing the organic integration of innovation and entrepreneurship education and professional education.
2.4 Establish a sound guarantee mechanism for innovation and entrepreneurship

Colleges and universities must carry out precise top-level design in curriculum development and setting, focus on cooperation with innovative enterprises, and establish subject settings oriented to the latest needs of society and enterprises so that school talent training can be closely integrated with the needs of economic and social development, and better serve the national and industry regional economic development. By introducing corporate R&D and technical personnel and professional teachers from the school to work together to solve technical problems, we guide students to carry out innovative and entrepreneurial practices and improve the fit between students and enterprises. College should pay attention to various competitions' publicity and participation guidance and send relevant competition notices through platforms accessible to students, such as internal school public accounts. After the competition notices are issued, they should promptly hold participation mobilization meetings and competition interpretation meetings. In this competition, preparation auxiliary measures allow ordinary students to understand the inspection points, materials that must be submitted, and related precautions for competitions, such as the “Tiaozhanbei”. At the same time, after the team is formed, the school and college levels can further invite relevant experts to coach and polish the "Tiaozhanbei" competition projects so that participating teachers and students can gain something regardless of the results of the competition, which is very important for creating a good competition atmosphere and improving the sense of participation and gain of teachers and students (Bradley et al., 2021).

3. Implementation effects and experience summary

Students are the main body of innovation and entrepreneurship education in colleges and universities. Only by giving full play to students' subjective initiative can their all-round development be promoted. Colleges should try their best to create a thick practical atmosphere for innovation and entrepreneurship, provide students with a rich and diverse practice platform, actively guide students to participate in practical activities and give students the initiative to learn so that students can exert their independent thinking ability and initiative creation ability in practice.

1) From a student's perspective, the "Tiaozhanbei" competition creates an opportunity for college students to practice innovation and entrepreneurship based on interests and with clear directions and goals. Participating in the competition can not only arouse students' awareness of innovation and entrepreneurship but also stimulate their inner motivation for innovation and entrepreneurship, gradually cultivate their innovative and entrepreneurial spirit, guide them to actively acquire knowledge, and transform "I want to learn" into "I want to learn"; it can enable students quickly improve your professional knowledge and comprehensive abilities, and gain training in some areas of knowledge and skills that are not usually accessible in the first classroom under the guidance of professional instructors. In addition, through cooperation with team members, students' teamwork and management abilities can also be effectively improved, which coincides with the central work of "educating people" in colleges.

2) From the teachers' perspective, there are no doctoral and graduate students for higher vocational colleges, and teachers generally lack teams and research groups. By guiding the "Tiaozhanbei" competition on one hand, teachers
can establish their project teams and conduct scientific research. On the other hand, both "big challenge" and "small challenge" attach great importance to the innovation of works, prompting teachers to continue learning and in-depth research to improve their professional level in addition to daily teaching. In addition, taking technological innovation and future industry tracks as examples, "small challenge" not only examines the scientific and technological content and core technologies of the work itself but also pays more attention to the industrialization of the product and the financial status and management model of the established company, which is a massive test for the comprehensive quality of instructors. It also prompts teachers to strengthen cooperation with enterprises and understand their operating models and market needs simultaneously.

In the situation of highly fierce competition in today's society, students not only need to acquire professional knowledge in school but also develop the habit of lifelong learning through the relatively free learning environment in universities, cultivate the spirit and ability of innovation and entrepreneurship, and enhance their ability to solve complex problems faced when entering society in the workplace in the future. The "Tiaozhanbei" competition is a platform for students to practice innovation and entrepreneurship provided by schools other than professional courses. Participating in the "Tiaozhanbei" competition is a preliminary innovation and entrepreneurship practice for students through their mastery of knowledge and skills in college. All knowledge and skills must be tested and verified through practice. It has proved that the "Tiaozhanbei" competition is an "excellent experimental field for cultivating college students' innovative and entrepreneurial abilities" and is worthy of promotion and implementation in ordinary colleges and universities.

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**References**


