

Research on the Improvement of College Students' Capability of Innovation

Lijun Wang*, Ruxuan Wang, Kejia Yuan, Feng Hu

North China University of Water Resources and Electric Power University, Zhengzhou 450002, China

* Corresponding author: Lijun Wang

Abstract: In today's period of rapid technological and economic development, innovation-driven development strategy has become China's national policy, and "mass innovation, mass entrepreneurship" has become the consensus of people. In this fiercely competitive new century, the era has given contemporary college students new requirements and new challenges, which makes today's college students not only adhere to the study of basic knowledge, but also to deeply implement the connotation of the era of "mass innovation and entrepreneurship". This article elaborates on the development status of college students' innovation and entrepreneurship education, analyzes the defects in innovation and entrepreneurship education, and finally puts forward a campus co-construction innovation and entrepreneurship training program based on students, teachers and schools. The foundation is extended to connect the government and enterprises to form a five-in-one innovation and entrepreneurship training system for college students.

Keywords: college students; innovation and entrepreneurship; training

1. Introduction

With the development of the times and the continuous deepening of reform, China's economic situation has undergone profound changes. Innovation and entrepreneurship have become a huge driving force for China's economic development. Nowadays, the proportion of innovation and technology investment in research and development is increasing, and innovation has become the first driving force for development. Now the proportion of innovation and technology investment in research and development is increasing, and innovation has become the first driving force for development. To implement the strategy of innovation-driven and guide economic and social development, it is necessary to strengthen the cultivation of young college students' innovative and entrepreneurial capabilities [1]. College students are the first element in the development of innovation and entrepreneurship, and they are the new force of "innovation and entrepreneurship". As an important training base for innovative and entrepreneurial talents, colleges and universities are also a gathering place for innovation and vitality, as well as a talent

guarantee for the smooth implementation of the national innovation-driven development strategy. There are many shortcomings in innovation and entrepreneurship education in China. Therefore, it is imperative to deepen the reform of innovation and entrepreneurship education. It is necessary to improve college students' innovation and entrepreneurship programs and cultivate new innovative talents [2].

2. The Current Situation of College Students' Innovation and Entrepreneurship Education

In this fiercely competitive 21st century, the level of mastery and application of knowledge and technology is the basis for measuring the level of scientific and technological development of a country. With the continuous acceleration of the globalization process and the continuous development of the fourth industrial revolution, the demand for innovative scientific and technological talents has become imminent, and the cultivation of innovative talents has become the top priority of my country's construction of an innovative country [3]. The training and education of innovative talents in foreign countries started earlier. The research and practice on the cultivation of innovative talents in the United States has a history of nearly 100 years, and its training and education programs and plans have been very complete. The goal of American university education is to cultivate innovative and entrepreneurial talents. At this stage, a variety of talent training models have been created. Taking the corresponding courses as an example, the proportion of basic theoretical professional courses in the United States is lower than that of practical courses, which enables college students to carry out adequate practical exercises on the premise of learning theoretical knowledge. In addition, American university education pays attention to linking with reality, and uses the Internet and other electronic technologies to carry out science and technology modernization education. In contrast, our country's innovation and entrepreneurship development education started relatively late. The domestic training and education of innovative and entrepreneurial talents began at the end of the 20th century. From the beginning of the new century, the innovation and entrepreneurship education in colleges and universities has really run. Education gradually develops. Under the guidance of the party's policy, some colleges and universities have actively explored and

practiced, and explore the path of innovation and entrepreneurship education suitable for the development environment of our country. In 2012, the Ministry of Education issued the document “Basic Requirements for the Teaching of Entrepreneurship Education in General Undergraduate Schools (Trial)”, further pointing out that the development of innovation and entrepreneurship education is a major measure for China to build an innovative country and an important measure to promote the overall development of college students, and an important measure for China’s socialist modernization construction, and marking a new level of innovation and entrepreneurship education in China [4].

3. Influencing Factors in the Cultivation of College Students’ Innovative and Entrepreneurial Ability

3.1. The Students Themselves

University students’ autonomous learning methods need to be improved. Due to the shortcomings of the current exam-oriented education in our country, students focus on pursuing the so-called correct answers, thus struggling in the sea of questions in order to get high scores. It makes students not divergent thinking when thinking about problems, and tends to be the only item habitually when dealing with problems. Passive duck-filling teaching makes students blindly absorb the knowledge imparted by teachers, and fail to learn how to think and learn independently. In college, the learning methods and approaches are completely different from those in middle school, but students have not changed their learning concepts and methods, and their autonomy in learning has not improved. At the same time, the reduction of exercises makes students confused, and the old learning methods are no longer suitable for the new ones. Learning goals, changing learning methods, and changing learning attitudes are the key points [5].

College students’ awareness of innovation and entrepreneurship needs to be improved, and their ability needs to be improved. The students in the ivory tower often lack practical ability, lack of social experience, and do not have sufficient knowledge of innovation and entrepreneurship. Due to the influence of our country’s traditional education concept, many college students want to get a stable job after graduation, and are unwilling to participate in various risky entrepreneurial activities, thus excluding innovation and entrepreneurship activities. Some students lack confidence in whether they can carry out innovative and entrepreneurial activities, but they are unable to obtain support and guidance from clear channels, causing students to hesitate at the beginning of innovative and entrepreneurial activities. Although some students are interested in innovation and entrepreneurship, they only pay attention to whether they can get benefits in the activity, and only focus on whether they can obtain high-yield results after successful innovation and entrepreneurship [6]. They do not consider whether their efforts in it are sufficient, and ignore the acquisition of innovative and entrepreneurial thinking and the cultivation of innovative and entrepreneurial ability in the

study and work, and they ignore the risks and challenges in it. If contemporary college students want to successfully carry out innovation and entrepreneurship activities, and get exercise and growth in them, they must establish correct innovation and entrepreneurship concepts, recognize the value that innovation and entrepreneurship bring to themselves, improve their awareness of innovation and entrepreneurship, and enhance their ability to innovate and entrepreneurship.

3.2. Teachers

Teachers are the main contacts and guides of college students in colleges and universities, as well as the guides of college students’ innovation and entrepreneurship practice. Teachers are crucial to the cultivation and promotion of college students’ capability of innovation, and the size of teachers’ ability directly affects the development of their students’ capability of innovation. However, some teachers also have the following problems in the education of college students.

The teaching method is single, failing to break through the inherent teaching thinking and bottleneck. Some teachers follow the previous teaching methods, do not have new understanding of teaching, and their teaching ability has not been improved. They often follow traditional teaching methods to instill the knowledge in textbooks into students in a “crawling” method, which is not correct. The introduction and analysis of all aspects of professional knowledge cannot inspire students to think, resulting in students’ low interest in learning, low learning enthusiasm, and inability to fully absorb and digest the knowledge learned in the classroom. Particular attention is paid to the content of the exam, so that after a semester of intense study, students only get some help during the exam, and it does not improve the actual scientific research and innovation ability [7].

With the rapid development of the fourth industrial revolution, the level of science and technology in many fields has improved. However, some teachers still use old and outdated scientific research experimental methods or theories to guide students, so that classroom learning is out of touch with the actual development of reality. Facing the actual engineering situation, they cannot analyze the problems and solve the actual problems, and learning knowledge cannot be used in actual innovation and entrepreneurship. Innovation and entrepreneurship can only be obtained through self-study, which makes the level of innovation ability of college students uneven, hinders the improvement of college students’ capability of innovation.

3.3. School

Colleges and universities are the carrier for the education and construction of innovation and entrepreneurship education for college students, and they are also the support for the smooth progress of innovation and entrepreneurship education. Colleges and universities undertake the important task of building new talents for socialist modernization and developing modern technology for China, among which the cultivation and

education of innovation and entrepreneurship for college students is the top priority. However, there are still some deficiencies in the innovation and entrepreneurship training system of college students in China [8]. Problems in many places still need improvement.

The propaganda of innovation and entrepreneurship training education needs to be improved. At present, some colleges and universities have little efforts to publicize innovation and entrepreneurship education, and some schools have not planned a clear blueprint for innovation and entrepreneurship education. College students have insufficient understanding of innovation and entrepreneurship, fail to fully understand the importance of this training system, and have no clear interest and goals for it. It is difficult to achieve good results in the teaching and training of innovation and entrepreneurship education in colleges and universities.

The emphasis on practical teaching needs to be improved. At present, the teaching of innovation and entrepreneurship education in some colleges and universities in our country is mostly based on theoretical teaching. The content of learning is determined by the teacher, and the theoretical guidance is emphasized while ignoring the practice. This results in students' lack of interest in learning and unable to conduct in-depth thinking and exploration. Because there is no suitable innovation and entrepreneurship development and practice platform, students' innovation and entrepreneurship abilities cannot be displayed, and they lack relevant experience and practical experience, and cannot fully grow in innovation and entrepreneurship education.

4. Constructing A Training System for College Students' Innovation and Entrepreneurship

The campus is the carrier for college students to carry out learning activities. Based on the campus, an innovation and entrepreneurship training program composed of students, teachers and universities should be constructed, and then connect the government and enterprises to jointly build a new university student innovation and entrepreneurship education and training system. Promote the smooth progress of innovation and entrepreneurship education for college students in a brand-new way and a five-in-one training method.

4.1. Students Improve Their Own Innovation and Entrepreneurship Capabilities

Enhance learning attitude and improve learning methods. The learning methods and approaches in college are completely different from those in middle school. Colleges require students to learn spontaneously and autonomously. In self-directed learning, it is more necessary to clarify the learning goals, firm the learning direction, develop good learning habits, and develop a learning plan that suits you. The education and training of innovation and entrepreneurship is a systematic learning process. Only by continuous improvement in learning can we gradually accumulate the required knowledge and adapt to the learning intensity of innovation and

entrepreneurship education and teaching. Only with sufficient knowledge can we discover problems, and draw conclusions in the actual practice of innovation and entrepreneurship. People who are good at self-learning can absorb the knowledge they need from various places, hold all learning resources in their hands, and turn them into their own use. This is exactly what is necessary for innovation and entrepreneurship.

Cultivate the spirit of innovation and entrepreneurship and improve the quality of innovation and entrepreneurship. Innovation and entrepreneurship require not only correct learning attitude and basic knowledge, but also a full understanding of innovation and entrepreneurship as well as a down-to-earth and persistent spirit of innovation and entrepreneurship. For college students, learning and innovation is dull and boring, the process of the learning process is a process of continuously surpass ourselves, only for innovation entrepreneurship to form the correct cognition, set up the correct ideas, innovative undertaking develop persistent innovation, entrepreneurial spirit, to improve its quality, innovative undertaking to overcome inertia in the innovative entrepreneurial learning activities, improve themselves, to achieve the objective of the exercise self, more accurately grasp the development direction, using innovation advantage, make good choices. The road of innovation and entrepreneurship is not plain sailing, it is full of difficulties and obstacles. Only with the courage to face up to difficulties and the spirit of unremitting struggle can we persevere on this road. Such a series of characters and spirits are essential for innovation and entrepreneurship.

4.2. Enhance the Teaching Ability of Innovation and Entrepreneurship of College Teachers

Teachers must have the knowledge and ability of innovation and entrepreneurship. The innovation and entrepreneurship capabilities of college teachers determines the level of innovation and entrepreneurship training and development of college students. Teachers must not only have profound professional basic knowledge and academic capabilities, but also have sufficient innovation and entrepreneurship knowledge and capabilities, and rich innovation Entrepreneurship practical experience, more importantly, it is necessary to understand China's laws and regulations on the cultivation of college students' innovation and entrepreneurship, in order to truly integrate theory with practice, fully integrate basic teaching and practical teaching, and create innovative and entrepreneurial education and teaching suitable for each student according to the student's own situation. Plan to guide college students' innovation and entrepreneurship activities.

Teachers improve teaching methods and strengthen the teaching awareness of innovation and entrepreneurship. With the development of the times, traditional teaching methods are no longer suitable for the requirements of the new era. The implementation of innovation and entrepreneurship education must break the stereotypes,

break the tradition, and promote the cultivation and improvement of college students' innovation and entrepreneurship capabilities through brand-new teaching methods. Teachers must improve teaching methods, break inherent teaching thinking, establish innovative and entrepreneurial teaching concepts, change "teaching-based" to "learning-based", and eliminate "cracking duck" teaching. On the one hand, while explaining professional knowledge, teachers inspire students to think and explore independently, encourage students to independently carry out technological innovation, design unique programs, and form unique knowledge understanding. On the other hand, teachers integrate actual cases into teaching, combine teaching and scientific research, and focus on problems to encourage two-way communication between students and teachers, break the one-way teaching model, open interactive classrooms, and stimulate students' inspiration in discussions.

4.3. Building An Education System For Innovation and Entrepreneurship Training in Universities

Strengthen the construction of ideological and political education. In this new era of rapid technological and economic development, the competition among countries in the world is mainly the competition of technical talents. Cultivating innovative talents is an important support for our country's socialist modernization [9]. In the process of cultivating college students' innovation and entrepreneurship education, ideological and political education is a prerequisite for smooth innovation and entrepreneurship education. Ideological and political education can help college students to correctly recognize Marxism, thereby linking with the actual construction of our country's socialism, enabling college students to establish a correct outlook on life, world outlook, and values, and to maintain their original heart and advance courageously in the process of innovation and entrepreneurship. The innovation and entrepreneurship education implemented by colleges and universities is in line with the spirit of the times with reform and innovation as the core advocated by our country. Colleges and universities integrate ideological and political education into college students' innovation and entrepreneurship education, arm students' brains with Marxist core ideas, and guide students forward with the four self-confidence of socialism with Chinese characteristics, and subtly influence college students' innovation and entrepreneurship spirit. With the powerful spiritual power contained in ideological and political education, we will guide college students to establish correct concepts of innovation and entrepreneurship, inspire their perseverance and hard work, further enhance their innovative and entrepreneurial spirit.

Build a good campus culture atmosphere for innovation and entrepreneurship. Colleges and universities should build a broad and detailed education and teaching of innovation and entrepreneurship based on their own characteristics, so that all teachers and students can feel a strong atmosphere of innovation and

entrepreneurship on campus, create innovation and entrepreneurship competitions and colorful innovative cultural campus activities. A good cultural atmosphere for innovation and entrepreneurship encourages students to participate in various innovation and entrepreneurship competitions inside and outside the school as individuals or as a team, and enable students to invest in innovation and entrepreneurship. Regularly invite some students or professionals with practical experience in innovation and entrepreneurship to give lectures, and use their personal experiences to stimulate students' enthusiasm for innovation and entrepreneurship, and actively carry out various innovation and entrepreneurship activities.

Establish innovation and entrepreneurship curriculum system. Innovation and entrepreneurship courses should not be set up separately, but should be closely related to and interconnected with the students' majors, integrate the ideas and concepts of innovation and entrepreneurship with professional courses, and integrate innovation and entrepreneurship education into the learning of professional courses for college students. Combine innovation and entrepreneurship education with science and culture education, and practical education to build innovation and entrepreneurship curriculum system that integrates and penetrates each other. While strengthening the basic education of professional courses, it enables college students to have an in-depth understanding of the basic situation and significance of innovation and entrepreneurship, and introduce innovation and entrepreneurship into practice. Promote the improvement of college students' capability of innovation through a teaching method that combines basic theory and professional knowledge.

Establish an evaluation and incentive guarantee system for college students' innovation and entrepreneurship. Whether the capability of innovation of college students has been improved in practice and the level of improvement should be accurately evaluated. The establishment of an innovation and entrepreneurship evaluation system can feed back the problems and obstacles faced by college students in the process of innovation and entrepreneurship, and solve the problem of talent training in innovation and entrepreneurship education. According to the professional and systematic qualitative and quantitative analysis of the application ability of college students in the process of innovation and entrepreneurship, and use actual innovation ability to measure the comprehensive quality of college students. The innovation and entrepreneurship of college students in our country is in the initial stage. Due to lack of resources, college students cannot cope with various problems. If they have a little risk, they may lose everything. Therefore, in order to encourage college students to have the courage to carry out innovation and entrepreneurship, colleges and universities have established an innovation and entrepreneurship incentive system on this basis, and set up corresponding campus incentive funds to motivate students and teachers who have contributed materially and spiritually. A perfect incentive mechanism can inspire students to correctly

understand themselves and develop their potential. Based on the incentive mechanism of colleges and universities as the premise and protection, innovation and entrepreneurship risks are avoided, the difficulty of innovation and entrepreneurship is reduced, and college students are encouraged to invest in innovation and entrepreneurship with unprecedented enthusiasm.

4.4. School-Enterprise Alliance and Government Collaboration

Build an innovative and entrepreneurial practice platform for school-enterprise cooperation. School-enterprise cooperation is an important way to carry out innovation and entrepreneurship education for college students and an important way to cultivate technically innovative talents. Continuously deepen the strength and breadth of school-enterprise cooperation, build a school-enterprise cooperation practice platform, and invite technical talents with rich engineering practical experience to guide students' professional work. At the same time, teachers and students can participate in corporate internships and practical activities to learn classroom theoretical knowledge. On the basis, understand and learn the latest technology, improve practical ability, and lay a solid foundation for innovation and entrepreneurship activities.

Local governments should play the role of collaborative assistance, vigorously support innovation and entrepreneurship education, and create a social atmosphere for innovation and entrepreneurship. There must be coordinated assistance from the government. Relying on the collaborative construction method of schools, enterprises, and the government, combining production, teaching and research, and relying on innovative and entrepreneurial practice platforms to provide comprehensive services for innovative and entrepreneurial college students. In the form of financial support or project guidance, focus on solving various problems encountered by college students in innovation and entrepreneurship, and improve the success rate of college students in innovation and entrepreneurship.

5. Conclusion

In this era of "innovation and entrepreneurship", college students are the foundation of the country's construction and development, and are vital to the cultivation and education of college students' innovation and entrepreneurship [10]. This article analyzes the problems existing in the practice of innovation and entrepreneurship education, and puts forward a campus training model of student autonomy, teacher guidance, and school incentives. On the basis, school-enterprise cooperation and government collaboration are carried out to form a five-in-one comprehensive and co-constructed innovation and entrepreneurship training system for college students. I hope to use this as a method to help college students cultivate innovative spirit, broaden their

entrepreneurial roads, and contribute to the building of socialism in our country.

Acknowledgments

This work was supported by Henan University Science and Technology Innovation Team Support Program (19IRTSTHN011), Special support plan for high-level talents of Henan Province- "ZHONGYUAN Thousand Talent Program" (ZYQR201810075), Zhengzhou Measurement and Control Technology and Instrument Key Laboratory (121PYFZX181), Employment and Entrepreneurship Project in Colleges and Universities of Henan Province (2020-317-8), The Second Batch of Production-university Cooperative Education Project of Education Department (201902224007), Innovation, Excellent Grassroots Teaching Organization of Henan Universities (2019-728-62), Entrepreneurship and Employment Project of NCWU (2020-52-9) and Undergraduate innovation and entrepreneurship training program (2019XB164).

References

- [1] Doan, W. The Changing Face of Entrepreneurship Education. *Journal of Small Business Management*, **2013** (3).
- [2] Maria, M, Moren, L. Recent developments in the economics of entrepreneurship. *Journal of Business Venturing*, **2008** (6).
- [3] Karl H. Vesper. Measuring progress in entrepreneurship education. *Journal of Business Venturing*, **1997** (5).
- [4] Ying, Z.; Geert, D.; Myriam, C. The role of entrepreneurship education as a predictor of university students' entrepreneurial intention. *International Entrepreneurship and Management Journal*, **2014** (3).
- [5] Florian, B. Zapkau, Christian Schwens, Holger Steinmetz, Rüdiger Kabst. Disentangling the effect of prior entrepreneurial exposure on entrepreneurial intention. *Journal of Business Research*, **2014**.
- [6] Elaine C. Rideout, Denis O. Gray. Does Entrepreneurship Education Really Work? A Review and Methodological Critique of the Empirical Literature on the Effects of University-Based Entrepreneurship Education. *Journal of Small Business Management*, **2013** (3).
- [7] Gwynne, Peter. More Schools Teaching Entrepreneurship. *Research Technology Management*, **2008** (2).
- [8] Vangelis Souitaris, Stefania Zerbinati, Andreas Al-Laham. Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources. *Journal of Business Venturing*, **2006** (4).
- [9] Charisse N. Reyes. Framing the entrepreneurial university: the case of the National University of Singapore. *Journal of Entrepreneurship in Emerging Economies*, **2016** (2).
- [10] Ka Ho Mok. Singapore's global education hub ambitions: University governance change and transnational higher education. *International Journal of Educational Management*, **2008** (6).