

Research on the cultivation path of college students' scientific and technological innovation ability

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Abstract. In recent years, colleges and universities in China have achieved some experience and results in innovation training for college students, but overall, the innovation ability and scientific research level of college students in China still need to be improved. From the perspectives of professional courses, scientific research projects, entrepreneurial space for college students and practical training base, this paper discusses the establishment of the "four-in-one" cultivation path of college students' scientific and technological innovation ability, hoping to break through the traditional research and realize the new development and improvement of the innovation cultivation path for college students.

1. Introduction

President Xi Jinping proposed five development concepts at the fifth plenary session of the 18th CPC central committee, innovation comes first and positioned as the first power of development. Innovative thinking has been fully integrated into the governance strategy. The ministry of education has decided to implement the national innovation training program for college students during the 12th five-year plan period, which will be continued during the 13th five-year plan period. Through the implementation of national innovation training program for college students, it is necessary to promote the transformation of educational ideology in institutions of higher learning, reform the mode of talent training, strengthen the training of innovation ability, enhance the innovation ability and entrepreneurial ability of college students on the basis of innovation, and cultivate high-level innovative talents to meet the needs of the construction of an innovation-oriented country.

2. Related practices and research status in China:

On the practical level, domestic colleges and universities have carried out active exploration and practice by relying on college students' innovative training plans and combining their own characteristics. For example, Tsinghua university established a platform for creative innovation and entrepreneurship education. Peking University established "Peking University innovation research institute". Sun yat-sen university innovation and entrepreneurship education "three integration" mode. These explorations aim to continuously improve the entrepreneurial awareness and innovation ability of college students. Thus, they can become innovative and entrepreneurial talents with modern knowledge, international development vision, global competitiveness and entrepreneurial spirit.

In terms of theoretical research, domestic scholars, university teachers and so on have also done the related research. The main point is that: the analysis shows that the innovation consciousness and ability of Chinese college students are still generally low. It is believed that colleges and universities should undertake the important task of cultivating innovative talents from the perspective of optimizing education mode. This paper mainly discusses the cultivation strategies of college students' innovation consciousness and ability from three aspects: society, school and students themselves. At present, the relevant research basically discusses the cultivation of college students' innovation consciousness and innovation ability from the three levels of current situation, problems and countermeasures, and also draws useful practical measures and methods.

3. Problems to be solved urgently

Since the ministry of education launched the innovation and entrepreneurship training program for college students in 2012, Chinese college students have taken an active part in innovation activities, The overall participation of college students is on the rise: the number of students involved gradually increased from 112 562 in 2012 to 144 385 in 2017, at the same time the number of projects approved also increased from 30, 022 in 2012 to 36, 000 in 2017.[1] It can be seen that with the development of innovation and entrepreneurship training program for college students, their innovation consciousness and innovation ability have been improved. Although colleges and universities in China are actively exploring and practicing the innovation training of college students and have achieved certain experience and effect, due to the late start of innovation activities in China and the lack of experience in carrying out innovation activities, the innovation ability and scientific research level of college students in China is still far behind that of students in developed countries.

4. Explore the "four in one" innovation ability cultivation path

4.1 Tries to take the professional courses as the starting point to arouse students' enthusiasm and inspire their innovative consciousness in the process of cultivating their professional ability.

Excellent innovation achievements cannot be achieved without solid knowledge accumulation and profound knowledge accumulation. Therefore, good basic knowledge plays an irreplaceable role in the improvement of scientific and technological innovation ability. The improvement of scientific and technological innovation ability is a long-term process of cultivation and accumulation. The cultivation of college students' innovative spirit and the improvement of scientific and technological innovation ability should be put in peacetime. The scientific level of the cultivation of innovative spirit mainly depends on the instructors. According to the survey, 72.28% of people believe that teachers' guidance plays a crucial role in participating in innovative practice activities.[2] Teachers should make full use of classroom teaching time, enlighten students' thinking and guide students' direction at the same time.

4.2 Try to take scientific research projects as the carrier, through participating in the subject research of the instructor, so that college students can understand the forefront of this major and open their minds.

According to the survey, 48.51% of college students only know the theories and methods of innovation, while 36.63% of them know little about innovation. [3]The cultivation of students' innovation ability is inseparable from teachers' guidance and their own exploration. In the cultivation of college students' innovation ability, scientific research projects can be used to fully combine professional textbooks with the frontier disciplines. In the process of students' substantial participation in project research, the guidance for students to carry out systematic training, so that students gradually explore, from the understanding of innovation to the practice level. The university can also set up various innovative and entrepreneurial projects, including project application, literature research, experimental design, implementation of research activities, summary of research results, writing scientific papers. [4] While completing the scientific research training program, students can develop basic scientific research ability and innovation ability, laying a good foundation for future work.

4.3 Try to take the space for college students' entrepreneurship as the platform, make full use of the innovation and entrepreneurship base, and integrate college students' ideas, knowledge and ability with their professional qualities

Colleges and universities should create a scientific and technological innovation training base to create a good platform for the cultivation of college students' innovative spirit and the improvement of scientific and technological innovation ability. The projects of the base should be guided by the scientific and technological innovation projects of enterprises to guide the development of scientific and technological innovation and entrepreneurship activities of college students. Real knowledge

comes from practice, without providing the opportunity of experiment and practice, and without applying the knowledge in books to the actual situation, the innovation ability of college students cannot be improved. Only through practice can the innovative spirit of college students be cultivated in the cycle of learning, testing and practice. The science and technology innovation and entrepreneurship education base can build an interdisciplinary education, training and incubation platform for students of different majors and grades, providing an important condition guarantee for cultivating students' innovation consciousness, innovation ability and entrepreneurship ability.[5] At the same time, we should further strengthen the individualized education concept, cultivate the innovative consciousness, innovative methods and entrepreneurial ability of college students.

4.4 Based on the training base, we try to understand the needs of enterprises and the needs of the society, give full play to the docking and connecting functions of the base, build the innovative quality of college students in an all-round way, and realize the actual combat training.

Practical teaching is particularly important in the cultivation of college students' scientific and technological innovation ability. The real production environment of enterprises is something that the school does not have, which is also an aspect that the school attaches great importance to in school-enterprise cooperation. With the creation of innovative talent training mode as the entry point, it breaks through the conventional broad school-enterprise cooperation forms and establishes the cooperation mechanism of resource sharing, talent education and joint improvement between schools and enterprises. [6] We will use the concept of innovation and entrepreneurship to build a new platform for school-enterprise cooperation, and encourage students to develop their own innovation and entrepreneurship projects through the platform.

5. Conclusion

This paper discusses the cultivation of college students' innovation consciousness and ability, focuses on breaking through the traditional research, and realizes the new development and improvement of the innovation cultivation path. The primary task of institutions of higher learning is to cultivate talents. Only by cultivating a large number of college students with excellent innovation consciousness and innovation ability, can all the teaching work start and end. This paper has a certain guiding role and application value for colleges and universities, and can enhance the timeliness of cultivating innovative talents in colleges and universities.

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