The research on the cultivation of college students' innovation ability based on academic competition

Yuchen Wei1,*, Ningning Zhao2, and Liling Ge1

1 School of Materials Science and Engineering, Xi'an University of Technology, Xi'an 710048, China
2 Department of Applied Chemistry, Xi'an University of Technology, Xi'an 710048, China

Abstract. The innovation ability of college students is becoming more and more important in the world. But most students are lack of the ability. At the same time, the traditional teaching program colleges provided can’t give students enough exercise of this kind of ability. In this way, faculty should improve the teaching program to help students build their innovation ability. There are many roads to achieve this goal but the most useful way is the academic competition. The competition is a comprehensiveness program and students not only can improve their ability, but also have a higher level to thinking. It will have great help to students in their future research and self-employed career.

1 Introduction

On October 12, 2021, The General Office of the State Council issued The Guiding Opinions on Further Supporting the Innovation and Entrepreneurship of College Students (hereinafter referred to as the Opinions). The Opinions pointed out: "college students are the new force for mass entrepreneurship and innovation, and it is of great significance to support college students' innovation and entrepreneurship. The Xi Jinping new era of socialism with Chinese characteristics will be used as a guide, fully implement the party's education policy, the implementation of education fundamental task, based on the new stage of development, carry out new development concept, build a new development pattern, adhere to the innovation leading entrepreneurship, entrepreneurship, create more employment opportunities, improve the quality of human resources, realize college students more fully higher quality employment.”

General Secretary Xi Jinping also delivered an important speech at the 2021 Central Talents Work Conference, proposing to "accelerate the building of a world's important talent center and innovation highland"[1]. As an important talent resource of the country, whether college students can develop enough innovative consciousness and innovative thinking in the university stage will not only play an important role in their own future development, but also is closely related to the national strategies such as "strengthening
China through talents", "rejuvenating the country through science and education" and "rural revitalization"[2].

2 The necessity of cultivating college students' innovation ability

2.1 The inevitable requirement of quality education

Strengthening the innovation ability cultivation of college students is conducive to improving college students' innovation and entrepreneurship ability and comprehensive quality. The university should investigate ability of students, the corresponding comprehensive quality and ability training program should formulated based on the characteristics of the college students' personal ability and their future development needs. Through diversified innovation and entrepreneurship education, we can improve students' innovation ability and consciousness, improve their professional ability and accomplishment in practice, and finally improve the comprehensive ability and quality of college students in an all-round way[3].

2.2 The changing career prospects

Current employment prospects become more and more complex, under this background to do innovative entrepreneurship education, not only can enhance the students' comprehensive quality ability, at the same time can strengthen their innovation consciousness and improve their entrepreneurial skills. It also can help fully promote college students’ comprehensive ability, for their learning stage and the growth after graduation lay important foundation. Through the school's innovation and entrepreneurship ability cultivation, college students can choose the direction they are best at to carry out the corresponding entrepreneurial activities on the basis of following the actual development status of the society, and give full play to their own value in the innovation and entrepreneurship activities, and effectively alleviate the severe social employment pressure.

3 The problems existing in the current innovation ability cultivation

3.1 Students' innovation consciousness is insufficient

As young people, college students have wide field of vision and flexible thinking, for new knowledge new form has a good acceptance ability, adaptability and participation of the Internet is high. But in the innovation entrepreneurship consciousness is weak, in a state of passive acceptance, cannot actively use the knowledge innovation entrepreneurship, also not combine innovative entrepreneurial knowledge and their own employment together. Although some students have the idea of innovation and entrepreneurship, they are lack of relevant knowledge reserve. In this way, they cannot actively participate in relevant activities.

3.2 Students' comprehensive quality is unbalanced

Nowadays, with the rapid development of the world, the social requirements for students' comprehensive quality are also becoming higher and higher, and the traditional training methods have gradually been unable to meet the needs of innovative and comprehensive
talents. Especially according to the existing university training system, students in the university mainly focus on professional knowledge, but the university course time is limited. And different teachers are responsible for different professional courses, lead to the weak link between the specialized courses, knowledge fragmentation phenomenon is more serious. It is difficult to get into a system of knowledge system. In this way, there are not only certain obstacles in practical application, but also negative effects in scientific research. Needless to say, it is difficult to learn from the school when students are about to conduct innovation and entrepreneurship activities.

4 The method of training innovation ability

4.1 Build up the relevant knowledge system

In practice, it is found that cultivating students to build a perfect knowledge system can not only improve students’ learning efficiency, but also strengthen students’ innovation ability and provide help for innovation and entrepreneurship. This requires faculty to keep up with the development trend of internationalization and informatization, and to carry out continuous innovation in teaching methods. Especially at the faculty level, as a direct maker of the student training plan, faculty should keep up with the trend of world and improve the cultivation of students’ innovation ability from the system.

First of all, the faculty should establish knowledge system in the overall training program. In terms of the top-level structure, it makes the knowledge acquired by students more clear, the structure more complete, and helps students to establish a macro understanding from a higher perspective of market demand, academic research, and professional development.

Secondly, we should open innovative education and teaching courses, systematically and scientifically cultivate students' innovative consciousness and innovative thinking. At the same time, actively explore and excavate innovative educational elements in other courses[4]. The development of professional technology and scientific and technological innovation are often inseparable. In professional courses, students can be encouraged to think more, ask more, and communicate more in the professional content, so as to exercise students’ analytical ability and critical ability, increase students’ innovative thinking, and guide students to view problems and society from the perspective of innovation. The college should also organize the teachers of different professional courses to increase the communication, and strengthen the connection between different professional courses, so that students can better integrate and sort out their knowledge system through such a communication.

In addition to professional courses, teaching can also be integrated with the second classroom. Through the latest achievements of subject development, teachers can not only stimulate students’ desire to explore new knowledge, new technology and new development. Also can cultivate students’ sense of autonomy. It also require students to actively participate in academic research, not only can better understand the way of academic research, lay the foundation for future study. At the same time, participate in these research can arouse the enthusiasm of students, promote students to achieve mastery of professional knowledge, cultivate students’ innovative thinking, inspire students advocating science, the pursuit of truth of noble emotion, improve the students’ comprehensive quality.

Finally, the faculty should provide more practical opportunities for students, as the test and final practice of students’ innovation and entrepreneurship training, so that students can combine theory with practice, and modify their knowledge system through the feedback of
practice. This requires the faculty to pay more attention to the discipline competition, increase the participation of the discipline competition, publicity degree, and build more platforms for students to participate in the discipline competition. Teachers can integrate their own research projects with students’ teaching, help students practice and explore in the learning process, and feedback themselves.

4.2 Cultivate the spirit and consciousness of innovation

As the most important source for students to obtain policy information, the faculty should actively cultivate students’ awareness of innovation through various forms. For example, through theoretical study, social practice, offline salon and other forms, students can discuss their professional development prospects from their own perspective, and establish their own learning goals and career planning. At the same time, the faculty should guide students to establish a correct world outlook, life outlook and scientific research concept in the training plan. And encourage students to establish an active self-awareness. Faculty also need adjust the professional curriculum structure, help students change mentality, and providing scientific research, academic exchange platform, visit the practice experience to change students’ subjective consciousness, passive to active. Then faculty should stimulate the students’ innovation consciousness, let the students feel the sense of innovation and a sense of achievement in advance, cultivate the students’ innovation ability. In particular, various discipline competitions can enable students to better combine what they have learned with innovation and entrepreneurship, and establish their own perfect knowledge system. Thus with the students’ professional learning to achieve a complementary effect, and finally can let the students to achieve better results.

4.3 Publicize relevant policy information

With the development of social economy and the continuous change of employment situation, the country has attached more importance to innovation and entrepreneurship, and many relevant policies have been introduced. However, due to the identity characteristics of college students. As a result, college students are often faced with such problems in the specific process of innovation and entrepreneurship, and the final good results are very few.

The faculty should give full play to its own advantages, connect with all aspects, and play a good role of communication bridge. Every year, the government have a series of preferential policies for innovation and entrepreneurship, such as preferential taxes, guaranteed loans, settlement procedures and so on. Universities will also carry out relevant special lectures, industry forums, ability competitions and other professional activities. Faculty to timely comb integration, will be related to this major students policy and activities information to students, help students comb the key points, analysis of the situation, guide students to take an active part in innovation activities, summarizes the experience of predecessors rational entrepreneurship, guide entrepreneurship with innovation, entrepreneurship to promote employment opportunities, make innovation entrepreneurship education not only stay in form, but really implement into action. The discipline competition is the integration of the relevant policy information. By participating in the discipline competition, students will consciously and actively deepen the relevant policy information into their personal internal and guiding theories. At the same time, they will combine theory with practice, and learn and use it effectively in the competition.
4.4 Provide a platform for innovation and practice

College students’ academic science and technology activities is the second classroom activity system of organic composition, generally include science and technology project training, social research, academic technology competition, academic science lectures, science exhibition propaganda, and other forms of content. The academic science and technology competition in the core position, is the main carrier of students’ innovation practice ability exercise. The academic science and technology competition of college students generally refers to a series of activities that "on the basis of closely combining students with classroom teaching, stimulate the motivation of combining theory with practice and independent exploration by means of competition, and cultivate students’ interest in learning and enhance their self-learning confidence through the process of discovering and solving problems". In recent years, as the "Internet +" college students’ innovation entrepreneurship competition, "challenge cup" and "create youth" series of competition such as high level of college students’ innovation entrepreneurship competition, college students’ academic technology competition in university discipline development, comprehensive strength and improve students’ quality ability training lead and supporting role increasingly prominent. Therefore, make full use of science creative competition platform carrier, help students’ comprehensive quality training, speed up the innovation entrepreneurship education system construction, cultivate innovative talents that meet the demand of world has become an important subject of colleges and universities and research.

The faculty should building a practice platform, which can not only provide students with a better practical vision, but also can use the influence of the environment on college students’ innovation and entrepreneurship, guide students’ development direction, standardize students’ behavior, and stimulate students’ innovative consciousness. At the same time, it can cultivate a good sense of cooperation and team spirit, which is crucial for the growing and developing college students. In addition, good community activities can also provide important help to students in the process of innovation and entrepreneurship, especially playing an important role in learning to recognize, learning to do things, learning to survive, and learning to serve. Faculty should encourage students to join more social organizations that they are interested in, share their experience. So that every idea that can burst out. Finally, academic exchange is also an important part of innovation practice. Communication makes progress. By organizing students to conduct research and exchange with excellent innovation and entrepreneurship groups, more practical guidance methods can be obtained. The combination of experience and practice can achieve twice the result with half the effort.

5 The implementation effect of innovation ability training

In the past three years, under the negative influence of the decrease in the number of discipline competitions and the shortening of the holiday training time. The overall quality of students has been continuously increased by continuously deepening the cultivation of students' innovation ability and professional quality. The specific situation is shown in Figure 1. Especially in 2022, when the number of the national first prize and the second prize of the college has increased significantly. Freshmen have made zero breakthrough in national competitions such as Advanced Mapping Technology and Product Information Modeling Innovation Competition.
6 Conclusion

Today, under the influence of the epidemic, both the normal teaching planning of schools and the work of students have been seriously affected. However, today, how to cultivate new talents with innovative ability for the country has further become the key to university education. With its comprehensive, practical and innovative characteristics, the discipline competition provides a brand-new training idea for faculty under the current environment. The faculty should pay more attention to discipline competition, encourage students to participate in discipline competition through all-round system construction, practice what they have learned in the competition, give full play to their personal potential, strengthen innovation consciousness, improve innovation ability, and lay a good foundation for future scientific research and learning and personal career development.

This work was financially supported by the Education and Teaching Reform Research Project of Xi’an University of Technology (Nos: xjy2103, xjy2102), the Research Project on Postgraduate Education and Teaching Reform of Xi’an University of Technology (Nos. 252042033, 252042029), the Education and Teaching Reform Research Project of Xi’an University of Technology (Nos. xqj2119, 251032205).

References