Study on Current Situation Analyzing and Countermeasure of Innovative Ability Education of College Students

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Abstract. Innovation is the core competitiveness of a country, and it is the power of a country’s prosperity and development. The colleges and universities are the main base of innovative talents training, which task is to cultivate the high-quality talents with innovative spirit and innovative ability to meet the social needs. The innovative ability training is the important content of the colleges and universities in China. Based on summarizing the characteristics of cultivating innovative ability of foreign university students, analyzing the current situation and some problems of cultivating innovative ability of college and university students in China, some countermeasures and suggestions, including changing education concept, optimizing innovation educational resources, establishing innovative thinking system, strengthening construction of academic societies, are put forward to improve the students’ innovative spirit and innovative ability.

Introduction

In today’s highly competitive society, the key competitiveness of a country is the creative spirit and entrepreneurial capacity. Innovation is the spirit of a nation progress and it is the invariable force of a country’s prosperity. In 2015, the Chinese government work report put forward the idea of “Mass entrepreneurship and innovation”, and regarded the “innovation” as one of the engines of China’s economic development. Building an innovation-oriented country is a major strategic decision of the overall socialist modernization.

The nature of innovation is to try, explore and think the unknown problems and fields, and to put forward and find the way to solve the questions. If there is stronger desire to seek difference and Innovation, the desire to seek different, there is stronger motivation to innovate, so as to give full play to the potential of creation. The innovation is the ability of individuals to propose new theories, new concepts, new inventions, new technologies, and to create new products.

Higher education is the main way of knowledge innovation, dissemination and application, and it is also the base for cultivating innovative spirit and innovative talents. The main task of higher education is to cultivate high-quality talents capable of adapting to the economic and social development and leading the economic and social development [1]. In the process of building an innovation-oriented country, the colleges and universities should also play an important role in providing comprehensive personnel support. Therefore, how to cultivate the innovation ability of the university students is the new requirement of constructing the innovation country for the higher education and universities.

Innovation refers not only to scientific and technological inventions, but also to the introduction of science and technology to enterprises and to form new production capacity. Innovation is essentially the acquisition and creation of new knowledge, and its cornerstone is practice. At present, the college students are facing unprecedented opportunities and challenges, they are eager to develop themselves and improve themselves. Therefore, the self-development characterized by innovation ability is the main need of college students.

In the face of the severe situation of the shortage of innovative talents, it is urgent to explore and practice boldly in the teaching reform of higher education, and to find an effective way to cultivate innovative talents. Making the cultivation of innovation spirit and innovation ability as the focus of
innovative education is not only the need to meet the challenges of knowledge economy, promote economic and social development and improve the comprehensive national strength, but also the inevitable countermeasures of solving the problem of not attach importance to the creative of creativity in China’s education.

**The Characteristics of Cultivating Innovation Ability of Foreign University Students**

Since the 1970s, the universities in developed countries have witnessed a wave of reform and development of innovative education. In the reform and practice of higher education, all the countries have made great efforts to train students’ innovation ability and innovation spirit. There are several main features as follows.

**Establish Innovation Base and Focus on Innovation Practice**

The ideal college students should not study the textbooks in classroom all day, the phenomenon of passive learning should be completely changed. The graduation results cannot be completely measured by the classroom test. The evaluation focus should be the operational capability and the innovative consciousness [2].

The American universities set up innovation centers, place the students in the practice environment, guide students to invent and create, and enhance their imagination and creativity.

**Establish Incentive Mechanism, Encourage and Support College Students to Participate in Scientific Research Activities**

The developed countries pay particular attention to the function of scientific research training for the creating methods and spiritual cultivation of college students. It is suggested that the students should participate in scientific research activities in their spare time [3].

For example, Germany issued “College students’ scientific research grants system” which encouraged and supported college students to participate in research activities.

The UK Government launched the “Higher Education Innovation Fund” which combined the higher education, enterprises and the communities. The system supports all kinds of science and technology networks around the university, as well as all kinds of specialized institutions, which effectively promotes the formation of high-tech network around the Universities.

**Pay Attention to the Close Cooperation between University and Industry**

The United States has built more than 1000 various types of cooperation research centers between university and industry, which provide cooperation research and innovation stage for scientific and innovation talents. The government and industry provide research funding. The college-enterprise cooperation plays an important role in the innovation ability training for students.

**Focus on Both Inside and Outside Class**

In the innovation education, the colleges of the United States take the students as the center, combine inside class with outside class, combine science and humanities, combine teaching and research, effectively integrate theory and practice to form innovative talents training mode.

**The Current Situation of Cultivating Innovation Ability Training of Chinese University Students**

In a series of major strategies of developing the country through science, strengthening the country through talents and building an innovation-oriented country, the colleges bear the important task of cultivating a large number of innovative talents. Since the 1990s, the high education reform in China has strengthened students’ innovative ability. The innovative education practice and innovative talents training mode in China has achieved some results after years of efforts, but there are also some problems.
The Innovation Awareness Is Not Strong and Not Good at Full Using and Actively Creating Conditions

Innovation consciousness is the internal driving force of innovation activity, which is the conscious awareness, strong desire and positive emotion of individual in the innovation activity. The innovation consciousness of college students is mainly manifested by whether they can consciously dominate themselves to carry out practice activities [4].

The students in China lack the necessary innovation education and the effect of traditional culture. They are affected by the exam-oriented education, and the teachers ignore the inspiration and guidance in teaching, so the students lack risk-taking spirit, innovation awareness and initiative.

Lack of Innovation Knowledge Base and the Ability of Grasping Discipline Development Dynamic

Most of the professional settings in China are similar, the teaching plans and curriculum are also similar. The interdisciplinary is not enough, the universities attach not enough attention to the transfer of relevant discipline knowledge [5].

The opportunities for students access to development forefront is less, knowledge update is slow. The students are only contented with the existing knowledge, not accustomed to initiative explore, so the knowledge backward station is formed and the innovation of ability of active is not strong.

Affected by the Traditional Thinking, Lack of Innovation Spirit

The backward teaching ideas and un-innovative teaching methods made the college students be easy to form dependent psychology, and the thinking way lack flexibility and comprehensive. Most college students are influenced by mindset, and have the tendency believing in the authority and lack of innovation.

Weak Innovation Ability and Poor Innovation Achievement

Limited by education funds and teaching facilities, the students lack of opportunities to apply theory to practice, which affects the innovation ability and the innovation achievement of students [6].

Thus, the present situation of innovation ability of college students in China is not completely satisfactory. The training of innovation spirit and innovation ability should be taken as the focus of innovative education, which is not only the need of meeting the challenges of knowledge economy, promoting economic and technological development and improving the comprehensive national strength, but also the inevitable countermeasures that our education neglects the creative training.

Analysis of the Innovative Ability Cultivation of College Students

Under the current social background, the college students’ cultivation of innovation ability has become the most important task in the college development and reform. For the university, an innovative student should have strong innovative sense, innovative spirit, and innovative ability. It should achieve a certain degree of innovation, and cultivate more innovative university graduates. So the engineering profession should take the following for education reform.

Change the Education Concept and Reform Teaching Methods

After the higher education entering the popular stage, the social demand is also diversified. The college teaching should focus on the innovative quality cultivating, actively explore ways of high quality innovative talent.

In order to reflect the times, openness, diversity and comprehensiveness, the student-centered participatory teaching methods should be established, such as problem-based, discussion-based, argumentative, research, case-based, situational, clinic, and so no, which can stimulate independent thinking and innovation awareness of the students and cultivate the exploration spirit and problem-solving ability.
Optimize the Innovation Educational Resources

The universities should break the profession settings and create an innovative environment and innovation atmosphere, encouraging students to select courses crossing profession with the principle of “side-caliber, heavy-based”, expanding horizons and developing their innovation ability. All kinds of laboratories should be opened and the professional teachers should be equipped to guide to use the laboratory equipment.

The new thinking and methods of solving problems should be learned and the sense of innovation be strengthened to courage students to innovate. The innovative culture and spirit should be cultured, the relaxed atmosphere should be created and the environment inclusive failure should be created to form a good environment in favor of innovative sense and ability culture.

Guide Students to Establish Innovative Thinking System

Innovation requires students’ practice and action, and requires college education to help position students early and build correct thinking system and innovative development idea. In the process of training the students’ practice ability, the college cannot only pursue the number of innovative achievement, but improve innovative ability through scientific and technological innovation.

Strengthen the Construction of Academic Societies and Interest Groups

The training process should fully reflect the basic needs of the individualized education, elite education and comprehensive development education [7-8]. The use and innovation of second classroom should be strengthened, to enrich students’ extra activities, make students learn more academic, scientific and technological skills.

A group of high-quality teachers with professional and technical knowledge should be cultivated, to counsel the academic community and interest group, understand the students’ interest tend, give full attention to the students’ subjective consciousness and personality differences, and develop their own learning and creative ability.

Conclusions

In the current society, the most urgent and scare is innovative talent, and the college is the largest base of talent innovation education. Presently, the innovative ability development of college students is not optimistic. The innovative ability level of college students will affect the achievements of the Chinese nation rejuvenation, therefore, it is very important to cultivate their innovative ability.

For this purpose, the students should establish their own innovation sense, improve the overall quality, expand knowledge, play a subjective initiative and improve the comprehensive understanding. On the other hand, the college should recognize the necessity of training the students’ innovative ability, establish and improve the management and incentive mechanism for the innovation ability training, to create a good platform for students’ comprehensive and individual development. The teachers should lead students to form correct understanding of innovation, guide the innovation development and promote the cultivation of innovative talents.

Therefore, in the critical period of further developing high-level education, the whole society should concentrate on upgrading the level of innovation education and deepening the system reform to cultivate a large number of high-quality talents with innovation spirit and innovation ability.

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