

An analysis of strategies for improving the innovation ability of engineering college students in the new era-- A case study of mechanical engineering students

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Abstract: Innovation is the primary driving force for a country's development. Under the background of the new era, the international competition is increasingly fierce, so it is necessary to develop the independent innovation ability to improve the national core competitiveness. At present, with the continuous development of China's science and technology industry, the social demand for engineering students is also increasing. Therefore, it plays a vital role in cultivating the innovation ability of engineering college students. In this paper, namely, major in mechanical engineering students, for example, the new era of students' innovation ability to promote the value of significance, analyzed the current restricts the students' innovation ability, and puts forward a new era of engineering college students' innovation ability promotion strategy, in order to promote the engineering college students about innovation ability promotion related research.

Keywords: Engineering students; Innovation ability; Mechanical engineering; Promotion strategy

1. Introduction

Under the background of the new era, the innovation ability of engineering college students refers to the ability of engineering college students to participate in various practical activities in the process of ability cultivation, and to continuously provide new ideas, new theories and invention ability with economic value, social value and ecological value.^[1] Today's world competitiveness is not so much the competition of economic strength as the competition of scientific and technological innovation and talent creation. Mechanical engineering major is a set of mechanical manufacturing, electronic information technology, programming and other interdisciplinary major, its students are able to improve the country's technical level and innovation ability of the compound talents. This paper mainly takes the students of mechanical and electronic engineering as an example to analyze how to promote the cultivation of innovation ability of engineering college students.

2. The value and significance of the innovation ability improvement of engineering college students in the new era

In recent years, China's science and technology have advanced by leaps and bounds, and innovative products and achievements have emerged constantly, which have not only promoted China's economic development and social progress, but also brought unprecedented changes to people's lives. The improvement of the development level of science and technology depends on high-quality science and technology talents, cannot leave the innovation and entrepreneurship spirit of all kinds of engineering personnel, and cannot leave the education and teaching of engineering college students. Under the background of new era, the development of science and technology of a new generation of engineering college students had higher requirements and positioning, how to grasp the development of the global times in the new era, to promote science and technology innovation in science and technology development in our country on the road more walk more far, this needs the government, society and schools will coordination and lead the right development direction, promote education innovation mode in the new period.^[2]

First, from the perspective of individual students, cultivating the innovation ability of engineering college students is an inevitable choice to enhance their competitiveness and solve their employment problems. Take mechanical engineering students as an example. During their study in colleges and universities, mechanical engineering students will start from learning theoretical knowledge, and when

they master certain basic theoretical knowledge, they will form their own innovative thinking. Once the innovative thinking is formed, it will promote the improvement of individual scientific research ability and practical level. With the improvement of students' personal level, they will be able to adapt to environmental changes and social needs more quickly, so as to better realize their life value.

Secondly, from the national point of view, cultivating the innovation ability of engineering college students is the need of building an innovative country. The development of mankind since ancient times is inseparable from innovation, that is, the essence of human civilization is the result of innovation. The cultivation of engineering college students' innovation ability in the new period is the most important and reliable factor to improve national independent innovation ability. Starting from the young generation of college students can make the country of scientific and technological innovation go further and further.^[3]

Thirdly, from the social point of view, to cultivate and improve students' innovation ability, can not only solve the problem of employment of college students themselves to, to provide more innovative talents for the society, and through the engineering college students self-employment, able to provide certain jobs and social positions, it can promote society as a whole in the largest effective innovation, For the early realization of the rejuvenation of the Chinese nation has important significance of The Times and development.

3. The restricting factors of engineering college students' innovation ability

In the new era, the restriction factors of engineering college students' innovation ability promotion mainly include the unstable basic knowledge structure, the lack of independent innovation consciousness and the lack of practical development platform.

3.1. The basic knowledge structure is not solid

The innovation ability of engineering college students is directly proportional to the theoretical knowledge and professional skills they have learned.^[4] Taking mechanical engineering college students as an example, according to relevant survey results, some students with good theoretical knowledge and professional skills can be well transformed into practical operation ability in practical application, so as to stimulate their own innovation potential. However, for some students who do not have a solid grasp of basic theoretical knowledge, or do not know the basic skills of practical operation, they often have poor hands-on ability in the process of practice, or cannot clearly distinguish the specific mechanical operation process or process, so they are unable to transform their technical knowledge into innovation ability. In addition, the most important thing is that some students will have too high an eye and too low a hand when learning theoretical knowledge and professional skills, which is more likely to affect the development of individual innovation ability due to the unstable structure of basic knowledge.

3.2. Lack of awareness of independent innovation

At present, with the development of economic globalization and China's technological prowess, China gradually from "made in China" to "Chinese wisdom" in the direction of the development of college students is increasingly on the identity of the spirit of innovation, but for contemporary college students, just to know that we need to have the innovative spirit, to improve the innovation ability, And how to practice, how to improve the problem has become the college students must face and solve the problem. From the perspective of college students themselves, this kind of problems are mainly caused by the lack of awareness of independent innovation. Secondly, although some college students have the idea of innovation and entrepreneurship, they are in a state of "strong and weak" innovation consciousness due to their unclear goals and weak action motivation in college, as well as the incapability of school facilities or management policies.

3.3. Lack of practical development platform

The most important point for universities to cultivate the innovation ability of engineering college students is to carry out practical teaching according to the specialty characteristics of students. Taking mechanical and electronic engineering as an example, students of this major need to cultivate their practical ability on the basis of learning theoretical knowledge, and the school must have a supporting practice base to meet the cultivation of students' innovative ability and practical ability. However, according to relevant investigation, some schools have cooperation mechanism with enterprises under

the policy of industry-education integration, but offline training fails to guarantee the use of students, resulting in the phenomenon of "empty" innovation training base.^[5] Innovative practice development platform, including infrastructure, equipment, information platform, etc., from the mechanical engineering class students analysis, imperfect infrastructure, equipment is not complete, the construction of the information platform is not enough comprehensive factors such as, all these caused the engineering college students' innovative ability in the new period to form, to cultivate the innovation ability of college students in practice.

4. Strategies for improving the innovation ability of engineering college students in the new era

The strategies to enhance the innovation ability of engineering college students in the new era can be explored and practiced concretely from the aspects of improving the concept and method of course teaching, stimulating the cultivation and application of innovative thinking, and innovating the content and method of social practice.

4.1. The idea and method of improving course teaching

In the process of cultivating college students' innovation ability, colleges and universities should change their teaching ideas and teachers should renew their teaching methods so as to improve teaching efficiency. First, colleges and universities should change the training concept, strengthen the teacher-led, student-centered teaching principle, use interactive teaching methods, enhance the communication and interaction between teachers and students, and create a good teaching atmosphere. For example, in the teaching of students majoring in mechanical engineering, teachers and students can adopt the interoperability of learning, and communicate with teachers during the actual operation of machinery, so as to achieve high-quality teaching. Secondly, teachers attach importance to the gap between knowledge accumulation and knowledge application of engineering college students in the teaching process. Therefore, teachers can combine their own teaching mode to narrow the gap to improve teaching level and enhance students' comprehensive ability. Third, teachers need to use new media teaching technology, through the video, pictures, increase the teaching content is instructive, cause thinking, ideas and the exchange, stimulate students thinking and improve the students' enthusiasm and initiative, internalized knowledge, knowledge structure, stress to make the students willing to think, to promote students to update, change of consciousness.

4.2. Stimulate the cultivation and application of innovative thinking

At present, engineering college students generally have the basic cognition and understanding of innovative thinking, and have a strong thirst for knowledge. In order to better stimulate students' innovation consciousness and improve their innovation ability, we need to start from the following points: First, focus on the cultivation of students' innovation consciousness, stimulate students' potential, make students interested in engineering knowledge, so as to mobilize students' enthusiasm for independent innovation. Second, create a good innovation environment and innovation atmosphere, building innovative channels and platforms, such as for innovation entrepreneurship competition, setting up innovative projects, conducting scientific research innovation competition, expand academic exchanges, hatch innovation team, etc., to provide a better environment for students, so as to improve their thinking in the active exercise consciousness, promote the innovation ability of ascension.^[6] Thirdly, enterprises need to strengthen the cooperation mode of talent training with colleges and universities, so that engineering students can feel the social environment and market demand in advance, so as to promote the development of college students in a better direction.

4.3. Innovate the content and methods of social practice

One of the disadvantages of traditional education mode is that it emphasizes theoretical study and ignores the importance of social practice, which leads to students having knowledge but no practical ability. As the saying goes, innovation comes from practice, from the sublimation of practical perception and practical experience. Engineering students should do so, but mechanical engineering students should do so even more, they should transform the theoretical knowledge into practical guidance, and deepen their understanding of the knowledge in practice. So as to better promote the promotion of innovation ability. Taking mechanical engineering students as an example, if such students are only limited to the study of theoretical course knowledge, do not combine with social practice, and do not know how to

apply their innovative consciousness and ability to all aspects of real life, they can not really grasp the real connotation of innovation.^[7]

5. Conclusions

Innovation ability is the core of improving the overall quality and realizing the overall development of college students. So as to provide technical talents for the development of modern science and technology. Only by constantly improving the entrepreneurial ability of college students, can China always be in the forefront of the world development and truly move towards the road of the world's science and technology development country.

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