Exploration and Practice of Innovation and Entrepreneurship Teaching System in Chinese Science and Technology Universities

Liang Long [1, a], Yali Gu[1, b], Jun Cai [2, c]

[1] Guizhou Institute of Technology, Guiyang 550003, China

[2] Guizhou Zhongfu Gezhi Engineering Technology Co., LTD Guiyang 550003, China

[a] longliang@vip.qq.com, [b] 78guyali@163.com, [c] 2374295886@qq.com

Abstract. In recent years, Chinese universities have put forward the education paradigm of new engineering construction, encouraged university education to cultivate college students' innovative spirit and entrepreneurial ability, and put forward a high-quality development path for promoting the reform of talent training mode and improving the quality of talent training. This article for engineering talent training teaching content and enterprise needs, practice teaching link is weak, professional ability assessment way is not perfect and professional education and double gen education fit low problem, through the student quality ability measurement, curriculum system, teacher team, practice platform, student team reconstruction, explore a set of line and effective practice teaching mode, and constantly improve and actively promote.

Keywords: Chinese Science and Technology Universities; Teaching System; Innovation and Entrepreneurship.

1. Introduction

In 2016, General Secretary Xi Jinping pointed out at the National Conference on Ideological and Political Work in Colleges and Universities that "our need for higher education is more urgent than ever before, and our thirst for scientific knowledge and outstanding talents is stronger than ever before." The cross and integrated development of information technology, biotechnology, new energy technology and new material technology has triggered a new scientific and technological revolution and new industrial transformation, and encouraged the construction of emerging engineering majors. The new engineering paradigm is the result of the traditional engineering education paradigm that the engineering scientific and technological talents cannot adapt to the industrial reform. Zhong Denghua (2017) believes that the main path of new engineering construction is inheritance and innovation, crossover and integration, coordination and sharing. Li Maoguo et al. (2017) proposed that the new engineering education paradigm can be summarized as the paradigm of "fusion innovation". He Ping (2020) emphasizes the characteristics of new engineering cross-integration, engineering practice and innovation.

On September 11,2020, General Secretary Xi Jinping proposed at the symposium of scientists that education should be given a more important position, comprehensively improve the quality of education, and pay attention to cultivating students' innovative awareness and innovative ability. "Mass entrepreneurship and innovation" has been regarded as one of the "twin engines" of China's economic development under the new normal. The work of "mass entrepreneurship and innovation" in colleges and universities is now in full swing. This brings the innovation and entrepreneurship education under the background of new engineering to a new height, and it is of great significance to promote the reform of talent training mode and improve the quality of colleges and universities to carry out the work of talent training in colleges and universities.

2. Difficulties in Innovation and Entrepreneurship Practice Teaching in Colleges of Science and Technology

At present, innovation and entrepreneurship education has achieved a lot of practical results. The advantages of innovation ability are shaped through the practical teaching system, and the practical teaching model is built based on project operation to promote the cultivation of innovative talents. There are mainly problems such as disconnection between teaching content and enterprise demand in undergraduate talent training, weak practical teaching links, imperfect assessment method of professional ability, and low compatibility between professional education and mass entrepreneurship education. Therefore, a practical teaching system of innovation and entrepreneurship in new engineering should be established based on the cultivation of talents' innovation consciousness and entrepreneurial ability, with knowledge, ability and quality structure as the core. Deepen the reform of the system and mechanism of training new engineering talents, vigorously promote and deepen the integration of industry and education, school-enterprise cooperation and collaborative education, effectively improve the ability of personnel training, and promote the reform and innovation of practical teaching of innovation and entrepreneurship.

3. Construction of Practical Teaching System in Colleges and Universities of Science and Technology

Centering on the three dimensions of college students' knowledge, quality and ability, the goal is to cultivate students' quality and ability of entrepreneurship and innovation. Adhere to the project orientation, improve student practice; Results-oriented, improve the teaching level; To improve the teaching system with the guidance of cooperation; Expand students' skills with the orientation of mass entrepreneurship and innovation. Under the four horizontal guiding principles, the vertical implementation of the five content construction, truly realize the "enterprise needs, students learn", continuously strengthen the effect of practical education, and comprehensively promote the high-level construction and high-quality development of new engineering major in application-oriented undergraduate colleges.

3.1 Based on the Competency Model, The Measuring System of Students' Quality and Ability is Constructed

Based on the competency model of engineers, the competency measurement system of new engineering students is integrated and reconstructed. Centering on the competency requirements of engineering consulting and engineering construction enterprises for undergraduate talents in science and engineering universities, the competency and vocational ability education of engineers is strengthened from three dimensions of knowledge, quality and ability, and the competency measurement system of new engineering students is constructed. Carry out the quality and ability test with the students as the center, evaluate and improve the deficiency of students' quality and ability training, so as to improve the level of students' competence.

3.2 The Construction of Practical Teaching Curriculum System Should be Reconstructed with Double Integration as the Driving Force

Guided by the idea of " Three-wide education", there is no blind spot in innovative education. Through the implementation of the "full coverage, whole process and all-round" education mechanism of entrepreneurship and innovation, research and explore the guidance paradigm of innovative practice projects; Jointly carry out "enterprise formulation class" with enterprises; Taking the reform of new engineering education as an important opportunity and seizing the development opportunity of the industry, we will gradually promote multiple cooperation modes such as training of technology application skills in science and technology, and jointly build personnel training

mechanisms and modes through dual integration, so as to form a characteristic practical teaching curriculum system based on quality and ability matrix.

3.3 Results-oriented, to Build a Practical Teaching Team

In terms of engineering practice, in order to make up for the lack of production practice in teaching links, enterprises provide students with close contact with cutting-edge engineering technology opportunities through cooperation. In the practical courses, enterprise tutors are introduced, and systematic teacher training and learning plans are formulated according to the actual situation of various teachers, so as to improve the business and teaching level of existing teachers and actively respond to the challenges brought by the development of new economy and new technology, and to cultivate versatile teachers who quickly adapt to various positions and directions, so as to effectively expand the scale of enterprise tutors.

3.4 Guided by Project Output, We Will Build an Experimental Practice Teaching Platform Together

Oriented by project output, it integrates and reconstructs related courses of new engineering majors, forms a practical teaching system based on experimental practice teaching platform of core subject courses, with professional practice as the main body and basic practice and innovative practice as two wings, and builds a "project" teaching module based on platform courses. The systematic practical teaching system of new engineering major is formed, which is "promoted by platform, linked by majors, interactive by courses and driven by practice", and the students are trained to strengthen their engineering application ability and practical innovation ability.

3.5 With Entrepreneurship and Innovation Education as the Leading, We Will Build Students' Scientific Innovation Practice Team

CWith entrepreneurship and innovation education as the leading, entrepreneurship and innovation mentors graded and classified, students' science and innovation teams centered on students' interests and talents, students' science and innovation teams oriented to multiple disciplines of the university, students' associations based on engineering technology training, innovation project teams based on innovation project practice and entrepreneurial practice teams based on achievement transformation, etc. We will realize the integrated development of entrepreneurship and innovation education and professional education.

4. Conclusion

Before the practice teaching of production-teaching integration, it is necessary to clarify the educational objectives and engineer competency model, so as to guide the students' career development and training direction. Build a platform for collaboration between industry and education, provide practical opportunities for students and a platform for contact between enterprises, so as to facilitate communication and interaction between students and enterprises, and promote cooperation and exchange between enterprises and universities. Design practical and innovative courses and programs based on industry needs and engineer competency models to develop students' professional literacy and practical ability. The introduction of a mentor system, the introduction of a mentor system to provide personalized guidance and support for students, but also to strengthen the links and cooperation between students and enterprises. Establish a scientific evaluation system, evaluate and feedback students' professional ability and project results, and provide guidance and help for students' career development. In the process of practical teaching, we will accumulate experience and achievements, summarize and expand them in time, and provide reference for other universities and enterprises.

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