

Innovation and Entrepreneurship Education Reform of Engineering Talents in Application-Oriented Universities Based on Cross-Border Integration

Yongyan Zhao¹, Bakhrom Rajabov^{2,*}, Qi Yang¹

¹College of Humanities and Law, Harbin University, Harbin 150086, China

²School of Transportation and Logistics, Southwest Jiaotong University, Chengdu 610031, China

*Corresponding author e-mail: bahrom.rajabov.2014@mail.ru

ABSTRACT: *The Cross-Border Integration of innovation and Entrepreneurship Education for engineering talents in application-oriented universities plays an important role in deepening the reform of engineering education, promoting the cultivation of engineering talents, adapting to the industrial transformation and upgrading and the innovation of business forms, and is of great practical value has become one of the most important characteristics and development trends in the field of engineering education. Its cross-border integration is characterized by the cross-border integration of disciplines, industry and education, schools and international cooperation. To strengthen the cross-border integration of innovation and Entrepreneurship Education for engineering talents, it is necessary to adhere to the demand orientation, enhance the consciousness of cross-border integration, innovate the mechanism and system to enhance the impetus of cross-border integration, improve the training system and enhance the capacity of cross-border integration.*

Keywords: *Engineering Talents; Innovation and Entrepreneurship Education; Integration of Industry and education*

1. Introduction

With the upgrading of the new round of industrial revolution and technological revolution, traditional higher education has been difficult to meet the requirements of the rapid development of the Times. Higher Education is facing the urgent need for reform personnel training also from the past knowledge and skills-based talent to

innovation and entrepreneurship-based talent change. Innovation and Entrepreneurship Education has entered the 2.0 era since the 1.0 era. With the development of The Times, innovation and entrepreneurship education keeps upgrading and changing requirements of The Times. Lin huiqing, vice minister of the ministry of education, pointed out in the video conference on work deployment of the first China "Internet +" college students innovation and entrepreneurship competition in 2015 that "most new forms of business on the Internet have distinct 'cross-border' characteristics". Li yanrong, President of the university of electronic science and technology of China and an academician of the Chinese academy of engineering, pointed out that "Internet +" innovation and entrepreneurship education "+" is cross-border, is to cross the boundaries of innovation, cross-innovation [1]. Nowadays, cross-border integration has become a new term in the development of the times, and the new features of talent cultivation, as a bridge of innovation and Entrepreneurship Education, which influences this profound change, have undoubtedly played a role. The cultivation of engineering talents is just the best example of the cultivation of innovative and pioneering talents in universities. In recent years, new engineering, new agricultural, new liberal arts and other hot words have been reported, in a new round of university personnel training hot. In April 2017, China proposed the construction and development of "new engineering disciplines". As far as the training of engineering talents is concerned, the main approaches are mainly embodied in the cross and integration, coordination and sharing of Engineering Talents. Its means is mainly reflected in the shift from discipline-oriented to industrial demand-oriented, from professional segmentation to cross-border integration [2]. This undoubtedly points out the way forward for the innovation and entrepreneurship education reform of engineering talents in our country. The combination of science and education, the integration of production and education, the cross-border integration and the joint training of talents can adapt to the new business form of economic development and the new form of International Development. This has put forward higher request to the engineering technology talented person training.

2. Problems of innovation and Entrepreneurship Education for Engineering Talents

Experts and scholars at home and abroad have done a lot of research on the innovation and Entrepreneurship Education of current engineering talents, However,

there are few researches on the cross-border integration, the problems are mainly reflected in the innovation and entrepreneurship education, the construction of curriculum system, the activities of practical education and the support of social innovation and entrepreneurship environment. Therefore, although the innovation and Entrepreneurship Education of Engineering talents in colleges and universities has been reformed and practiced for many years, there are still many problems, such as:

2.1 The correlation between innovation and Entrepreneurship Education and disciplines is not high

The Education of innovation and entrepreneurship focuses on the cultivation of students' innovative thinking, questioning and critical spirit, the quality of daring to innovate and try, self-management, team cooperation and practical ability. The development of these abilities involves the general education, Liberal Education and innovation and entrepreneurship education in the applied undergraduate education system. However, some colleges and universities still lack the correct understanding of the connotation of innovation and entrepreneurship education, and equate innovation and Entrepreneurship Education with innovation and entrepreneurship activities. The construction of the curriculum system for innovative and Entrepreneurial Education of Engineering and technical talents is not perfect, and some schools even copy it mechanically regardless of the characteristics and actual conditions of their disciplines and specialties, which is out of line with the disciplines and specialties, not to mention cross-disciplinary integration[3]. How to strengthen the integration of innovative entrepreneurship education and Professional Education? How to strengthen the cross-integration between disciplines and specialties? How to strengthen and sublimate innovation and entrepreneurship education in the process of professional education? There is a lack of substantive action to address these issues.

2.2 The integration of Engineering Education and Industry Education is not strong

The integration of industry and education is an important means to promote the all-round integration of supply-side and demand-side structural factors of talent cultivation and cultivate high-quality innovative talents. It is difficult for the innovation and Entrepreneurship Education of Engineering talents to truly meet the actual needs of the industry. There are Information asymmetry between talent

cultivation and industry demand. The integration of Industry and education is still on the surface, the practice and exploration of talent cultivation are insufficient, the creative elements of real significance are not much. In addition, teachers are short of practical experience in engineering and lack of practical tests, which directly leads to students' weak practical ability and weak sense of innovation.

3. The cross-border integration of innovation and Entrepreneurship Education Reform of Engineering Talents in applied undergraduate colleges and universities

Cross-border integration is the essence of innovation and entrepreneurship, cross-border first needs both sides to open to each other, integration is not only the simple integration of various elements, but also the deep integration of various elements. As far as the education of innovation and entrepreneurship for engineering talents is concerned, the cross-border integration shows that the boundaries between disciplines, specialties, education and industry, etc. Tend to become blurred, and the various elements are constantly penetrating into each other. In short, there are several main ways:

3.1 Cross-disciplinary integration

The cross-border integration of disciplines and specialties is the basis of innovation and Entrepreneurship Education for Engineering Talents. With the rapid development of science and technology, the trend of interdisciplinary integration is becoming increasingly obvious and widespread. The Education of innovation and Entrepreneurship of Engineering and technical talents should meet the needs of the development of science and technology, and continuously integrate new disciplines and new knowledge that have been formed across disciplines and specialties. And in the talent training program to be reflected. First, we should strengthen the construction of specialty system which is deeply integrated with the elements of innovation and Entrepreneurship Education, set up the specialty or specialty direction which meets the requirements of new business form, new industry and new model, and closely link up the industry chain and innovation chain. Second, we should take the professional education as the support, deeply excavate the innovation and entrepreneurship education elements of all kinds of professional courses, so as to construct the innovation and entrepreneurship education curriculum system covering all courses teaching; The third is to set up a new mechanism of training innovative and pioneering talents based on interdisciplinary and

cross-specialty, so as to realize the inter-disciplinary integration. In recent years, China's application-oriented universities and colleges have gradually set up a number of emerging cross-disciplinary disciplines, such as network engineering, robotics engineering, big data science and technology, artificial network technology, etc. Some of the traditional specialties have also integrated with the needs of the industry and opened up new contents, such as gradually increasing the proportion and hours of social sciences and humanities in the teaching of engineering.

3.2 Cross-boundary integration between midwifery and education

The cross-border integration between industry and education is an important way and an inevitable trend of innovation and Entrepreneurship Education for Engineering Talents. The innovation and Entrepreneurship Education of Engineering talents should be combined with economic and social development and resonate with the Times. We will open education to industry and society, fully integrate it into the overall development of local economy and society, update the contents of education in accordance with the needs of economic and social development, and achieve deep integration of Education with economy and Society for common development. First, cross-border collaborative innovation, application-oriented universities and industry two-way cross-border innovation, and jointly cultivate the industry needs personnel, and jointly cultivate multi-type, application-oriented, innovative personnel. Application-oriented universities do not cross-border industries, industries do not cross-border universities, teachers do not cross-border industries, engineers do not cross-border universities, co-innovation between production and education is only a slogan, can never be implemented into concrete practice. Second, we should build disciplines and specialties together across borders, starting from the market and industrial needs, and from the angle of complementary or even cross and integration of hard and soft conditions, to set up professional and professional groups that meet the needs of new industries and new markets. Third, cross-border personnel training should be carried out. Application-oriented universities should incorporate professional qualification standards into professional personnel training standards, and industry and enterprise standards into professional construction standards, in line with the professional certification standards for engineering education Integrating the enterprise core technical standards into the professional core curriculum standards, and focusing on the cultivation of students' engineering practice ability, actively attracting industry experts with rich

engineering practice experience to set up professional and curriculum teaching teams together, school-enterprise cooperation should be established in teaching management, professional leaders and student tutors of secondary teaching units.

4. Conclusion

With the globalization of China's economic construction and the steady implementation of the " Belt and Road " strategy, the full implementation. How to face the industry, the world and the future is a problem to be considered in the cultivation of engineering talents. The cross-border integration of innovation and Entrepreneurship Education for Engineering talents is an inevitable trend of deepening the reform of engineering talents, and it is also an inevitable trend of the development of the Times. We must adhere to the problem-oriented, release the innovation and entrepreneurship education vitality of application-oriented undergraduate universities, and enhance the motivation of engineering and technical personnel training. Not only need to optimize the specialty of university discipline construction mechanism, keep and the development of the emerging industrial convergence ability and vitality, more in need of the optimal allocation of social resources and diverse forces together, to establish open and cooperative governance mechanism, thus advancing the engineering technical personnel innovation entrepreneurship education "cross-border integration" of the resultant force.

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